

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

FORM 10-Q

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

For the quarterly period ended June 30, 2020

OR

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

For the transition period from _____ to _____

Commission File Number 001-36407

ALNYLAM PHARMACEUTICALS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

77-0602661
(I.R.S. Employer
Identification No.)

675 West Kendall Street,
Henri A. Termeer Square
Cambridge, MA
(Address of Principal Executive Offices)

02142
(Zip Code)

(617) 551-8200
(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, \$0.01 par value per share	ALNY	The Nasdaq Stock Market LLC

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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

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

At July 31, 2020, the registrant had 115,969,783 shares of Common Stock, \$0.01 par value per share, outstanding.

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"Alnylam," ONPATTRO®, GIVLAARI®, Alnylam Act® and Alnylam Assist® are registered trademarks of Alnylam Pharmaceuticals, Inc. Our logo, trademarks and service marks are property of Alnylam. All other trademarks or service marks appearing in this Quarterly Report on Form 10-Q are the property of their respective holders.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the federal securities laws, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 and are including this statement for purposes of complying with those safe harbor provisions. All statements other than statements of historical facts contained in this Quarterly Report on Form 10-Q are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “could,” “expects,” “plans,” “intends,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue,” or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- risks related to the direct or indirect impact of the COVID-19 global pandemic or any future pandemic, such as the scope and duration of the pandemic, government actions and restrictive measures implemented in response, material delays in diagnoses of rare diseases, initiation or continuation of treatment for diseases addressed by our products, or in patient enrollment in clinical trials, potential clinical trial, regulatory review and inspection or supply chain disruptions, and other potential impacts to our business, the effectiveness or timeliness of steps taken by us to mitigate the impact of the pandemic, and our ability to execute business continuity plans to address disruptions caused by the COVID-19 or any future pandemic;
- our views with respect to the potential for RNAi therapeutics, including ONPATTRO, GIVLAARI, lumasiran, patisiran, inclisiran, vutrisiran and fitusiran;
- our plans for additional global regulatory filings and the continuing product launches of ONPATTRO and GIVLAARI;
- our expectations regarding the advancement of lumasiran and inclisiran through regulatory review and toward the market;
- the progress of our research and development programs;
- our current and anticipated clinical trials and expectations regarding the reporting of data from these trials;
- our expectations regarding potential market size for, and the successful commercialization of, ONPATTRO, GIVLAARI or any future products, including lumasiran and inclisiran;
- the timing of regulatory filings and interactions with or actions or advice of regulatory authorities, which may affect the design, initiation, timing, continuation and/or progress of clinical trials or result in the need for additional pre-clinical and/or clinical testing or the timing or likelihood of regulatory approvals;
- our ability or, with respect to inclisiran, our partner’s ability, to obtain and maintain regulatory approval, pricing and reimbursement for ONPATTRO, GIVLAARI or any future products, including lumasiran and inclisiran;
- the status of our manufacturing operations and the construction of our manufacturing facility and any delays, interruptions or failures in the manufacture and supply of ONPATTRO, GIVLAARI, lumasiran, inclisiran, or any of our other product candidates by our contract manufacturers or by us;
- our progress continuing to build and leverage global commercial infrastructure;
- successfully launching, marketing and selling our approved products globally;
- our ability to successfully expand the indication for ONPATTRO in the future;
- the possible impact of any competing products on the commercial success of ONPATTRO and GIVLAARI and our product candidates, including lumasiran and inclisiran, and, with respect to inclisiran, our partner’s ability to compete against such products;
- our ability to manage our growth and operating expenses;
- our expectations regarding our STAr pipeline growth strategy and our ability to meet or exceed our *Alnylam 2020* guidance for the advancement and commercialization of RNAi therapeutics;
- our expectations regarding the length of time our current cash, cash equivalents and marketable debt and equity securities will support our operations based on our current operating plan;
- our belief that the funding provided by our strategic financing collaboration with The Blackstone Group Inc. and certain of its affiliates should enable us to achieve a self-sustainable profile without the need for future equity financing;
- our dependence on third parties for development, manufacture and distribution of products;

- our expectations regarding our corporate collaborations, including potential future licensing fees and milestone and royalty payments under existing or future agreements;
- obtaining, maintaining and protecting our intellectual property;
- our ability to attract and retain qualified key management and scientists, development, medical and commercial staff, consultants and advisors;
- the outcome of litigation or other legal proceedings;
- the risk of government investigations;
- regulatory developments in the United States, or U.S., and foreign countries;
- the impact of laws and regulations;
- developments relating to our competitors and our industry; and
- other risks and uncertainties, including those listed under the caption Part II, Item 1A, "Risk Factors" of this Quarterly Report on Form 10-Q.

The risks set forth above are not exhaustive. Other sections of this Quarterly Report may include additional factors that could adversely affect our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time and it is not possible for management to predict all risk factors, nor can we assess the impact of all risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Any forward-looking statements in this Quarterly Report on Form 10-Q reflect our current views with respect to future events and with respect to our business and future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those described under Part II, Item 1A, "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future. You are advised, however, to consult any further disclosure we make in our reports filed with the SEC.

This Quarterly Report on Form 10-Q may include data that we obtained from industry publications and third-party research, surveys and studies. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. This Quarterly Report on Form 10-Q also may include data based on our own internal estimates and research, including estimates regarding the impact of the COVID-19 pandemic on our financial statements and business operations. Our internal estimates have not been verified by any independent source and, while we believe any data obtained from industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data. Such third-party data, as well as our internal estimates and research, are subject to a high degree of uncertainty and risk due to a variety of factors, including those described in Part II, Item 1A, "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q. These and other factors could cause our results to differ materially from those expressed in this Quarterly Report on Form 10-Q.

ALNYLAM PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)
(Unaudited)

	June 30, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 580,829	\$ 547,178
Marketable debt securities	1,258,425	975,017
Marketable equity securities	86,310	13,967
Accounts receivable, net	69,115	43,011
Inventory	77,418	56,348
Prepaid expenses and other current assets	88,349	80,343
Total current assets	2,160,446	1,715,864
Property, plant and equipment, net	439,126	425,179
Operating lease right-of-use assets	229,674	221,197
Restricted investments	24,725	14,825
Receivable related to the sale of future royalties	500,000	—
Other assets	20,396	18,069
Total assets	\$ 3,374,367	\$ 2,395,134
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 26,125	\$ 49,884
Accrued expenses	211,186	197,201
Operating lease liability	33,447	27,688
Deferred revenue	107,587	77,821
Liability related to the sale of future royalties	5,957	—
Total current liabilities	384,302	352,594
Operating lease liability, net of current portion	281,618	276,135
Deferred revenue, net of current portion	281,530	318,383
Liability related to the sale of future royalties, net of current portion	1,008,336	—
Other liabilities	18,855	9,330
Total liabilities	1,974,641	956,442
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Preferred stock, \$0.01 par value per share, 5,000 shares authorized and no shares issued and outstanding as of June 30, 2020 and December 31, 2019	—	—
Common stock, \$0.01 par value per share, 250,000 shares authorized; 115,647 shares issued and outstanding as of June 30, 2020; 112,188 shares issued and outstanding as of December 31, 2019	1,156	1,122
Additional paid-in capital	5,520,320	5,201,176
Accumulated other comprehensive loss	(33,212)	(36,518)
Accumulated deficit	(4,088,538)	(3,727,088)
Total stockholders' equity	1,399,726	1,438,692
Total liabilities and stockholders' equity	\$ 3,374,367	\$ 2,395,134

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

ALNYLAM PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(In thousands, except per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Statements of Operations				
Revenues:				
Net product revenues	\$ 77,533	\$ 38,231	\$ 149,471	\$ 64,522
Net revenues from collaborations	26,429	6,483	53,967	13,486
Total revenues	103,962	44,714	203,438	78,008
Operating costs and expenses:				
Cost of goods sold	19,929	4,326	33,231	7,673
Research and development	154,996	163,890	324,567	293,017
Selling, general and administrative	127,896	112,769	254,657	202,377
Total operating costs and expenses	302,821	280,985	612,455	503,067
Loss from operations	(198,859)	(236,271)	(409,017)	(425,059)
Other income:				
Interest expense	(27,248)	—	(27,248)	—
Interest income	3,165	8,781	8,645	16,306
Other income (expense)	45,039	(453)	68,071	(410)
Change in fair value of liability obligation	—	9,422	—	9,422
Total other income	20,956	17,750	49,468	25,318
Loss before income taxes	(177,903)	(218,521)	(359,549)	(399,741)
Provision for income taxes	(1,326)	(960)	(1,901)	(1,655)
Net loss	\$ (179,229)	\$ (219,481)	\$ (361,450)	\$ (401,396)
Net loss per common share - basic and diluted	\$ (1.56)	\$ (2.02)	\$ (3.18)	\$ (3.75)
Weighted-average common shares used to compute basic and diluted net loss per common share	114,911	108,576	113,830	106,997
Statements of Comprehensive Loss				
Net loss	\$ (179,229)	\$ (219,481)	\$ (361,450)	\$ (401,396)
Other comprehensive (loss) income:				
Unrealized (loss) gain on marketable debt securities	(1,796)	462	2,249	822
Foreign currency translation	571	842	911	842
Defined benefit pension plans, net of tax	72	(4,282)	146	(4,282)
Total other comprehensive (loss) income	(1,153)	(2,978)	3,306	(2,618)
Comprehensive loss	\$ (180,382)	\$ (222,459)	\$ (358,144)	\$ (404,014)

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

ALNYLAM PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance as of December 31, 2019	112,188	\$ 1,122	\$ 5,201,176	\$ (36,518)	\$ (3,727,088)	\$ 1,438,692
Exercise of common stock options, net of tax withholdings	976	9	54,212	—	—	54,221
Issuance of common stock under equity plans	4	—	—	—	—	—
Stock-based compensation expense related to equity-classified awards	—	—	34,578	—	—	34,578
Other comprehensive income	—	—	—	4,459	—	4,459
Net loss	—	—	—	—	(182,221)	(182,221)
Balance as of March 31, 2020	113,168	1,131	5,289,966	(32,059)	(3,909,309)	1,349,729
Exercise of common stock options, net of tax withholdings	1,233	12	91,861	—	—	91,873
Issuance of common stock under equity plans	283	3	5,298	—	—	5,301
Issuance of common stock to strategic partners, net of closing costs	963	10	99,488	—	—	99,498
Stock-based compensation expense related to equity-classified awards	—	—	33,707	—	—	33,707
Other comprehensive loss	—	—	—	(1,153)	—	(1,153)
Net loss	—	—	—	—	(179,229)	(179,229)
Balance as of June 30, 2020	115,647	\$ 1,156	\$ 5,520,320	\$ (33,212)	\$ (4,088,538)	\$ 1,399,726

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

ALNYLAM PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance as of December 31, 2018	101,177	\$ 1,011	\$ 4,175,139	\$ (33,213)	\$ (2,840,972)	\$ 1,301,965
Exercise of common stock options, net of tax withholdings	207	3	11,406	—	—	11,409
Issuance of common stock under equity plans	4	—	(58)	—	—	(58)
Issuance of common stock under benefit plans	12	—	784	—	—	784
Issuance of common stock, net of costs	5,000	50	381,850	—	—	381,900
Stock-based compensation expense related to equity-classified awards	—	—	32,541	—	—	32,541
Other comprehensive income, net of tax	—	—	—	360	—	360
Net loss	—	—	—	—	(181,915)	(181,915)
Balance as of March 31, 2019	106,400	1,064	4,601,662	(32,853)	(3,022,887)	1,546,986
Exercise of common stock options, net of tax withholdings	203	2	6,180	—	—	6,182
Issuance of common stock under equity plans	55	—	4,022	—	—	4,022
Issuance of common stock under benefit plans	12	—	1,089	—	—	1,089
Issuance of common stock to strategic partners, net of closing costs	4,444	44	390,533	—	—	390,577
Stock-based compensation expense related to equity-classified awards	—	—	30,798	—	—	30,798
Other comprehensive loss, net of tax	—	—	—	(2,978)	—	(2,978)
Net loss	—	—	—	—	(219,481)	(219,481)
Balance as of June 30, 2019	111,114	\$ 1,110	\$ 5,034,284	\$ (35,831)	\$ (3,242,368)	\$ 1,757,195

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

ALNYLAM PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Six Months Ended June 30,	
	2020	2019
Cash flows from operating activities:		
Net loss	\$ (361,450)	\$ (401,396)
Non-cash adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	15,813	7,694
Amortization and interest accretion related to operating leases	18,971	18,584
Non-cash imputed interest expense on liability related to the sale of future royalties	27,248	—
Stock-based compensation	68,333	62,635
Unrealized gain on marketable equity securities	(69,643)	—
Change in fair value of liability obligation	—	(9,422)
Other	4,372	(1,924)
Changes in operating assets and liabilities:		
Accounts receivable, net	(26,099)	(11,934)
Proceeds from landlord lease incentive for tenant improvements	1,991	18,700
Inventory	(24,178)	(15,040)
Prepaid expenses and other assets	(13,560)	5,319
Accounts payable, accrued expenses and other liabilities	2,036	43,559
Deferred revenue	(7,090)	399,173
Operating lease liability	(18,235)	(15,763)
Net cash (used in) provided by operating activities	(381,491)	100,185
Cash flows from investing activities:		
Purchases of property, plant and equipment	(36,275)	(65,293)
Purchases of marketable debt securities	(1,140,421)	(834,563)
Sales and maturities of marketable securities	859,354	713,106
Purchases of restricted investments	(9,900)	—
Other investing activities	(300)	—
Net cash used in investing activities	(327,542)	(186,750)
Cash flows from financing activities:		
Proceeds from exercise of stock options and other types of equity, net	151,512	21,641
Proceeds from the sale of future royalties	500,000	—
Proceeds from issuance of common stock to strategic partners, net of closing costs	99,498	400,000
Proceeds from public offering, net of costs	—	381,900
Payment of transaction costs related to sale of future royalties and term loan facility	(8,128)	—
Net cash provided by financing activities	742,882	803,541
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(196)	(3)
Net increase in cash, cash equivalents and restricted cash	33,653	716,973
Cash, cash equivalents and restricted cash, beginning of period	549,628	422,631
Cash, cash equivalents and restricted cash, end of period	\$ 583,281	\$ 1,139,604
Supplemental disclosure of noncash investing and financing activities:		
Capital expenditures included in accounts payable and accrued expenses	\$ 6,402	\$ 25,893
Lease liabilities arising from obtaining right-of-use assets	\$ 15,077	\$ 1,728
Receivable and liability related to the sale of future royalties	\$ 500,000	\$ —

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

ALNYLAM PHARMACEUTICALS, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. NATURE OF BUSINESS

Alnylam Pharmaceuticals, Inc. (also referred to as Alnylam, we, our or us) commenced operations on June 14, 2002 as a biopharmaceutical company seeking to develop and commercialize novel therapeutics based on RNA interference, or RNAi. We are committed to the advancement of our company strategy of building a multi-product, global, commercial biopharmaceutical company with a deep and sustainable clinical pipeline of RNAi therapeutics for future growth and a robust, organic research engine for sustainable innovation and great potential for patient impact. Since inception, we have focused on discovering, developing and commercializing RNAi therapeutics by establishing and maintaining a strong intellectual property position in the RNAi field, establishing strategic alliances with leading pharmaceutical and life sciences companies, generating revenues through licensing agreements, and ultimately developing and commercializing RNAi therapeutics globally, either independently or with our strategic partners. We have devoted substantially all of our efforts to business planning, research, development, manufacturing and early commercial efforts, acquiring, filing and expanding intellectual property rights, recruiting management and technical staff, and raising capital.

In August 2018, we received approval for ONPATTRO from the United States Food and Drug Administration, or FDA, and began commercializing and generating product revenues in the U.S., and also received marketing authorization for ONPATTRO from the European Commission, or EC. As of June 30, 2020, we have launched ONPATTRO in the U.S., Europe, Japan and in several additional countries. In November 2019, we received approval for GIVLAARI from the FDA and began commercializing and generating product revenues in the U.S. in December 2019. In March 2020, we received marketing authorization for GIVLAARI from the EC, and as of June 30, 2020, we have launched GIVLAARI in several countries in Europe. Regulatory filings in additional markets are pending or planned for 2020 and beyond for both products.

In April 2020, we entered into a broad strategic financing collaboration with The Blackstone Group Inc. and certain of its affiliates which includes a purchase and sale agreement, a credit agreement, a stock purchase agreement, and potential funding for certain research and development activities, subject to completion of a definitive agreement, under which The Blackstone Group Inc., and certain of its affiliates, will provide up to \$2.00 billion to support our advancement of innovative RNAi therapeutics. Each executed agreement is a separate unit of account and was recorded at fair value. Please read Note 5, Note 9 and Note 10, respectively, for additional information regarding each executed agreement set forth above.

2. BASIS OF PRESENTATION AND PRINCIPLES OF CONSOLIDATION

The accompanying condensed consolidated financial statements of Alnylam are unaudited and have been prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP, applicable to interim periods and, in the opinion of management, include all normal and recurring adjustments that are necessary to state fairly the results of operations for the reported periods. Our condensed consolidated financial statements have also been prepared on a basis substantially consistent with, and should be read in conjunction with, our audited consolidated financial statements for the year ended December 31, 2019, which were included in our Annual Report on Form 10-K that was filed with the Securities and Exchange Commission on February 13, 2020. The year-end condensed consolidated balance sheet data was derived from our audited financial statements but does not include all disclosures required by GAAP. The results of our operations for any interim period are not necessarily indicative of the results of our operations for any other interim period or for a full fiscal year.

The accompanying condensed consolidated financial statements reflect the operations of Alnylam and our wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Our significant accounting policies are described in Note 2 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2019. Updates to our significant accounting policies, including the liability related to the sale of future royalties accounting policy, resulting from the execution of a purchase and sale agreement with certain affiliates of The Blackstone Group Inc., are discussed below.

Reclassification

Certain prior period amounts in the condensed consolidated financial statements have been reclassified to conform to the current period presentation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America, or GAAP, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, results of operations and financial condition, including sales, expenses, reserves and allowances, the supply of our products and product candidates, clinical trials and research and development costs,

ALNYLAM PHARMACEUTICALS, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

will depend on future developments that are highly uncertain, including as a result of new information that may emerge concerning COVID-19 and the actions taken to contain it or treat COVID-19, as well as the economic impact on local, regional, national and international customers and markets. We have made estimates of the impact of COVID-19 within our financial statements and there may be changes to those estimates in future periods. Actual results may differ from these estimates.

Liquidity

Based on our current operating plan, we believe that our cash, cash equivalents and marketable debt and equity securities as of June 30, 2020, together with the cash we expect to generate from product sales and under our alliances and strategic financing collaboration, will be sufficient to enable us to advance our long-term strategic goals for multiple years from the filing of this Quarterly Report on Form 10-Q.

Liability Related to the Sale of Future Royalties

We account for the liability related to the sale of future royalties as a debt financing, as we have significant continuing involvement in the generation of the cash flows. Interest on the liability related to the sale of future royalties will be recognized using the effective interest rate method over the life of the related royalty stream.

The liability related to the sale of future royalties and the related interest expense are based on our current estimates of future royalties and commercial milestones expected to be paid over the life of the arrangement. We will periodically assess the expected payments and to the extent the amount or timing of our future estimated payments is materially different than our previous estimates, we will account for any such change by adjusting the liability related to the sale of future royalties and prospectively recognizing the related non-cash interest expense.

Recently Adopted Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board, or FASB, issued new accounting guidance which requires entities to record expected credit losses for certain financial instruments, including trade receivables, as an allowance that reflects the entity's current estimate of credit losses expected to be incurred. For available-for-sale debt securities in unrealized loss positions, the new standard requires allowances to be recorded instead of reducing the amortized cost of the investment. The new standard became effective for us on January 1, 2020 and did not have a significant impact on our condensed consolidated financial statements and related disclosures.

In August 2018, the FASB issued amendments to accounting guidance that eliminate, add and modify certain disclosure requirements on fair value measurements. The new standard became effective for us on January 1, 2020 and did not have a significant impact on our condensed consolidated financial statements and related disclosures.

In August 2018, the FASB issued new accounting guidance to clarify the accounting for implementation costs in cloud computing arrangements (hosting arrangements). The new standard requires a customer in a cloud computing arrangement to determine which implementation costs to capitalize as assets or expense as incurred. Capitalized implementation costs related to a hosting arrangement that is a service contract will be amortized over the term of the hosting arrangement, beginning when the module or component of the hosting arrangement is ready for its intended use. The new standard became effective for us on January 1, 2020 and did not have a significant impact on our condensed consolidated financial statements and related disclosures.

In November 2018, the FASB issued new accounting guidance to clarify the interaction between the accounting guidance for collaborative arrangements and revenue from contracts with customers. The new standard became effective for us on January 1, 2020 using a retrospective transition method. This standard did not have a significant impact on our condensed consolidated financial statements and related disclosures.

In December 2019, the FASB issued amendments to accounting guidance that simplify the accounting for income taxes, as part of its initiative to reduce complexity in the accounting standards. The amendments eliminate certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The amendments also clarify and simplify other aspects of the accounting for income taxes. We early adopted the amendments as of January 1, 2020, on a prospective basis. The amendments did not have a significant impact on our condensed consolidated financial statements and related disclosures.

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3. NET PRODUCT REVENUES

Net product revenues consist of the following:

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
United States	\$ 40,929	\$ 28,192	\$ 83,399	\$ 46,952
Europe	25,357	10,039	46,523	17,570
Rest of World (primarily Japan)	11,247	—	19,549	—
Total	<u>\$ 77,533</u>	<u>\$ 38,231</u>	<u>\$ 149,471</u>	<u>\$ 64,522</u>

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
ONPATTRO	\$ 66,535	\$ 38,231	\$ 133,199	\$ 64,522
GIVLAARI	10,998	—	16,272	—
Total	<u>\$ 77,533</u>	<u>\$ 38,231</u>	<u>\$ 149,471</u>	<u>\$ 64,522</u>

The following table presents the balance of our receivables related to our net product revenues:

(In thousands)	As of June 30, 2020	As of December 31, 2019
Receivables included in “Accounts receivable, net”	\$ 59,250	\$ 28,082

4. NET REVENUES FROM COLLABORATIONS

Net revenues from collaborations consist of the following:

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Regeneron Pharmaceuticals (Regeneron)	\$ 15,413	\$ 700	\$ 34,916	\$ 700
Vir Biotechnology (Vir)	6,448	1,091	12,964	2,019
The Medicines Company (MDCO)	3,878	—	4,938	1,745
Sanofi Genzyme (Sanofi)	373	4,383	373	8,500
Other	317	309	776	522
Total	<u>\$ 26,429</u>	<u>\$ 6,483</u>	<u>\$ 53,967</u>	<u>\$ 13,486</u>

The following table presents the balance of our receivables and contract liabilities related to our collaboration agreements:

(In thousands)	As of June 30, 2020	As of December 31, 2019
Receivables included in “Accounts receivable, net”	\$ 9,865	\$ 14,929
Contract liabilities included in “Deferred revenue”	\$ 152,258	\$ 153,117

The following table presents revenue recognized as a result of changes in contract liability related to our collaboration agreements:

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Amounts included in contract liability at the beginning of the period	\$ 16,826	\$ 1,091	\$ 31,504	\$ 2,019

In order to determine revenue recognized in the period from contract liabilities, we first allocate revenue to the individual contract liability balance outstanding at the beginning of the period until the revenue exceeds that balance. If additional

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consideration is received on those contracts in subsequent periods, we assume all revenue recognized in the reporting period first applies to the beginning contract liability as opposed to a portion applying to the new consideration for the period.

The following table provides research and development expenses incurred by type, for which we recognize net revenue, that are directly attributable to our collaboration agreements, by collaboration partner:

(In thousands)	Three Months Ended June 30,					
	2020			2019		
	Clinical Trial and Manufacturing	External Services	Other	Clinical Trial and Manufacturing	External Services	Other
Regeneron	\$ 2,784	\$ 24	\$ 12,632	\$ 515	\$ 51	\$ 425
Vir	1,039	157	3,599	248	12	211
MDCO	—	—	278	65	—	10
Sanofi	199	12	165	2,945	81	34
Total	\$ 4,022	\$ 193	\$ 16,674	\$ 3,773	\$ 144	\$ 680

(In thousands)	Six Months Ended June 30,					
	2020			2019		
	Clinical Trial and Manufacturing	External Services	Other	Clinical Trial and Manufacturing	External Services	Other
Regeneron	\$ 7,396	\$ 24	\$ 24,123	\$ 515	\$ 51	\$ 425
Vir	1,378	209	5,292	542	248	340
MDCO	998	—	544	1,677	10	60
Sanofi	199	29	396	7,771	216	93
Total	\$ 9,971	\$ 262	\$ 30,355	\$ 10,505	\$ 525	\$ 918

The research and development expenses incurred for each agreement listed in the table above consist of costs incurred for (i) clinical and manufacturing expenses, (ii) external services including consulting services and lab supplies and services, and (iii) other expenses, including professional services, facilities and overhead allocations, and a reasonable estimate of compensation and related costs as billed to our counterparties, for which we recognize net revenue from collaborations. For the three and six months ended June 30, 2020 and 2019, we did not incur material selling, general and administrative expenses related to our collaboration agreements.

Product Alliances

Vir Biotechnology, Inc.

In October 2017, we and Vir Biotechnology, Inc., or Vir, entered into a collaboration and license agreement, or the Vir Agreement, for the development and commercialization of RNAi therapeutics for infectious diseases, including chronic hepatitis B virus, or HBV, infection.

Pursuant to the Vir Agreement, we granted to Vir an exclusive license to develop, manufacture and commercialize ALN-HBV02 (VIR-2218), for all uses and purposes other than certain excluded fields, as set forth in the Vir Agreement. In addition, we granted Vir an exclusive option for up to four additional RNAi therapeutic programs for the treatment of infectious diseases. Under the terms of the Vir Agreement, for each product arising from the HBV program, including ALN-HBV02, we retain the right to opt into a profit-sharing arrangement prior to the start of a Phase 3 clinical trial. In addition, we have the right on a product-by-product basis with respect to each additional infectious disease program that Vir elects to pursue, to opt into a profit-sharing arrangement for each such product at any time during a specified period prior to the achievement of clinical proof of concept for each such product.

Pursuant to the Vir Agreement, Vir paid us an upfront fee of \$10.0 million and issued to us 1,111,111 shares of its common stock. Under the Vir Agreement, we may also receive milestone payments upon the achievement of certain development, regulatory and commercial milestones, as well as royalties on the net sales of licensed products, if any, ranging from high-single-digit to sub-teen double-digit percentages. In March 2020, we achieved a development milestone relating to ALN-HBV02 and earned a \$15.0 million cash milestone and 1,111,111 shares of Vir's common stock, which were received in the

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second quarter of 2020. In June 2020, we achieved a \$10.0 million milestone payment from Vir related to Vir's sublicensee option exercise on ALN-HBV02. Due to the uncertainty of pharmaceutical development and the high historical failure rates generally associated with drug development, we may not receive any additional milestone payments or any royalty payments under the Vir Agreement.

In March and April 2020, we entered into amendments to the Vir Agreement to expand our collaboration to include the development and commercialization of RNAi therapeutics targeting SARS-CoV-2, the virus that causes the disease COVID-19, along with three additional targets focused on human host factors for SARS-CoV-2, including angiotensin converting enzyme-2, or ACE2 and transmembrane protease, serine 2, or TMPRSS2, and potentially a third mutually selected host factor target. Under the Vir amendments, we and Vir will each be responsible for pre-clinical development costs incurred by each such party in performing its allocated responsibilities under an agreed-upon initial pre-clinical development plan. We and Vir will equally share costs incurred in connection with the manufacture of non-GMP drug product required for pre-clinical development prior to filing an IND for the first product in the coronavirus program. Vir will lead all development and commercialization of any selected development candidates. At clinical proof of concept, we will have an option to share equally in the profits and losses associated with the development and commercialization of the coronavirus program. Alternatively, we may elect to earn development and commercialization milestones and royalties on net sales of products resulting from the collaboration in amounts agreed upon for the coronavirus program.

Unless terminated earlier in accordance with the terms of the agreement, the Vir Agreement expires on a licensed product-by-product and country-by-country basis upon expiration of all royalty payment obligations under the agreement. If Vir does not exercise its option for an infectious disease program, the Vir Agreement will expire upon the expiration of the applicable option period with respect to such program. However, if we exercise our profit-sharing option for any product, the term of the agreement will continue until the expiration of the profit-sharing arrangement for such product.

Either party may terminate the agreement in the event the other party fails to cure a material breach, or upon patent-related challenges by the other party. In addition, Vir has the right to terminate the agreement on a program-by-program basis or in its entirety for any reason on 90 days' written notice.

We identified one performance obligation under the Vir Agreement, as amended, comprised of: i) the exclusive license to develop, manufacture and commercialize RNAi therapeutics (including ALN-HBV02 and other infectious diseases); ii) the obligation to deliver four additional development candidates and supply product for each of the RNAi therapeutic programs for the treatment of infectious diseases; and iii) the obligation to deliver up to four development candidates and supply product for RNAi therapeutic programs targeting SARS-CoV-2. The license is not distinct from the services, including the obligation to deliver development candidates and supply product, as Vir cannot benefit on its own from the value of the license without receipt of such services and supply.

We measure proportional performance over time using an input method based on cost incurred relative to the total estimated costs for the identified performance obligation, on a quarterly basis, by determining the proportion of effort incurred as a percentage of total effort we expect to expend. This ratio is applied to the total transaction price. Management has applied significant judgment in the process of developing our estimates. Any changes to these estimates will be recognized in the period in which they change as a cumulative catch up. We re-evaluate the transaction price as of the end of each reporting period and as of June 30, 2020, the total transaction price was determined to be \$143.6 million, an increase of \$38.4 million from the transaction price of \$105.2 million as of March 31, 2020. As of June 30, 2020, the transaction price is comprised of the upfront payment, fair value of non-cash equity consideration at contract inception, milestones achieved and variable consideration related to development, manufacture and supply activities. The total transaction price is allocated entirely to the single performance obligation. We utilized the expected value method to determine the amount of reimbursement for these activities. We determined any variable consideration related to sales-based royalties and milestones related to the exclusive license to be constrained and therefore excluded such consideration from the transaction price.

As of June 30, 2020, the aggregate amount of the transaction price allocated to the performance obligation that was unsatisfied was \$103.7 million, which is expected to be recognized through the term of the Vir Agreement as the services are performed.

Regeneron Pharmaceuticals, Inc.

On April 8, 2019, we entered into a global, strategic collaboration with Regeneron Pharmaceuticals, Inc., or Regeneron, to discover, develop and commercialize RNAi therapeutics for a broad range of diseases by addressing therapeutic targets expressed in the eye and central nervous system, or CNS, in addition to a select number of targets expressed in the liver, which we refer to as the Regeneron Collaboration. The Regeneron Collaboration is governed by a Master Agreement, referred to as the Regeneron Master Agreement, which became effective on May 21, 2019, or the Effective Date. In connection with the Regeneron Master Agreement, we and Regeneron entered into (i) a binding co-co collaboration term sheet covering the continued development of cemdisiran, our C5 small interfering RNA, or siRNA, currently in Phase 2 development for C5

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complement-mediated diseases, as a monotherapy and (ii) a binding license term sheet to evaluate anti-C5 antibody-siRNA combinations for C5 complement-mediated diseases including evaluating the combination of Regeneron's pozelimab (REGN3918), currently in Phase 1 development, and cemdisiran. The C5 co-co collaboration and license agreements were executed in August 2019.

Under the terms of the Regeneron Collaboration, we are working exclusively with Regeneron to discover RNAi therapeutics for eye and CNS diseases for an initial five-year research period, which we refer to as the Initial Research Term. Regeneron has an option to extend the Initial Research Term (referred to as the Research Term Extension Period, and together with the Initial Research Term, the Research Term) for up to an additional two years, for a research term extension fee of up to \$400.0 million. The Regeneron Collaboration also covers a select number of RNAi therapeutic programs designed to target genes expressed in the liver, including our previously announced collaboration with Regeneron to identify RNAi therapeutics for the chronic liver disease nonalcoholic steatohepatitis. We retain broad global rights to all of our other unpartnered liver-directed clinical and pre-clinical pipeline programs. The Regeneron Collaboration is governed by a joint steering committee that is comprised of an equal number of representatives from each party.

Regeneron will lead development and commercialization for all programs targeting eye diseases (subject to limited exceptions), entitling us to certain potential milestone and royalty payments pursuant to the terms of a license agreement, the form of which has been agreed upon by the parties. We and Regeneron will alternate leadership on CNS and liver programs, with the lead party retaining global development and commercial responsibility. For CNS and liver programs, both we and Regeneron will have the option at lead candidate selection to enter into a co-co collaboration agreement, the form of which has been agreed upon by the parties, whereby both companies will share equally all costs of, and profits from, all development and commercialization activities under the program. If the non-lead party elects to not enter into a co-co collaboration agreement with respect to a given CNS or liver program, we and Regeneron will enter into a license agreement with respect to such program and the lead party will be the "Licensee" for the purposes of the license agreement. If the lead party for a CNS or liver program elects to not enter into the co-co collaboration agreement, then we and Regeneron will enter into a license agreement with respect to such program and leadership of the program will transfer to the other party and the former non-lead party will be the "Licensee" for the purposes of the license agreement.

With respect to the programs directed to C5 complement-mediated diseases, we retain control of cemdisiran monotherapy development, and Regeneron is leading combination product development. Under the C5 co-co collaboration agreement, we and Regeneron equally share costs and potential future profits on any monotherapy program. Under the C5 license agreement, for cemdisiran to be used as part of a combination product, Regeneron is solely responsible for all development and commercialization costs and we will receive low double-digit royalties and commercial milestones of up to \$325.0 million on any potential combination product sales. The C5 co-co collaboration agreement, the C5 license agreement, and the Master Agreement have been combined for accounting purposes and treated as a single agreement.

In connection with the Regeneron Master Agreement, Regeneron made an upfront payment of \$400.0 million. We are also eligible to receive up to an additional \$200.0 million in milestone payments upon achievement of certain criteria during early clinical development for eye and CNS programs. We and Regeneron plan to advance programs directed to up to 30 targets under the Regeneron Collaboration during the Initial Research Term. For each program, Regeneron will provide us with \$2.5 million in funding at program initiation and an additional \$2.5 million at lead candidate identification, with the potential for approximately \$30.0 million in annual discovery funding to us as the Regeneron Collaboration reaches steady state.

Regeneron has the right to terminate the Regeneron Master Agreement for convenience upon ninety days' notice. The termination of the Regeneron Master Agreement does not affect the term of any license agreement or co-co collaboration agreement then in effect. In addition, either party may terminate the Regeneron Master Agreement for a material breach by, or insolvency of, the other party. Unless earlier terminated pursuant to its terms, the Regeneron Master Agreement will remain in effect with respect to each program until (a) such program becomes a terminated program or (b) the parties enter into a license agreement or co-co collaboration agreement with respect to such program. The Regeneron Master Agreement includes various representations, warranties, covenants, dispute escalation and resolution mechanisms, indemnities and other provisions customary for transactions of this nature.

For any license agreement subsequently entered into, the licensee will generally be responsible for its own costs and expenses incurred in connection with the development and commercialization of the collaboration products. The licensee will pay to the licensor certain development and/or commercialization milestone payments totaling up to \$150.0 million for each collaboration product. In addition, following the first commercial sale of the applicable collaboration product under a license agreement, the licensee is required to make certain tiered royalty payments, ranging from low double-digits up to 20%, to the licensor based on the aggregate annual net sales of the collaboration product, subject to customary reductions.

For any co-co collaboration agreement subsequently entered into, we and Regeneron will share equally all costs of, and profits from, development and commercialization activities. In the event that a party exercises its opt-out right, the lead party will be responsible for all costs and expenses incurred in connection with the development and commercialization of the

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collaboration products under the applicable co-co collaboration agreement, subject to continued sharing of costs through defined points. If a party exercises its opt-out right, following the first commercial sale of the applicable collaboration product under a co-co collaboration agreement, the lead party is required to make certain tiered royalty payments, ranging from low double-digits up to 20%, to the other party based on the aggregate annual net sales of the collaboration product and the timing of the exercise of the opt-out right, subject to customary reductions and a reduction for opt-out transition costs.

Due to the uncertainty of pharmaceutical development and the high historical failure rates generally associated with drug development, we may not receive any milestone or royalty payments from Regeneron under the Regeneron Master Agreement, the C5 license agreement, or any future license agreement, or under any co-co collaboration agreement in the event we exercise our opt-out right.

Our obligations under the Regeneron Collaboration include: (i) a research license and research services, collectively referred to as the Research Services Obligation; (ii) a worldwide license to cemdisiran for combination therapies, and manufacturing and supply, and development service obligations, collectively referred to as the C5 License Obligation; and (iii) development, manufacturing and commercialization activities for cemdisiran monotherapies, referred to as the C5 Co-Co Obligation.

The research license is not distinct from the research services primarily as a result of Regeneron being unable to benefit on its own or with other resources reasonably available, as the license is providing access to specialized expertise, particularly as it relates to RNAi technology that is not available in the marketplace. Similarly, the worldwide license to cemdisiran for combination therapies is not distinct from the manufacturing and supply, and development service obligations, as Regeneron cannot benefit on its own from the value of the license without receipt of supply.

Separately, the cemdisiran monotherapy co-co collaboration agreement is under the scope of ASC 808 as we and Regeneron are both active participants in the development and manufacturing activities and are exposed to significant risks and rewards that are dependent on commercial success of the activities of the arrangement. The development and manufacturing activities are a combined unit of account under the scope of ASC 808 and are not deliverables under ASC 606.

The total transaction price is comprised of the \$400.0 million upfront payment and additional variable consideration related to research, development, manufacturing and supply activities related to the Research Services Obligation and the C5 License Obligation. We utilized the expected value method to determine the amount of reimbursement for these activities. We determined that any variable consideration related to sales-based royalties and milestones related to the worldwide license to cemdisiran for combination therapies is deemed to be constrained and therefore has been excluded from the transaction price. In addition, we are eligible to receive future milestones upon the achievement of certain criteria during early clinical development for the eye and CNS programs. We are also eligible to receive royalties on future commercial sales for certain eye, CNS or liver targets, if any; however, these amounts are excluded from variable consideration under the Regeneron Collaboration as we are only eligible to receive such amounts if, after a drug candidate is identified, the form of license agreement is subsequently executed resulting in a license that is granted to Regeneron. Any such subsequently granted license would represent a separate transaction under ASC 606.

We allocated the initial transaction price to each unit of account based on the applicable accounting guidance as follows, in thousands:

Performance Obligations	Standalone Selling Price	Transaction Price Allocated	Accounting Guidance
Research Services Obligation	\$ 130,700	\$ 183,100	ASC 606
C5 License Obligation	97,600	92,500	ASC 606
C5 Co-Co Obligation	364,600	246,000	ASC 808
		<u>\$ 521,600</u>	

The transaction price was allocated to the obligations based on the relative estimated standalone selling prices of each obligation, over which management has applied significant judgment. We developed the estimated standalone selling price for the licenses included in the Research Services Obligation and the C5 License Obligation primarily based on the probability-weighted present value of expected future cash flows associated with each license related to each specific program. In developing such estimate, we applied judgment in the determination of the forecasted revenues, taking into consideration the applicable market conditions and relevant entity-specific factors, the expected number of targets or indications expected to be pursued under each license, the probability of success, the time needed to develop a product candidate pursuant to the associated license and the discount rate. We developed the estimated standalone selling price for the services and/or manufacturing and supply included in each of the obligations, as applicable, primarily based on the nature of the services to be performed and/or goods to be manufactured and estimates of the associated costs. The estimated standalone selling price of the C5 Co-Co Obligation was developed by estimating the present value of expected future cash flows that Regeneron is entitled to

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receive. In developing such estimate, we applied judgment in determining the indications that will be pursued, the forecasted revenues for such indications, the probability of success and the discount rate.

For the Research Services Obligation and the C5 License Obligation accounted for under ASC 606, we measure proportional performance over time using an input method based on cost incurred relative to the total estimated costs for each of the identified obligations, on a quarterly basis, by determining the proportion of effort incurred as a percentage of total effort we expect to expend. This ratio is applied to the transaction price allocated to each obligation. Management has applied significant judgment in the process of developing our estimates. Any changes to these estimates will be recognized in the period in which they change as a cumulative catch up. We re-evaluate the transaction price as of the end of each reporting period and during the quarter ended June 30, 2020, there was no change to the transaction price calculated at December 31, 2019. For the C5 Co-Co Obligation accounted for under ASC 808, the transaction price allocated to this obligation is recognized using a proportional performance method. Revenue recognized under this agreement, inclusive of the amount allocated to the C5 Co-Co Obligation and future cost reimbursements, is accounted for as collaboration revenue.

The following table provides a summary of the transaction price allocated to each unit of account based on the applicable accounting guidance, in addition to revenue activity during the period, in thousands:

Performance Obligations	Transaction Price Allocated	Revenue Recognized During		Deferred Revenue		Accounting Guidance
	As of June 30, 2020	Three Months Ended June 30, 2020	Six Months Ended June 30, 2020	As of June 30, 2020	As of December 31, 2019	
Research Services Obligation	\$ 200,600	\$ 10,300	\$ 22,600	\$ 67,100	\$ 84,800	ASC 606
C5 License Obligation	108,500	—	—	65,800	65,800	ASC 606
C5 Co-Co Obligation	246,000	2,900	7,100	236,000	243,000	ASC 808
	<u>\$ 555,100</u>	<u>\$ 13,200</u>	<u>\$ 29,700</u>	<u>\$ 368,900</u>	<u>\$ 393,600</u>	

As of June 30, 2020, the aggregate amount of the transaction price allocated to the remaining Research Services Obligation and C5 License Obligation that was unsatisfied is \$265.5 million, which is expected to be recognized through the term of the Regeneron Collaboration as the services are performed. This amount excludes the transaction price allocated to the C5 Co-Co Obligation accounted for under ASC 808. Deferred revenue related to the Regeneron Collaboration is classified as either current or non-current in the condensed consolidated balance sheets based on the period the revenue is expected to be recognized.

The Medicines Company

In February 2013, we and The Medicines Company, or MDCO, entered into a license and collaboration agreement pursuant to which we granted to MDCO an exclusive, worldwide license to develop, manufacture and commercialize RNAi therapeutics targeting proprotein convertase subtilisin/kexin type 9, or PCSK9, for the treatment of hypercholesterolemia and other human diseases, including inclisiran. We refer to this agreement, as amended through the date hereof, as the MDCO License Agreement. Under the MDCO License Agreement, MDCO paid us an upfront cash payment of \$25.0 million. As of June 30, 2020, we have earned \$30.0 million of development milestones and upon achievement of certain events, we will be entitled to receive additional milestone payments, up to an aggregate of \$150.0 million, \$50.0 million in specified regulatory milestones and \$100.0 million in specified commercialization milestones. In addition, we will be entitled to royalties ranging from 10% up to 20% based on annual worldwide net sales, if any, of licensed products by MDCO, its affiliates and sublicensees, subject to reduction under specified circumstances. Due to the uncertainty of pharmaceutical development and the high historical failure rates generally associated with drug development, we may not receive any additional milestone payments or any royalty payments under the MDCO License Agreement.

The collaboration between us and MDCO is governed by a joint steering committee comprised of an equal number of representatives from each party.

In April 2016, we and MDCO entered into a supply and technical transfer agreement to provide for our supply of inclisiran to MDCO, in accordance with the terms of the MDCO agreement. MDCO now has the sole right and responsibility to manufacture and supply inclisiran for development and commercialization under the MDCO development plan, subject to the terms of the MDCO agreement and the supply and technical transfer agreement.

Unless terminated earlier in accordance with the terms of the agreement, the MDCO License Agreement expires on a licensed product-by-licensed product and country-by-country basis upon expiration of the last royalty term for any licensed product in any country, where a royalty term is defined as the latest to occur of (1) the expiration of the last valid claim of patent rights covering a licensed product, (2) the expiration of the Regulatory Exclusivity, as defined in the MDCO License Agreement, and (3) the twelfth anniversary of the first commercial sale of the licensed product in such country. We estimate

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that our fundamental RNAi patents covering licensed products under the MDCO License Agreement will expire both in and outside of the U.S. generally between 2016 and 2028. We also estimate that our inclisiran product-specific patents covering licensed products under the MDCO License Agreement will expire in the U.S., Europe, China and Japan in 2036 and elsewhere at the end of 2033. These patent rights are subject to potential patent term extensions and/or supplemental protection certificates extending such terms in countries where such extensions may become available due to regulatory delay. In addition, more patent filings relating to the collaboration may be made in the future.

We evaluated the MDCO License Agreement and concluded that MDCO meets the definition of a customer and that the MDCO License Agreement is a contract. We determined the transaction price, identified the performance obligations and allocated the transaction price to each performance obligation. We also determined that substantially all of our performance obligations are within the scope of the revenue standard as they relate to the delivery of goods and services to a customer for that customer's use in monetizing an asset. Specifically, we concluded that MDCO meets the definition of a customer as we are delivering intellectual property and know-how rights as well as research and development activities. In addition, we determined that the MDCO License Agreement met the requirements to be accounted for as a contract, including that it is probable that we will collect the consideration to which we are entitled in exchange for the goods or services that will be delivered to MDCO. We determined that, pursuant to the revenue standard, the performance obligations were not separately identifiable and were not distinct (and did not have standalone value) due to the specialized nature of the services to be provided by us and the dependent relationship between the performance obligations. Given this fact pattern, we have concluded the MDCO License Agreement has a single identified or combined performance obligation.

None of the unearned milestones are included in the transaction price, as all unearned milestone amounts are not considered likely of achievement and therefore constrained. We considered several factors, including that achievement of the milestones is outside our control and contingent upon success in clinical trials and regulatory decisions and the licensee's efforts. Any consideration related to sales-based royalties (including milestones) will be recognized when the related sales occur as they were determined to relate predominantly to the license granted to MDCO and as a result have also been excluded from the transaction price. During 2018, we completed the performance obligations identified in the MDCO License Agreement, including the supply and technical transfer agreement, however, we continue to receive additional orders for supply. We consider such orders as promised goods to be distinct from the other performance obligations since MDCO now has the ability to begin manufacturing on its own through its own vendors. Such option orders will be treated as separate agreements and any associated revenue will be recognized upon transfer of control.

On January 6, 2020, Novartis AG completed its acquisition of MDCO.

Sanofi Genzyme

On April 8, 2019, we and Sanofi Genzyme entered into an amendment to our 2014 Sanofi Genzyme collaboration, which we refer to as the Collaboration Amendment. Under the Collaboration Amendment, we and Sanofi Genzyme agreed to conclude the research and option phase under our collaboration agreement. In connection and simultaneously with entering into the Collaboration Amendment, we and Sanofi Genzyme also entered into the Amended and Restated ALN-AT3 Global License Terms with respect to ALN-AT3 (fitusiran) and certain back-up products, which we refer to as the A&R AT3 License Terms. The A&R AT3 License Terms amend and restate the ALN-AT3 Global License Terms entered into by us and Sanofi Genzyme in January 2018 to modify certain of the business terms. The material collaboration terms for fitusiran, as previously announced, will continue unchanged.

In connection with entering into the Collaboration Amendment and the A&R AT3 License Terms, we agreed to advance, at our cost, a selected investigational asset in an undisclosed rare genetic disease through the end of IND-enabling studies. Following completion of such studies, we will transition, at our cost, such asset to Sanofi Genzyme. Thereafter, Sanofi Genzyme will fund all potential future development and commercialization costs for such asset. If this asset is developed and approved, we will be eligible to receive tiered double-digit royalties on global net sales.

No changes were made to our Exclusive License Agreement with Sanofi Genzyme, referred to as the Exclusive TTR License, pursuant to which we have global rights for the development and commercialization of ONPATPRO, together with vutrisiran and all back-up products, which remains in full force and effect.

5. LIABILITY RELATED TO THE SALE OF FUTURE ROYALTIES

On April 10, 2020, we entered into a purchase and sale agreement, or Purchase Agreement, with BX Bodyguard Royalties L.P. (an affiliate of The Blackstone Group Inc.), or Blackstone Royalties, under which Blackstone Royalties acquired 50% of royalties payable, or Royalty Interest, with respect to net sales by MDCO, its affiliates or sublicensees of inclisiran and any other licensed products under the MDCO License Agreement, and 75% of the commercial milestone payments payable under the MDCO License Agreement, together with the Royalty Interest, the Purchased Interest. If Blackstone Royalties does not receive payments in respect of the Royalty Interest by December 31, 2029, equaling at least \$1.00 billion, Blackstone Royalties

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will receive 55% of the Royalty Interest beginning on January 1, 2030. In consideration for the sale of the Purchased Interest, Blackstone Royalties paid us \$500.0 million in April 2020 and has an unconditional obligation to pay us an additional \$500.0 million on September 30, 2021, which was recorded as a receivable upon execution of the Purchase Agreement.

We continue to own or control all inclisiran intellectual property rights and are responsible for certain ongoing manufacturing and supply obligations related to the generation of the Purchased Interest. Due to our continuing involvement, we will continue to account for any royalties and commercial milestones due to us under the MDCO License Agreement as revenue in our condensed consolidated statement of operations and comprehensive loss and recorded the proceeds from this transaction as a liability, net of closing costs, on our condensed consolidated balance sheet.

In order to determine the amortization of the liability related to the sale of future royalties, we are required to estimate the total amount of future payments to Blackstone Royalties over the life of the Purchase Agreement. The \$1.00 billion liability, recorded at execution of the agreement, will be accreted to the total of these royalty and commercial milestone payments as interest expense over the life of the Purchase Agreement. At execution, our estimate of this total interest expense resulted in an effective annual interest rate of 11%. This estimate contains assumptions that impact both the amount recorded at execution and the interest expense that will be recognized in future periods.

As payments are made to Blackstone Royalties, the balance of the liability will be effectively repaid over the life of the Purchase Agreement. As inclisiran is not yet approved for sale, the exact timing and amount of repayment is likely to change each reporting period. A significant increase or decrease in net sales of inclisiran will materially impact the liability related to the sale of future royalties, interest expense and the time period for repayment. We will periodically assess the expected payments to Blackstone Royalties and to the extent the amount or timing of such payments is materially different than our initial estimates, we will prospectively adjust the amortization of the liability related to the sale of future royalties and the related interest expense.

As of June 30, 2020, the carrying value of the liability related to the sale of future royalties was \$1.01 billion, net of closing costs of \$13.0 million. The carrying value of the liability related to the sale of future royalties approximates fair value as of June 30, 2020 and is based on our current estimates of future royalties and commercial milestones expected to be paid to Blackstone Royalties over the life of the arrangement, which are considered Level 3 inputs. For the three and six months ended June 30, 2020, we recognized interest expense of \$27.2 million.

The following table shows the activity with respect to the liability related to the sale of future royalties during the three months ended June 30, 2020, in thousands:

Liability related to the sale of future royalties as of April 10, 2020	\$ 1,000,000
Capitalized closing costs	(12,955)
Interest expense recognized	27,248
Carrying value of liability related to sale of future royalties as of June 30, 2020	<u>\$ 1,014,293</u>

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6. FAIR VALUE MEASUREMENTS

The following tables present information about our assets that are measured at fair value on a recurring basis and indicate the fair value hierarchy of the valuation techniques we utilized to determine such fair value:

(In thousands)	As of June 30, 2020	Quoted Prices in Active Markets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents:				
U.S. treasury securities	\$ 9,999	\$ —	\$ 9,999	\$ —
Money market funds	425,769	425,769	—	—
Marketable debt securities:				
Commercial paper	11,613	—	11,613	—
Corporate notes	62,763	—	62,763	—
U.S. government-sponsored enterprise securities	244,071	—	244,071	—
U.S. treasury securities	939,978	—	939,978	—
Marketable equity securities	86,310	45,522	40,788	—
Restricted cash (money market funds)	1,483	1,483	—	—
Total	\$ 1,781,986	\$ 472,774	\$ 1,309,212	\$ —

(In thousands)	As of December 31, 2019	Quoted Prices in Active Markets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents:				
Commercial paper	\$ 3,439	\$ —	\$ 3,439	\$ —
U.S. treasury securities	336,693	—	336,693	—
Money market funds	119,882	119,882	—	—
Marketable debt securities:				
Certificates of deposit	4,301	—	4,301	—
Commercial paper	36,474	—	36,474	—
Corporate notes	146,040	—	146,040	—
U.S. government-sponsored enterprise securities	32,488	—	32,488	—
U.S. treasury securities	755,714	—	755,714	—
Marketable equity securities	13,967	13,967	—	—
Restricted cash (money market funds)	1,482	1,482	—	—
Total	\$ 1,450,480	\$ 135,331	\$ 1,315,149	\$ —

During the six months ended June 30, 2020 and 2019, there were no transfers between Level 1 and Level 2 financial assets. The carrying amounts reflected in our condensed consolidated balance sheets for cash, accounts receivable, net, other current assets, accounts payable and accrued expenses approximate fair value due to their short-term maturities.

In March 2020, pursuant to the Vir Agreement, we achieved a development milestone relating to ALN-HBV02 and earned a \$15.0 million cash milestone and 1,111,111 shares of Vir's common stock, which were received in the second quarter of 2020. As a result of certain securities law restrictions, our Vir common stock is subject to a 180-day holding period. As such, we have recorded the investment at fair value, with the effect of the holding period restriction estimated using an option pricing valuation model, which is considered a Level 2 input. During the second quarter of 2020, we recognized an unrealized loss of \$4.7 million to adjust our investment in Vir common stock to fair value as of June 30, 2020.

7. MARKETABLE DEBT SECURITIES

We invest our excess cash balances in marketable debt securities and at each balance sheet date presented, we classify all of our investments in debt securities as available-for-sale and as current assets as they represent the investment of funds

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available for current operations. We did not record any impairment charges related to our marketable debt securities during the three and six months ended June 30, 2020 or 2019.

The following tables summarize our marketable debt securities:

(In thousands)	As of June 30, 2020			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial paper	\$ 11,613	\$ —	\$ —	\$ 11,613
Corporate notes	62,590	175	(2)	62,763
U.S. government-sponsored enterprise securities	243,907	197	(33)	244,071
U.S. treasury securities	947,928	2,140	(91)	949,977
Total	<u>\$ 1,266,038</u>	<u>\$ 2,512</u>	<u>\$ (126)</u>	<u>\$ 1,268,424</u>

(In thousands)	As of December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Certificates of deposit	\$ 4,303	\$ —	\$ (2)	\$ 4,301
Commercial paper	39,913	—	—	39,913
Corporate notes	146,016	58	(34)	146,040
U.S. government-sponsored enterprise securities	32,487	3	(2)	32,488
U.S. treasury securities	1,092,293	185	(71)	1,092,407
Total	<u>\$ 1,315,012</u>	<u>\$ 246</u>	<u>\$ (109)</u>	<u>\$ 1,315,149</u>

The fair values of our marketable debt securities by classification in the condensed consolidated balance sheets were as follows:

(In thousands)	As of June 30, 2020	As of December 31, 2019
Cash and cash equivalents	\$ 9,999	\$ 340,132
Marketable debt securities	1,258,425	975,017
Total	<u>\$ 1,268,424</u>	<u>\$ 1,315,149</u>

8. OTHER BALANCE SHEET DETAILS

The components of inventory are summarized as follows:

(In thousands)	As of June 30, 2020	As of December 31, 2019
Raw materials	\$ 43,515	\$ 15,418
Work in progress	20,686	38,275
Finished goods	13,217	2,655
Total	<u>\$ 77,418</u>	<u>\$ 56,348</u>

As of June 30, 2020, we capitalized \$11.5 million of inventory produced for commercial sale for products awaiting regulatory approval. As of December 31, 2019, there was no capitalized inventory for products awaiting regulatory approval.

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The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within our condensed consolidated balance sheets that sum to the total of these amounts shown in the condensed consolidated statements of cash flows:

(In thousands)	As of June 30,	
	2020	2019
Cash and cash equivalents	\$ 580,829	\$ 1,136,289
Restricted cash included in prepaid expenses and other current assets	5	332
Restricted cash included in long-term other assets	2,447	2,983
Total cash, cash equivalents, and restricted cash shown in the condensed consolidated statements of cash flows	<u>\$ 583,281</u>	<u>\$ 1,139,604</u>

The following tables summarize the changes in accumulated other comprehensive (loss) income, by component:

(In thousands)	Loss on Investment in Joint Venture	Defined Benefit Pension Plans	Unrealized Gains from Debt Securities	Foreign Currency Translation Adjustment	Total Accumulated Other Comprehensive Loss
Balance as of December 31, 2019	\$ (32,792)	\$ (3,520)	\$ 137	\$ (343)	\$ (36,518)
Other comprehensive income before reclassifications	—	—	2,138	911	3,049
Amounts reclassified from other comprehensive income	—	146	111	—	257
Net other comprehensive income	—	146	2,249	911	3,306
Balance as of June 30, 2020	<u>\$ (32,792)</u>	<u>\$ (3,374)</u>	<u>\$ 2,386</u>	<u>\$ 568</u>	<u>\$ (33,212)</u>

(In thousands)	Loss on Investment in Joint Venture	Defined Benefit Pension Plans	Unrealized Losses from Debt Securities	Foreign Currency Translation Adjustment	Total Accumulated Other Comprehensive Loss
Balance as of December 31, 2018	\$ (32,792)	\$ —	\$ (421)	\$ —	\$ (33,213)
Other comprehensive income before reclassifications	—	(4,282)	478	842	(2,962)
Amounts reclassified from other comprehensive income	—	—	344	—	344
Net other comprehensive income (loss)	—	(4,282)	822	842	(2,618)
Balance as of June 30, 2019	<u>\$ (32,792)</u>	<u>\$ (4,282)</u>	<u>\$ 401</u>	<u>\$ 842</u>	<u>\$ (35,831)</u>

Amounts reclassified out of accumulated other comprehensive loss relate to settlements of marketable debt securities and amortization of our pension obligation which are recorded as interest income and other income, respectively, in the condensed consolidated statements of operations and comprehensive loss.

9. CREDIT AGREEMENT

On April 10, 2020, we entered into the Credit Agreement among us, certain of our subsidiaries (such subsidiaries, together with us, the Loan Parties), funds or accounts managed or advised by GSO Capital Partners LP and certain other affiliates of The Blackstone Group Inc., and the other lenders from time to time parties thereto, collectively, the Lenders, and Wilmington Trust, National Association, as the administrative agent for the Lenders. The Credit Agreement provides for a senior secured delayed

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draw term loan facility of up to \$700.0 million to be funded in three tranches, collectively referred to as the Term Loans, as follows:

Tranche	Requested No Later Than	Aggregate Principal Amount, up to (in thousands)
Tranche 1 Loan	December 31, 2020	\$ 200,000
Tranche 2 Loan	June 30, 2021	250,000
Tranche 3 Loan	December 31, 2021	250,000
Total		<u>\$ 700,000</u>

In addition, we may (a) at any time following April 10, 2021, request an increase in respect of the unfunded commitments in an amount not to exceed \$50.0 million on terms to be agreed and subject to the consent of the Lenders providing such increase and/or (b) at any time prior to April 10, 2021, cancel the unfunded commitments or reallocate the unfunded commitments in respect of the Tranche 2 Loan or Tranche 3 Loan to the Tranche 1 Loan and/or the Tranche 2 Loan in an amount not to exceed \$100.0 million in the aggregate for all such cancellations or reallocations.

The Tranche 1 Loan will be requested no later than December 31, 2020, the Tranche 2 Loan will be requested no later than June 30, 2021 and the Tranche 3 Loan will be requested no later than December 31, 2021, in each case, subject to customary terms and conditions, including, in the case of the Tranche 2 Loan and Tranche 3 Loan, either (a) the first sale of inclisiran in the U.S. for end use or consumption after FDA regulatory approval thereof or (b) revenue attributable to ONPATTRO and GIVLAARI equal to or greater than \$300.0 million as of the last day of the most recently ended twelve month period, referred to as the Subsequent Borrowing Conditions. In the event the Subsequent Borrowing Conditions are not satisfied as of the dates set forth in the table above, the Tranche 2 Loan and Tranche 3 Loan will be funded if such Subsequent Borrowing Conditions are satisfied on or prior to December 31, 2022. The Term Loans mature seven years from the date the Tranche 1 Loan is funded, referred to as the Tranche 1 Funding Date. We can elect an interest rate of either LIBOR plus 7%, subject to a floor of 1%, or a base rate plus 6%, subject to a floor of 2%. We may, at our option, pay interest in kind on interest due within a three-year period beginning on the Tranche 1 Funding Date at a rate that is 1% higher than the interest rate otherwise applicable to such Term Loan. On the date any Tranche 1 Loan, Tranche 2 Loan or Tranche 3 Loan is funded, we will pay a funding fee equal to 2.5% of the principal amount of the Term Loans funded on such date. In addition, we will pay an exit fee equal to 1% of the commitments in respect of the Term Loans, payable upon any repayment of the Term Loans or termination of the unfunded Term Loan commitments.

We are obligated to pay interest due on the Term Loans for a two-year period beginning on the Tranche 1 Funding Date which will be calculated without regard to the Term Loans being prepaid or an unfunded tranche being terminated during this period (in whole or in part). Any prepayments of Term Loans or terminations of unfunded tranches that occur between 2 to 5 years from the Tranche 1 Funding Date are subject to a fee of up to 5% of the loan principal that is prepaid or the amount of the unfunded tranche that is terminated.

All obligations under the Credit Agreement are secured, subject to certain exceptions, by security interests in the following assets: (1) intellectual property owned by us relating to ONPATTRO, GIVLAARI and vutrisiran, (2) the equity interests held by the Loan Parties in their subsidiaries, (3) all of our ownership of the inclisiran royalty remaining after the royalty purchase under the Purchase Agreement, and (4) material real property, and certain personal property, including, without limitation, cash held in certain deposit accounts of the Loan Parties and equipment.

The Credit Agreement contains negative covenants that, among other things and subject to certain exceptions, could restrict our ability to, incur additional liens, incur additional indebtedness, make investments, including acquisitions, engage in fundamental changes, sell or dispose of assets that constitute collateral, including certain intellectual property, pay dividends or make any distribution or payment on or redeem, retire or purchase any equity interests, amend, modify or waive certain material agreements or organizational documents and make payments of certain subordinated indebtedness. Additionally, the Credit Agreement contains certain customary representations and warranties, affirmative covenants and provisions relating to events of default, including nonpayment of principal, interest and other amounts; failure to comply with covenants; the rendering of judgments or orders or default by us in respect of other material indebtedness; and certain insolvency and ERISA events. The Credit Agreement also requires us to have consolidated liquidity of at least \$100.0 million as of the last day of each fiscal quarter. As of June 30, 2020, we were in compliance with the applicable terms and conditions of the covenants under the Credit Agreement. No later than December 31, 2020, we will draw the Tranche 1 Loan based on the terms of the Credit Agreement. As of June 30, 2020, we had not yet drawn down on the Term Loans.

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10. EQUITY

Blackstone Equity Placement

On April 10, 2020, we entered into a stock purchase agreement, or Investors SPA, with certain affiliates of The Blackstone Group Inc., or Investors, pursuant to which we sold 963,486 shares of our common stock to the Investors for aggregate cash consideration of \$100.0 million, or \$103.79 per share, as part of the broad strategic financing collaboration with The Blackstone Group Inc. The Investors SPA contains customary representations, warranties, and covenants of each of the parties thereto.

Regeneron Equity Placement

On April 8, 2019, we executed a stock purchase agreement with Regeneron, or the Regeneron SPA, to sell 4,444,445 shares of our common stock for aggregate cash consideration of \$400.0 million, or \$90.00 per share, which we refer to as the Equity Transaction.

Under the terms of the Regeneron SPA, if at the time of closing of the Equity Transaction, a sufficient number of authorized shares of common stock under our Restated Certificate of Incorporation was not available, the \$400.0 million of equity under the Regeneron SPA would instead have been issued in the form of 1,481,482 shares of our Series A redeemable convertible preferred stock, par value \$0.01 per share, at a purchase price of \$270.00 per share, that would have converted automatically into common stock on a 1-for-3 basis upon stockholder approval of additional authorized shares of common stock. The Regeneron SPA contains customary representations, warranties and covenants of each of the parties thereto.

On April 25, 2019, following the receipt of stockholder approval at our 2019 annual meeting, a Certificate of Amendment was filed to our Restated Certificate of Incorporation to increase the number of authorized shares of common stock from 125,000,000 to 250,000,000 shares, providing for a sufficient number of authorized shares of common stock available to be issued to Regeneron pursuant to the Equity Transaction. On May 21, 2019, subsequent to the expiration of the applicable pre-merger waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, Regeneron purchased 4,444,445 shares of our common stock for aggregate cash consideration of \$400.0 million.

Because we had an obligation to Regeneron as of April 8, 2019 that may have resulted in the issuance of redeemable convertible preferred stock, we were required to follow the guidance in ASC 480 and mark-to-market the obligation to potentially issue this redeemable security until April 25, 2019, when it became known that the obligation would be fulfilled in common stock. The final mark-to-market adjustment of this obligation under ASC 480 resulted in us recording a gain of \$9.4 million included in other income in the consolidated statements of comprehensive loss during the three and six months ended June 30, 2019, with the offsetting adjustment to equity netting against the \$400.0 million proceeds that were received upon closing.

Public Offering

In January 2019, we sold an aggregate of 5,000,000 shares of our common stock through an underwritten public offering at a price to the public of \$77.50 per share. As a result of the offering, we received aggregate net proceeds of \$381.9 million after deducting underwriting discounts and commissions and other offering expenses of approximately \$5.6 million.

11. STOCK-BASED COMPENSATION

The following table summarizes stock-based compensation expenses included in operating costs and expenses:

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Research and development	\$ 15,790	\$ 15,282	\$ 31,839	\$ 31,407
Selling, general and administrative	17,965	15,321	36,494	31,228
Total	\$ 33,755	\$ 30,603	\$ 68,333	\$ 62,635

12. NET LOSS PER COMMON SHARE

We compute basic net loss per common share by dividing net loss by the weighted-average number of common shares outstanding during the period. We compute diluted net loss per common share by dividing net loss by the weighted-average number of common shares and dilutive potential common share equivalents outstanding during the period. Potential common shares consist of shares issuable upon the exercise of stock options (the proceeds of which are then assumed to have been used to repurchase outstanding shares using the treasury stock method). Because the inclusion of potential common shares would be anti-dilutive for all periods presented, diluted net loss per common share is the same as basic net loss per common share.

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The following common share equivalents were excluded from the calculation of net loss per common share because their inclusion would be anti-dilutive:

(In thousands)	As of June 30,	
	2020	2019
Options to purchase common stock	12,437	13,771
Unvested restricted common stock	1,188	696
Total	13,625	14,467

13. COMMITMENTS AND CONTINGENCIES

Litigation

From time to time, we may be a party to litigation, arbitration or other legal proceedings in the course of our business, including the matters described below. The claims and legal proceedings in which we could be involved include challenges to the scope, validity or enforceability of patents relating to our products or product candidates, and challenges by us to the scope, validity or enforceability of the patents held by others. These include claims by third parties that we infringe their patents or breach our license or other agreements with such third parties. The outcome of any such legal proceedings, regardless of the merits, is inherently uncertain. In addition, litigation and related matters are costly and may divert the attention of our management and other resources that would otherwise be engaged in other activities. If we were unable to prevail in any such legal proceedings, our business, results of operations, liquidity and financial condition could be adversely affected. Our accounting policy for accrual of legal costs is to recognize such expenses as incurred.

Securities Litigation

On September 26, 2018, Caryl Hull Leavitt, individually and on behalf of all others similarly situated, filed a class action complaint for violation of federal securities laws against us, our Chief Executive Officer and our former Chief Financial Officer in the United States District Court for the Southern District of New York. By stipulation of the parties and Order of the Court dated November 20, 2018, the action was transferred to the United States District Court for the District of Massachusetts. On May 8, 2019, the Court entered an order appointing a lead plaintiff, and on July 3, 2019, lead plaintiff filed a consolidated class action complaint, or the Complaint. In addition to the originally named defendants, the Complaint also named as defendants certain of our other executive officers, and purported to be brought on behalf of a class of persons who acquired our securities between September 20, 2017 and September 12, 2018 and sought to recover damages caused by defendants' alleged violations of the federal securities laws and to pursue remedies under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder. The Complaint alleged, among other things, that the defendants made materially false and misleading statements related to the efficacy and safety of our product, ONPATTRO. The plaintiff sought, among other things, the designation of this action as a class action, an award of unspecified compensatory damages, interest, costs and expenses, including counsel fees and expert fees, and other relief as the court deems appropriate. All defendants filed a motion to dismiss the Complaint in its entirety on July 31, 2019. The motion to dismiss was fully briefed on September 30, 2019. On March 23, 2020, the Court allowed our motion and dismissed the Complaint without prejudice. Pursuant to a prior Order of the Court, on June 1, 2020, plaintiff filed a motion seeking leave to file a further amended complaint. That motion was fully briefed on June 22, 2020, and remains pending with the Court.

On September 12, 2019, the Chester County Employees Retirement Fund, individually and on behalf of all others similarly situated, filed a purported securities class action complaint for violation of federal securities laws against us, certain of our current and former directors and officers, and the underwriters of our November 14, 2017 public stock offering, in the Supreme Court of the State of New York, New York County. On November 7, 2019, plaintiff filed an amended complaint, or the New York Complaint. The New York Complaint is brought on behalf of an alleged class of those who purchased our securities pursuant and/or traceable to our November 14, 2017 public stock offering. The New York Complaint purports to allege claims arising under Sections 11, 12(a)(2) and 15 of the Securities Act of 1933, as amended, and generally alleges that the defendants violated the federal securities laws by, among other things, making material misstatements or omissions concerning the results of our APOLLO Phase 3 clinical trial of patisiran. The plaintiff seeks, among other things, the designation of the action as a class action, an award of unspecified compensatory damages, rescissory damages, interest, costs and expenses, including counsel fees and expert fees, and other relief as the court deems appropriate. All defendants filed a joint motion to dismiss the New York Complaint in its entirety on December 20, 2019. Plaintiff's response to that motion was filed on February 3, 2020, and defendants filed a joint reply on March 4, 2020. On June 2, 2020, the Court heard oral argument on defendants' motion, at which time it took the motion under advisement.

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We believe that the allegations contained in the complaints are without merit and intend to defend the cases vigorously. We cannot predict at this point the length of time that these actions will be ongoing or the liabilities, if any, which may arise therefrom.

14. DEFINED BENEFIT PLANS

We maintain defined benefit plans for employees in certain countries outside the U.S., including retirement benefit plans required by applicable local law. The unfunded benefit obligation corresponds to the projected benefit obligations of which the discounted net present value is calculated based on years of employment, expected salary increases and pension adjustments, offset by the fair value of the assets held by plan. The unfunded benefit obligation was approximately \$4.3 million as of June 30, 2020 and December 31, 2019, and is recorded in other liabilities on the condensed consolidated balance sheet. The total net periodic benefit cost for the three and six months ended June 30, 2020 and 2019 was not material.

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

Overview

We are a global commercial-stage biopharmaceutical company developing novel therapeutics based on RNA interference, or RNAi. RNAi is a naturally occurring biological pathway within cells for sequence-specific silencing and regulation of gene expression. By harnessing the RNAi pathway, we have developed a new class of innovative medicines, known as RNAi therapeutics. RNAi therapeutics are comprised of small interfering RNA, or siRNA, and function upstream of conventional medicines by potently silencing messenger RNA, or mRNA, that encode for disease-causing proteins, thus preventing them from being made. We believe this is a revolutionary approach with the potential to transform the care of patients with genetic and other diseases. To date, our efforts to advance this revolutionary approach have yielded the approval of two first-in-class RNAi-based medicines, ONPATTRO® (patisiran) and GIVLAARI® (givosiran).

Our research and development strategy is to target genetically validated genes that have been implicated in the cause or pathway of human disease. We utilize a lipid nanoparticle (LNP) or N-acetylgalactosamine (GalNAc) conjugate approach to enable hepatic delivery of siRNAs. For delivery to the central nervous system, or CNS, and the eye (ocular delivery), we are utilizing an alternative conjugate approach. Our focus is on clinical indications where there is a high unmet need, early biomarkers for the assessment of clinical activity in Phase 1 clinical studies, and a definable path for drug development, regulatory approval, patient access and commercialization.

We continue to execute on our *Alnylam 2020* strategy of building a multi-product, global, commercial biopharmaceutical company with a deep and sustainable clinical pipeline of RNAi therapeutics for future growth and a robust, organic research engine for sustainable innovation and great potential for patient impact. Based on our accomplishments to-date, we are confident we will achieve our *Alnylam 2020* goals by the end of 2020. Specifically, our broad pipeline of investigational RNAi therapeutics is focused in four Strategic Therapeutic Areas, or "STArS:" Genetic Medicines; Cardio-Metabolic Diseases; Hepatic Infectious Diseases; and CNS/Ocular Diseases. We now have two marketed products that are within the Genetic Medicines STArS, ONPATTRO and GIVLAARI. ONPATTRO is approved by the United States Food and Drug Administration, or FDA, for the treatment of the polyneuropathy of hereditary transthyretin-mediated amyloidosis, or hATTR amyloidosis, in adults and has also been approved in the European Union, or EU, for the treatment of hATTR amyloidosis in adult patients with stage 1 or stage 2 polyneuropathy, Japan for the treatment of transthyretin, or TTR, type familial amyloidosis with polyneuropathy, and in several additional countries. Regulatory filings in other territories are pending and additional filings are planned for 2020. GIVLAARI is approved by the FDA for the treatment of adults with acute hepatic porphyria, or AHP, and in March 2020, GIVLAARI was granted marketing authorisation by the European Commission, or EC, for the treatment of AHP in adults and adolescents aged 12 years and older. In July 2020, we received marketing authorisation approval for GIVLAARI in Brazil for the treatment of AHP in adults. We have also filed a marketing authorisation application, or MAA, for givosiran (the non-branded drug name for GIVLAARI) in Switzerland and additional regulatory filings are planned for 2020 and beyond.

We have six late-stage investigational programs, advancing toward potential commercialization. These programs include our wholly owned programs: givosiran for the treatment of adolescent patients with AHP, lumasiran for the treatment of primary hyperoxaluria type 1, or PH1, patisiran (the non-branded drug name for ONPATTRO) for the treatment of transthyretin amyloidosis, or ATTR amyloidosis, with cardiomyopathy, and vutrisiran for the treatment of ATTR amyloidosis. Inclisiran for the treatment of hypercholesterolemia and atherosclerotic cardiovascular disease, or ASCVD, is being advanced by our partner, The Medicines Company (acquired by Novartis AG in January 2020), or MDCO, and fitusiran for the treatment of hemophilia is being advanced by our partner Sanofi Genzyme, the specialty care global business unit of Sanofi.

In December 2019, we reported positive topline results from our ILLUMINATE-A Phase 3 clinical trial for lumasiran, our investigational RNAi therapeutic targeting glycolate oxidase, for the treatment of PH1, and in April 2020, based on the positive ILLUMINATE-A data, we submitted a New Drug Application, or NDA, which was accepted by the FDA and granted Priority Review. The FDA has set an action date of December 3, 2020 under the Prescription Drug User Fee Act, and has indicated that they are not currently planning an advisory committee meeting as part of the NDA review. Additionally, in March 2020, we submitted an MAA for lumasiran with the European Medicines Agency, or EMA, which has been validated by the EMA. Lumasiran was previously granted an accelerated assessment by the EMA.

Based on our expertise in RNAi therapeutics and broad intellectual property estate, we have formed alliances with leading pharmaceutical and life sciences companies to support our development and commercialization efforts, including Regeneron Pharmaceuticals, Inc., or Regeneron, MDCO, Sanofi Genzyme, Vir Biotechnology, Inc., or Vir, and Dicerna Pharmaceuticals, Inc., or Dicerna.

In March 2020, we announced an expansion of our exclusive licensing agreement with Vir for the development and commercialization of RNAi therapeutics for infectious diseases to include the development and commercialization of RNAi therapeutics targeting SARS-CoV-2, the virus that causes the disease COVID-19. In April 2020, we further expanded our collaboration with Vir to include up to three human host factor targets relating to susceptibility to coronaviruses, for use in connection with the treatment, palliation, diagnosis or prevention of SARS-CoV-2 and other diseases caused by coronaviruses.

In April 2020, we and Dicerna formed a development and commercialization collaboration on investigational RNAi therapeutics for the treatment of alpha-1 antitrypsin deficiency-associated liver disease, or alpha-1 liver disease. In addition, in April 2020, we and Dicerna entered into a Patent Cross-License Agreement, pursuant to which each party agreed to cross-license its respective intellectual property related to our lumasiran and Dicerna's nedosiran investigational programs for the treatment of primary hyperoxaluria.

In April 2020, we entered into a strategic financing collaboration with certain affiliates of The Blackstone Group Inc., or Blackstone, to accelerate our advancement of RNAi therapeutics. In connection with the collaboration, Blackstone will provide us up to \$2.00 billion in financing, including \$1.00 billion in committed payments to acquire 50% of royalties and 75% of commercial milestones payable to us in connection with sales of inclisiran, up to \$750.0 million in a first lien senior secured term loan, and up to \$150.0 million towards the development of vutrisiran and ALN-AGT, subject to completion of a definitive agreement. As part of the strategic financing collaboration, Blackstone also purchased an aggregate of \$100.0 million of our common stock.

We have incurred significant losses since we commenced operations in 2002 and expect such losses to continue for the foreseeable future. As of June 30, 2020, we had an accumulated deficit of \$4.09 billion. Historically, we have generated losses principally from costs associated with the establishment of late-stage clinical and commercial capabilities, including global commercial operations, research and development activities, acquiring, filing and expanding intellectual property rights, and selling, general and administrative costs. While we believe 2019 was our peak net loss year, and believe the funding provided by our strategic financing collaboration with Blackstone should enable us to achieve a self-sustainable financial profile without the need for future equity financing, we expect to continue to incur annual net operating losses for the foreseeable future as we expand our efforts to discover, develop and commercialize RNAi therapeutics. We also anticipate that our operating results will fluctuate for the foreseeable future. Therefore, period-to-period comparisons should not be relied upon as predictive of the results in future periods.

We currently have programs focused on a number of therapeutic areas and as of June 30, 2020, we are generating net revenue from product sales for two marketed products, ONPATTRO and GIVLAARI. However, our ongoing development efforts may not be successful and we may not be able to commence sales of any other products and/or successfully market and sell ONPATTRO, GIVLAARI or any other approved products in the future. A substantial portion of our total revenues in recent years has been derived from collaboration revenues from strategic alliances with Regeneron, Sanofi Genzyme and MDCO. In addition to revenues from the commercial sales of ONPATTRO and GIVLAARI and potentially from sales of future products, we expect our sources of potential funding for the next several years to continue to be derived in part from existing and new strategic alliances, which may include license and other fees, funded research and development, milestone payments and royalties on product sales by our licensees, as well as funding due or available to us under our strategic financing collaboration with Blackstone.

The COVID-19 Pandemic

In March 2020, the World Health Organization declared the outbreak of a novel strain of coronavirus, or COVID-19, as a pandemic, which continues to spread throughout the U.S. and worldwide. We could be materially and adversely affected by the risks, or the public perception of the risks, related to an epidemic, pandemic, outbreak, or other public health crisis, such as the current COVID-19 pandemic. We are continuing to monitor the global pandemic and spread of COVID-19 and plan to continue taking steps to identify and mitigate the adverse impacts on, and risks to, our business posed by its spread and actions taken by governmental and health authorities to address the COVID-19 pandemic. The spread of COVID-19 has caused us to modify our business practices, including implementing a global work from home policy for all employees who are able to perform their duties remotely and restricting all nonessential business travel, and we expect to continue to take actions as may be required or recommended by government authorities or as we determine are in the best interests of our employees, the patients we serve and other business partners in light of COVID-19. At this time, we cannot predict when certain restrictions that are in place to protect our employees can be safely reduced or will no longer be needed. Given the fluidity of the COVID-19 pandemic and the uncertainty on whether a second wave of the COVID-19 pandemic will occur later in calendar year 2020 or 2021, we do not yet know the full extent of the impact of COVID-19 on our business operations. The ultimate extent of the impact of any epidemic, pandemic, outbreak, or other public health crisis on our business, financial condition and results of operations will depend on future developments, which are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of such epidemic, pandemic, outbreak, or other public health crisis and actions taken to contain or prevent the further spread, among others. Accordingly, we cannot predict the extent to which our business, financial condition and results of operations will be affected. We remain focused on maintaining a strong balance sheet, liquidity and financial flexibility and continue to monitor developments as we deal with the disruptions and uncertainties from a business and financial perspective relating to COVID-19. We will continue to work diligently with our partners and stakeholders to continue supporting patient access to our approved medicines, advancing our product candidates under regulatory review as well as in our clinical studies to the extent safe to do so for patients, caregivers and healthcare practitioners, and ensuring the continuity of our manufacturing and supply chain. For additional information related to the actual or potential impacts of COVID-19 on our business, please read Part II, Item 1A, "Risk Factors" of this Quarterly Report on Form 10-Q.

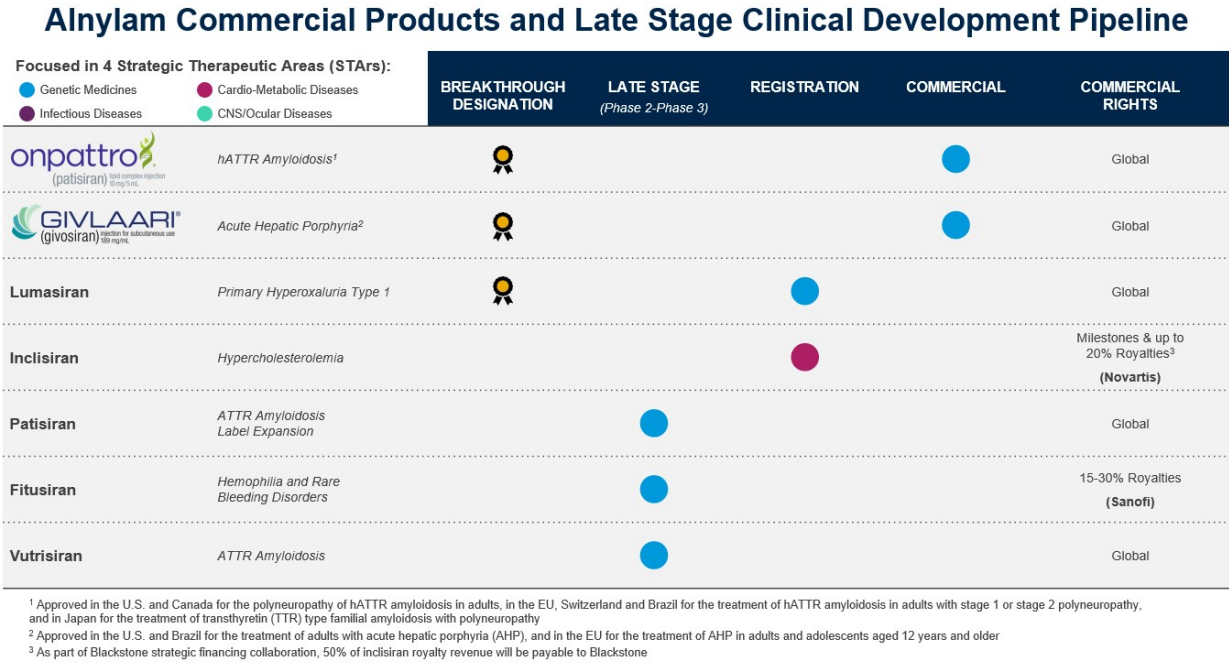
Research and Development

Since our inception, we have focused on drug discovery and development programs. Research and development expenses represent a substantial percentage of our total operating expenses, as reflected by our broad pipeline of clinical development programs, which includes multiple programs in late-stage development.

Our broad pipeline, including two approved products and multiple investigational RNAi therapeutics across all stages of development, is focused in four STArS: Genetic Medicines; Cardio-Metabolic Diseases; Hepatic Infectious Diseases; and CNS/Ocular Diseases.

Commercial Products and Late-Stage Clinical Development Pipeline

The chart below is a summary of our commercial products and late-stage development programs as of August 5, 2020. It identifies those programs for which we have received marketing approval, those programs for which we have received Breakthrough Therapy Designation from the FDA, the stage of these programs and our commercial rights to such programs:



Early-Stage Clinical Development Pipeline

The chart below is a summary of our early-stage development programs as of August 5, 2020. It identifies those programs in which we have achieved human proof-of-concept, or POC, by demonstrating target gene knockdown and/or additional evidence of activity in clinical studies, the stage of these programs, and our commercial rights to such programs, as well as programs which we believe could result in an IND or CTA filing in 2020:

Alnylam Early Stage Clinical Development and 2020 IND Pipeline

Focused in 4 Strategic Therapeutic Areas (STAs):		HUMAN POC ¹	BREAKTHROUGH DESIGNATION	2020 IND CANDIDATES	EARLY STAGE (Phase 1-Phase 2)	COMMERCIAL RIGHTS
Genetic Medicines	Cardio-Metabolic Diseases					
Infectious Diseases	CNS/Ocular Diseases					
Cemdisiran	Complement-Mediated Diseases					50-50 (Regeneron)
Cemdisiran/Pozelimab Combo²	Complement-Mediated Diseases					Milestone/Royalty (Regeneron)
ALN-AAT02 (DCR-A1AT)³	Alpha-1 Liver Disease					Ex-U.S. option post-Phase 3 (Dicerna)
ALN-HBV02 (VIR-2218)	Hepatitis B Virus Infection					50-50 option post-Phase 2 (Vir)
ALN-AGT	Hypertension					Global
ALN-HSD	NASH					50-50 (Regeneron)
ALN-COV (VIR-2703)	COVID-19					50-50 option post-Phase 2 (Vir)

¹ POC, proof of concept – defined as having demonstrated target gene knockdown and/or additional evidence of activity in clinical studies

² Cemdisiran is currently in Phase 2 development and pozelimab is currently in Phase 1 development; Alnylam and Regeneron are evaluating potential combinations of these two investigational therapeutics

³ Dicerna is leading and funding development of ALN-AAT02 and DCR-A1AT and will select which candidate to advance in development

During the second quarter of 2020 and recent period, we reported the following updates from ONPATTRO and GIVLAARI commercialization and our late-stage clinical programs:

Commercial

ONPATTRO

- We achieved ONPATTRO global net product revenues for the second quarter of 2020 of \$66.5 million, and continued progress with market access efforts with recent launches in Spain and Italy.

GIVLAARI

- We achieved GIVLAARI global net product revenues for the second quarter of 2020 of \$11.0 million, received marketing authorization approval for GIVLAARI in Brazil, and continued progress with market access efforts with a launch in Germany.

Late-Stage Clinical Development

- We continued to advance the development of patisiran for the potential treatment of the cardiomyopathy of both hereditary and wild-type ATTR amyloidosis, and continued enrollment in the APOLLO-B Phase 3 study in ATTR amyloidosis patients with cardiomyopathy.
- We submitted an MAA for givosiran in Switzerland and Israel.
- We continued to advance lumasiran for the treatment of PH1:
 - Completed the rolling submission of an NDA to the FDA and submitted an MAA to the EMA, with both applications now accepted;
 - Presented complete results from the ILLUMINATE-A Phase 3 study;
 - Continued treating patients in ILLUMINATE-B, a global Phase 3 pediatric study of lumasiran in PH1 patients less than six years of age with preserved renal function, and remain on track to report topline results in mid-2020; and
 - Continued enrollment in the ILLUMINATE-C Phase 3 study of lumasiran for the treatment of advanced PH1 in patients of all ages.
- We continued to advance vutrisiran, a subcutaneously administered investigational RNAi therapeutic in development for the treatment of ATTR amyloidosis:
 - Continued treating patients in the fully enrolled HELIOS-A Phase 3 study of vutrisiran in hATTR amyloidosis patients with polyneuropathy, and remain on track to report topline results in early 2021;
 - Received Fast Track Designation from the FDA for the treatment of the polyneuropathy of hATTR amyloidosis; and

- Continued enrollment in the HELIOS-B Phase 3 study in ATTR amyloidosis patients with cardiomyopathy.
- Inclisiran continued to advance under our partner, MDCO (which was acquired by Novartis AG in January 2020), and is undergoing review for approval in the U.S. and EU.
- Our partner, Sanofi Genzyme, continued enrollment in the ATLAS Phase 3 program for fitusiran in patients with hemophilia A or B with and without inhibitors, with topline results expected in the first half of 2021.

There is a risk that any drug discovery or development program may not produce revenue for a variety of reasons, including the possibility that we will not be able to adequately demonstrate the safety and effectiveness of the product candidate. Moreover, there are uncertainties specific to any new field of drug discovery, including RNAi. The success of ONPATTRO, GIVLAARI or any other product candidate we develop is highly uncertain. Due to the numerous risks associated with developing drugs, including those risks associated with the COVID-19 pandemic, we cannot reasonably estimate or know the nature, timing and estimated costs of the efforts necessary to complete the development of any potential product candidate or indication, or the period, if any, in which material net cash inflows will commence from any approved product or indication. Any failure to complete any stage of the development of any potential products or any approved product for an expanded indication in a timely manner or successfully launch, market and sell any approved product, including ONPATTRO and GIVLAARI, could have a material adverse effect on our operations, financial position and liquidity. A discussion of some of the risks and uncertainties associated with completing our research and development programs within the planned timeline, or at all, and the potential consequences of failing to do so, are set forth in Part II, Item 1A below under the heading “Risk Factors.”

Strategic Alliances

Our business strategy is to develop and commercialize a broad pipeline of RNAi therapeutic products directed towards our four STArS. As part of this strategy, we have entered into, and expect to enter into additional, collaboration and licensing agreements as a means of obtaining resources, capabilities and funding to advance our investigational RNAi therapeutic programs.

Our collaboration strategy is to form alliances that create significant value for ourselves and our collaborators in the advancement of RNAi therapeutics as a new class of innovative medicines. Specifically, with respect to our CNS/Ocular Disease pipeline, in April 2019, we entered into a global, strategic collaboration with Regeneron to discover, develop and commercialize RNAi therapeutics for a broad range of diseases by addressing disease targets expressed in the eye and CNS, in addition to a select number of targets expressed in the liver. In July 2020, Regeneron exercised its co-development/co-commercialization option on our first CNS-targeted development candidate, ALN-APP, an investigational RNAi therapeutic in development for the treatment of hereditary cerebral amyloid angiopathy and autosomal dominant Alzheimer’s Disease, which we will lead.

With respect to our Cardio-Metabolic pipeline, in March 2013, we entered into an exclusive, worldwide license with MDCO (acquired by Novartis AG in January 2020) pursuant to which MDCO was granted the right to develop, manufacture and commercialize RNAi therapeutics targeting PCSK9 for the treatment of hypercholesterolemia and other human diseases, including inclisiran. In March 2018, we entered into a discovery collaboration with Regeneron to identify RNAi therapeutics for nonalcoholic steatohepatitis, or NASH, and potentially other related diseases, and in November 2018, we and Regeneron entered into a separate, fifty-fifty collaboration to further research, co-develop and commercialize any therapeutic product candidates that emerge from these discovery efforts. In April 2020, we entered into a development and commercialization collaboration with Dicerna to advance investigational RNAi therapeutics for the treatment of alpha-1 liver disease.

With respect to our Hepatic Infectious Disease pipeline, in October 2017, we announced an exclusive licensing agreement with Vir for the development and commercialization of RNAi therapeutics for infectious diseases, including chronic hepatitis B virus, or HBV, infection. In March 2020, we announced an expansion of our exclusive licensing agreement with Vir to include the development and commercialization of RNAi therapeutics targeting SARS-CoV-2, the virus that causes the disease COVID-19. In April 2020, we further expanded our broad multi-target existing collaboration for the development and commercialization of RNAi therapeutics for infectious diseases to include up to three additional targets focused on host factors for SARS-CoV-2, including angiotensin converting enzyme-2, or ACE2, and transmembrane protease, serine 2, or TMPRSS2.

With respect to our Genetic Medicine pipeline, we formed a broad strategic alliance with Sanofi Genzyme in 2014. In January 2018, we and Sanofi Genzyme amended our 2014 collaboration and entered into the Exclusive License Agreement, referred to as the Exclusive TTR License, under which we have the exclusive right to pursue the further global development and commercialization of all TTR products, including ONPATTRO, vutrisiran and any back-up products, and the ALN-AT3 Global License Terms, referred to as the AT3 License Terms, under which Sanofi Genzyme has the exclusive right to pursue the further global development and commercialization of fitusiran and any back-up products. In April 2019, we and Sanofi Genzyme agreed to further amend the 2014 Sanofi Genzyme collaboration to conclude the research and option phase and to amend and restate the AT3 License Terms to modify certain of the business terms.

Critical Accounting Policies and Estimates

Liability Related to the Sale of Future Royalties

In April 2020, we entered into a purchase and sale agreement with Blackstone, prompting our adoption of a new accounting policy associated with the liability related to the sale of future royalties. Please read Note 1 and Note 5 to our condensed consolidated financial statements included in Part I, Item 1, “Financial Statements (Unaudited),” of this Quarterly Report on Form 10-Q for a discussion of the policy and the accounting implications of this agreement, respectively.

Our critical accounting policies are described in the “Management’s Discussion and Analysis of Financial Condition and Results of Operations” section of our Annual Report on Form 10-K for the year ended December 31, 2019, which we filed with the SEC on February 13, 2020. There have been no significant changes to our critical accounting policies since the beginning of this fiscal year other than with respect to the liability related to the sale of future royalties described above.

Results of Operations

The following data summarizes the results of our operations:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Total revenues	\$ 103,962	\$ 44,714	\$ 59,248	133 %	\$ 203,438	\$ 78,008	\$ 125,430	161 %
Operating costs and expenses	\$ 302,821	\$ 280,985	\$ 21,836	8 %	\$ 612,455	\$ 503,067	\$ 109,388	22 %
Loss from operations	\$ (198,859)	\$ (236,271)	\$ 37,412	(16) %	\$ (409,017)	\$ (425,059)	\$ 16,042	(4) %
Total other income	\$ 20,956	\$ 17,750	\$ 3,206	18 %	\$ 49,468	\$ 25,318	\$ 24,150	95 %
Net loss	\$ (179,229)	\$ (219,481)	\$ 40,252	(18) %	\$ (361,450)	\$ (401,396)	\$ 39,946	(10) %

Discussion of Results of Operations

Revenues

Total revenues consist of the following:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Net product revenues	\$ 77,533	\$ 38,231	\$ 39,302	103 %	\$ 149,471	\$ 64,522	\$ 84,949	132 %
Net revenues from collaborations	26,429	6,483	19,946	308 %	53,967	13,486	40,481	300 %
Total	\$ 103,962	\$ 44,714	\$ 59,248	133 %	\$ 203,438	\$ 78,008	\$ 125,430	161 %

Net product revenues

Net product revenues consist of the following, by region:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
United States	\$ 40,929	\$ 28,192	\$ 12,737	45 %	\$ 83,399	\$ 46,952	\$ 36,447	78 %
Europe	25,357	10,039	15,318	153 %	46,523	17,570	28,953	165 %
Rest of World (primarily Japan)	11,247	—	11,247	N/A	19,549	—	19,549	N/A
Total	\$ 77,533	\$ 38,231	\$ 39,302	103 %	\$ 149,471	\$ 64,522	\$ 84,949	132 %

Net product revenues consist of the following, by product:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
ONPATTRO	\$ 66,535	\$ 38,231	\$ 28,304	74 %	\$ 133,199	\$ 64,522	\$ 68,677	106 %
GIVLAARI	10,998	—	10,998	N/A	16,272	—	16,272	N/A
Total	\$ 77,533	\$ 38,231	\$ 39,302	103 %	\$ 149,471	\$ 64,522	\$ 84,949	132 %

Net product sales increased during the three and six months ended June 30, 2020, as compared to the same periods in the prior year, as a result of the continued, global expansion of ONPATTRO, in addition to sales generated from our second marketed product, GIVLAARI, following commercial launch in the U.S. in November and December 2019, respectively, and initial European launch of GIVLAARI in the second quarter of 2020.

We expect net product revenues to increase for the twelve-month period ending December 31, 2020, as compared to the same period in 2019, as we continue to add new patients onto ONPATTRO and GIVLAARI therapy, as well as launch our approved products into additional markets, assuming regulatory approvals.

Net revenues from collaborations

Net revenues from collaborations consist of the following:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Regeneron	\$ 15,413	\$ 700	\$ 14,713	2,102 %	\$ 34,916	\$ 700	\$ 34,216	4,888 %
Vir	6,448	1,091	5,357	491 %	12,964	2,019	10,945	542 %
MDCO	3,878	—	3,878	N/A	4,938	1,745	3,193	183 %
Sanofi	373	4,383	(4,010)	(91) %	373	8,500	(8,127)	(96) %
Other	317	309	8	3 %	776	522	254	49 %
Total	\$ 26,429	\$ 6,483	\$ 19,946	308 %	\$ 53,967	\$ 13,486	\$ 40,481	300 %

Net revenues from collaborations increased during the three and six months ended June 30, 2020, as compared to the same periods in the prior year, primarily due to an increase in revenues recognized in connection with our collaboration agreement with Regeneron.

We expect net revenues from collaborations to increase for the twelve-month period ending December 31, 2020, as compared to the same period in 2019, primarily due to increased reimbursable activities and milestones under our collaborations with Regeneron and Vir.

Operating Costs and Expenses

Operating costs and expenses consist of the following:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Cost of goods sold	\$ 19,929	\$ 4,326	\$ 15,603	361 %	\$ 33,231	\$ 7,673	\$ 25,558	333 %
Research and development	154,996	163,890	(8,894)	(5) %	324,567	293,017	31,550	11 %
Selling, general and administrative	127,896	112,769	15,127	13 %	254,657	202,377	52,280	26 %
Total	\$ 302,821	\$ 280,985	\$ 21,836	8 %	\$ 612,455	\$ 503,067	\$ 109,388	22 %

Cost of goods sold. Cost of goods sold includes the cost of producing and distributing inventories that are related to product revenues, costs related to sales of product supply under our collaboration agreements, third-party royalties and amortization of licensing rights. Based on our inventory policy, we record costs associated with the manufacturing of our products as research and development expense until we determine it is probable that these costs will be recovered through commercial sale (zero-cost inventory).

Cost of goods sold increased during the three and six months ended June 30, 2020, as compared to the same periods in the prior year, due to the increase in third-party royalties and sales of capitalized inventory. During the three and six months ended June 30, 2020, product sold and recognized as revenue was substantially from capitalized inventory, whereas during the three and six months ended June 30, 2019, all units of product sold and recognized as revenue were zero-cost inventory. We will continue to sell our zero-cost inventory of GIVLAARI throughout 2020.

We anticipate variability in our cost of goods sold as a percentage of net product revenues due to the timing of manufacturing runs and utilization and the depletion of zero-cost inventories, as well as future product launches. We expect that cost of goods sold will increase for the twelve-month period ending December 31, 2020, as compared to the same period in 2019, primarily as a result of an expected increase in net product sales as well as the sale of capitalized inventory.

Research and development. Research and development expenses consist on the following:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Compensation and related	\$ 49,314	\$ 35,310	\$ 14,004	40 %	\$ 97,477	\$ 71,687	\$ 25,790	36 %
Clinical trial and manufacturing	44,527	52,046	(7,519)	(14) %	101,052	86,647	14,405	17 %
External services	18,277	17,078	1,199	7 %	35,938	30,608	5,330	17 %
Facilities-related	17,701	13,178	4,523	34 %	33,402	25,405	7,997	31 %
Stock-based compensation	15,790	15,282	508	3 %	31,839	31,407	432	1 %
Lab supplies, materials, and other	9,387	10,765	(1,378)	(13) %	22,446	19,432	3,014	16 %
License Fees	—	20,231	(20,231)	(100) %	2,413	27,831	(25,418)	(91) %
Total	\$ 154,996	\$ 163,890	\$ (8,894)	(5) %	\$ 324,567	\$ 293,017	\$ 31,550	11 %

For the three months ended June 30, 2020, the decrease in research and development expenses, as compared to the same period in the prior year, was primarily related to the following:

- Decreased license fees due to the execution of our collaboration agreement with Regeneron in April 2019; and
- Decreased clinical trial and manufacturing expenses associated with material manufactured for clinical trials.

Partially offset by:

- Increased compensation and related expenses as a result of increased headcount to support long-term strategic growth.

For the six months ended June 30, 2020, the increase in research and development expenses, as compared to the same period in the prior year, was primarily related to the following:

- Increased compensation and related expenses as a result of increased headcount to support long-term strategic growth;
- Increased clinical trials and manufacturing and lab supplies, materials and other expenses as a result of increased preclinical and clinical services related to the advancement of our early- and late-stage programs to support our long-term strategic goals; and
- Increased facilities-related expenses as a result of costs recognized in connection with placing portions of our cGMP manufacturing facility into service.

Partially offset by:

- Decreased license fees related to the execution of our collaboration agreement with Regeneron in April 2019 and regulatory milestones deemed probable in 2019.

During the three and six months ended June 30, 2020 and 2019, in connection with advancing activities under our collaboration agreements, we incurred research and development expenses, primarily related to external development and manufacturing services. The following table summarizes research and development expenses incurred, for which we recognize net revenue, that are directly attributable to our collaboration agreements, by collaboration partner:

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Regeneron	\$ 15,440	\$ 991	\$ 31,543	\$ 991
Vir	4,795	471	6,879	1,130
MDCO	278	75	1,542	1,747
Sanofi	376	3,060	624	8,080
Total	\$ 20,889	\$ 4,597	\$ 40,588	\$ 11,948

Selling, general and administrative. Selling, general and administrative expenses consist of the following:

(In thousands, except percentages)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020	2019	Dollar Change	% of Change	2020	2019	Dollar Change	% of Change
Compensation and related	\$ 48,141	\$ 40,592	\$ 7,549	19 %	\$ 94,970	\$ 70,715	\$ 24,255	34 %
Consulting and professional services	41,318	34,811	6,507	19 %	80,310	60,637	19,673	32 %
Facilities-related and other	20,472	22,045	(1,573)	(7) %	42,883	39,797	3,086	8 %
Stock-based compensation	17,965	15,321	2,644	17 %	36,494	31,228	5,266	17 %
Total	\$ 127,896	\$ 112,769	\$ 15,127	13 %	\$ 254,657	\$ 202,377	\$ 52,280	26 %

For the three and six months ended June 30, 2020, the increase in selling, general and administrative expenses, as compared to the same periods in the prior year, was primarily related to the following:

- Increased compensation and related and consulting and professional services expenses as a result of increased headcount to support long-term strategic growth and potential additional product launches in 2020 and thereafter, as well as the continued commercialization of ONPATTRO and GIVLAARI.

We expect that research and development expenses combined with selling, general and administrative expenses will increase for the twelve-month period ending December 31, 2020, as compared to the same period in 2019, as we continue to develop our pipeline, advance our product candidates, including partnered programs, into later-stage development, prepare regulatory submissions and build-out of our global commercial infrastructure and field team to support ONPATTRO, GIVLAARI and potentially additional product launches. However, we expect that certain expenses will be variable depending on the timing of manufacturing batches, clinical trial enrollment and results, regulatory review of our product candidates and programs, and stock-based compensation expenses due to our determination regarding the probability of vesting for performance-based awards.

Total Other Income. For the three and six months ended June 30, 2020, total other income increased, as compared to the same periods in the prior year, primarily due to unrealized gains in marketable equity securities of \$45.5 million and \$69.6 million, respectively, offset by \$27.2 million of interest expense due to the sale of future royalties.

Liquidity and Capital Resources

The following table summarizes our cash flow activities:

(In thousands)	Six Months Ended June 30,	
	2020	2019
Net loss	\$ (361,450)	\$ (401,396)
Non-cash adjustments to reconcile net loss to net cash (used in) provided by operating activities	65,094	77,567
Changes in operating assets and liabilities	(85,135)	424,014
Net cash (used in) provided by operating activities	(381,491)	100,185
Net cash used in investing activities	(327,542)	(186,750)
Net cash provided by financing activities	742,882	803,541
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(196)	(3)
Net increase in cash, cash equivalents and restricted cash	33,653	716,973
Cash, cash equivalents and restricted cash, beginning of period	549,628	422,631
Cash, cash equivalents and restricted cash, end of period	\$ 583,281	\$ 1,139,604

Since we commenced operations in 2002, we have generated significant losses. As of June 30, 2020, we had an accumulated deficit of \$4.09 billion. As of June 30, 2020, we had cash, cash equivalents and marketable debt and equity securities of \$1.93 billion, compared to \$1.54 billion as of December 31, 2019.

Operating activities

Net cash used in operating activities increased during the six months ended June 30, 2020, compared to the same period in 2019, primarily due to the receipt of \$400 million in May 2019 for the upfront payment associated with our strategic collaboration with Regeneron. In addition, cash used in operating activities during the six months ended June 30, 2020 increased as a result of changes in working capital to support corporate growth.

Investing activities

Net cash used in investing activities increased during the six months ended June 30, 2020, compared to the same period in the prior year, primarily due to the purchase of marketable debt securities.

Financing activities

Net cash provided by financing activities decreased during the six months ended June 30, 2020, compared to the same period in the prior year, primarily due to proceeds of \$400.0 million from our issuance of common stock to Regeneron in April 2019 and \$381.9 million received from our January 2019 underwritten public offering, offset by \$500.0 million received from our sale of the MDCO royalty interest in April 2020 and net proceeds of \$151.5 million from the issuance of common stock in connection with stock option exercises and other types of equity during the six months ended June 30, 2020.

Operating Capital Requirements

We currently have programs focused on a number of therapeutic areas and, as of June 30, 2020, have two globally marketed products, ONPATTRO and GIVLAARI. However, our ongoing development efforts may not be successful and we may not be able to commence sales of any other products in the future. In addition, we anticipate that we will continue to generate significant losses for the foreseeable future as a result of planned expenditures for research and development activities relating to our research platform, our drug development programs, including clinical trial and manufacturing costs, the establishment of late-stage clinical and commercial capabilities, including global operations, continued management and growth of our intellectual property including our patent portfolio, collaborations and general corporate activities.

Based on our current operating plan, we believe that our cash, cash equivalents and marketable debt and equity securities as of June 30, 2020, together with the cash we expect to generate from product sales, and under our current alliances, as well as the funds due or available to us as a result of the strategic financing collaboration with Blackstone, will be sufficient to enable us to advance our long-term strategic goals for multiple years from the filing of this Quarterly Report on Form 10-Q.

Although we believe the strategic financing collaboration with Blackstone will enable us to achieve a self-sustainable financial profile without the need for further equity financing, in the future, we may seek additional funding through new collaborative arrangements, public or private debt financings, royalty or other monetization transactions or a combination of one or more of these funding sources. Additional funding may not be available to us on acceptable terms or at all. Moreover, the terms of any additional financing may adversely affect the holdings or the rights of our stockholders.

Contractual Obligations and Commitments

The disclosure of our contractual obligations and commitments is set forth under the heading “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Contractual Obligations” in our Annual Report on Form 10-K for the year ended December 31, 2019. In April 2020, we entered into a purchase and sale agreement with Blackstone, resulting in an initial recognition of \$1.00 billion liability related to the sale of future royalties. Please read Note 5 to our condensed consolidated financial statements included in Part I, Item 1, “Financial Statements (Unaudited)” of this Quarterly Report on Form 10-Q for a description of this agreement. As a result, we expect our contractual obligations through 2036 will increase from the amounts previously disclosed in our 2019 Annual Report on Form 10-K due to payments under this agreement.

Recent Accounting Pronouncements

Please read Note 2 to our condensed consolidated financial statements included in Part I, Item 1, “Financial Statements (Unaudited),” of this Quarterly Report on Form 10-Q for a description of recent accounting pronouncements applicable to our business.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Financial market risks related to interest rates are described in our Annual Report on Form 10-K for the year ended December 31, 2019. As of June 30, 2020, there have been no significant changes to the financial market risks described as of December 31, 2019. We do not currently anticipate any other near-term changes in the nature of our financial market risk exposures or in management’s objectives and strategies with respect to managing such exposures.

ITEM 4. CONTROLS AND PROCEDURES.

Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer (principal executive officer) and executive vice president, Chief Financial Officer (principal financial officer), evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2020. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e)

under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of June 30, 2020, our Chief Executive Officer and executive vice president, Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control

There were no changes in our internal control over financial reporting during the quarter ended June 30, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

For a discussion of material pending legal proceedings, please read Note 13, Commitments and Contingencies – Litigation, to our condensed consolidated financial statements included in Part I, Item I, “Financial Statements (Unaudited),” of this Quarterly Report on Form 10-Q, which is incorporated into this item by reference.

ITEM 1A. RISK FACTORS

Risks Related to Our Business

Risks Related to Our Financial Results

The current pandemic of the novel coronavirus, or COVID-19, and the future outbreak of other highly infectious or contagious diseases, could have a material adverse impact on our business, financial condition and results of operations, including our commercial operations and sales, clinical trials and preclinical studies.

In December 2019, a novel strain of coronavirus, or COVID-19, was reported to have surfaced and it has now reached multiple regions, countries and cities, including Cambridge, Massachusetts where our primary office and laboratory space is located, and all countries in which we have offices. The COVID-19 pandemic continues to evolve, and to date has led to the implementation of various responses, including government-imposed quarantines, travel restrictions and other public health safety measures. Certain jurisdictions have begun re-opening only to return to restrictions in the face of increases in new COVID-19 cases. COVID-19 has and will likely continue to impact our operations and those of our third-party partners and the ultimate impact on our business and financial results remains uncertain and cannot be predicted with confidence, and will depend on many factors, including the scope, severity and duration of the pandemic, the actions taken to contain the pandemic or mitigate its impact, and the direct and indirect economic effects of the pandemic and containment measures, among others. The rapid development and continued fluidity of this situation precludes any prediction as to the full adverse impact of the COVID-19 pandemic. Nevertheless, the COVID-19 pandemic may adversely affect our business, financial condition and results of operations.

In response to the spread of COVID-19, we have taken temporary precautionary measures intended to help minimize the risk of the virus to our employees and their families, including implementing a global work from home policy for nearly all employees who are able to perform their duties remotely, and have generally restricted on-site staff to only those personnel and contractors who perform activities that need to be completed on-site, limited the number of staff in any given laboratory, manufacturing facility or other facility and implemented safety practices and procedures for those individuals who are required to work in our facilities, including but not limited to mandatory health screening, the use of face coverings, physical distancing requirements and increased cleaning protocols. We also suspended non-essential business travel for our employees and may take further measures as the pandemic continues. In addition, our customer-facing employees in most markets moved and could again need to move to virtual interactions with healthcare providers, administrators, patients, payers, regulators and other government employees. At this time, we cannot predict when certain restrictions that are in place to protect our employees can be reduced or will no longer be needed. The effects of government-imposed quarantines and our work-from-home policies may negatively impact productivity, or disrupt, delay, or otherwise adversely impact our business. Compliance with governmental measures imposed in response to COVID-19 has caused and will continue to cause us to incur additional costs, and any inability to comply with such measures can subject us to restrictions on our business activities, fines, and other penalties, any of which can adversely affect our business. In addition, the increase in certain of our employees working remotely has amplified certain risks to our business, including increased demand on our information technology resources and systems, increased phishing and other cybersecurity attacks, and any failure to effectively manage these risks, including to timely identify and appropriately respond to any cyberattacks, could adversely impact our business operations.

As a result of the COVID-19 pandemic, we may experience disruptions that could severely impact our business and operations, including our ability to successfully commercialize our approved products, ONPATTRO and GIVLAARI, and due to the current pandemic, we may not be able to meet expectations with respect to commercial sales. For example, due to the impact of the COVID-19 pandemic, product revenues for ONPATTRO could be less than originally forecast for 2020. In addition, we may also experience decreased patient demand for our approved products if current or potential patients decide to delay treatment as a result of the COVID-19 pandemic. For example, in the second quarter of 2020, we experienced a decrease in patient demand in the U.S. due to reduced adherence as some patients skipped doses or experienced dose delays while moving to new sites of care, and additionally experienced reduced requests for genetic testing through our third party genetic testing program resulting in delays in diagnoses of the rare diseases our medicines are approved to treat, which could have an adverse effect on revenues in future periods. In addition, business interruptions from the current or future pandemics, including staffing shortages, production slowdowns and disruptions in delivery systems, may also adversely impact the third parties we or our partners rely on in the U.S. and abroad to sufficiently manufacture our approved products and to produce product candidates in quantities we require, which may impair our commercialization efforts, our research and development activities and the potential commercialization of our product candidates.

Additionally, timely completion of preclinical activities and initiation of planned clinical trials is dependent upon the availability of, for example, preclinical and clinical trial sites, researchers and investigators, patients or healthy volunteer subjects available for recruitment and enrollment, and regulatory agency personnel, which may be adversely affected by global health matters, such as the COVID-19 pandemic. We are conducting and plan to continue to conduct preclinical activities and clinical trials for our drug product candidates in geographies which have been and continue to be affected by COVID-19, and believe that the COVID-19 pandemic will have an impact on various aspects of our ongoing clinical trials and on the clinical trials and preclinical studies we expected to initiate in 2020. For example, certain trial sites in some of our ongoing clinical trials have been restricted temporarily by the institutions where they are located from scheduling patient visits or permitting onsite monitoring and in some of our ongoing trials, delayed or missed doses of study drug have been reported. In addition, in May 2020, we announced that due to the impact of the COVID-19 pandemic, enrollment delays in our APOLLO-B Phase 3 study of patisiran for the treatment of ATTR amyloidosis with cardiomyopathy will result in a shift in the enrollment completion date from late 2020 into 2021.

Health regulatory agencies globally may also experience disruptions in their operations as a result of the COVID-19 pandemic. While the FDA recently announced plans to resume domestic facility inspections following the March 2020 suspension of most foreign and domestic facility inspections, the FDA and comparable foreign regulatory agencies may have slower response times or be under-resourced, which could significantly delay the FDA or EMA's ability to timely review and process any submissions we or our partners have filed or may file. For example, any delay by the FDA or EMA could impact the regulatory review of our NDA and MAA submissions for lumasiran or the NDA and MAA submissions for inclisiran, which is being advanced by our partner, MDCO, which could materially and adversely affect our business.

Some factors from the COVID-19 pandemic that may delay or otherwise adversely affect enrollment in and the conduct of the clinical trials of our product candidates, as well as adversely impact our business generally, include:

- the ongoing diversion of healthcare resources away from the conduct of clinical trials to focus on pandemic concerns, including the availability of necessary materials and the attention of physicians serving as our clinical trial investigators, hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- limitations on travel that could interrupt key trial activities, such as clinical trial site initiations and monitoring, domestic and international travel by employees, contractors or patients to clinical trial sites, including any government-imposed travel restrictions or quarantines that will impact the ability or willingness of patients, employees or contractors to travel to our research, manufacturing and clinical trial sites or secure visas or entry permissions, any of which could delay or adversely impact the conduct or progress of our clinical trials;
- interruption or delays in the operations of the FDA and comparable foreign regulatory agencies, which may impact review, inspection and approval timelines;
- interruption of, or delays in receiving, supplies of our product candidates from our contract manufacturing organizations due to staffing shortages, production slowdowns or stoppages and disruptions in delivery systems; and
- business disruptions caused by potential workplace, laboratory and office closures and an increased reliance on employees working from home, disruptions to or delays in ongoing laboratory experiments and operations, staffing shortages, travel limitations, cyber security and data accessibility, or communication or mass transit disruptions, any of which could adversely impact our business operations or delay necessary interactions with local regulators, ethics committees, manufacturing sites, research or clinical trial sites and other important agencies and contractors.

These and other factors arising from the COVID-19 pandemic could worsen in countries that are already afflicted with COVID-19, could continue to spread to additional countries, or could return to countries where the pandemic has been partially contained, each of which could further adversely impact our ability to conduct clinical trials and our business generally, and could have a material adverse impact on our operations and financial condition and results. In addition, the trading prices for our common stock and the common stock of other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. A recession, depression or other sustained adverse market event resulting from the COVID-19 pandemic could materially and adversely affect our business and the value of our common stock.

The global pandemic of COVID-19 continues to rapidly evolve. The ultimate impact of the COVID-19 pandemic is highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business, our commercial results, clinical trials, healthcare systems or the global economy as a whole. These effects could have a material impact on our operations, and we will continue to monitor the COVID-19 situation closely.

We have limited experience as a commercial company and the marketing and sale of ONPATTRO, GIVLAARI or any future products may be unsuccessful or less successful than anticipated.

In 2018, our first commercial product, ONPATTRO, was approved by the FDA and EMA, and we have since received approval in several additional territories. To date, we have launched ONPATTRO in the U.S., Japan, Canada, Brazil and in several countries in Europe. In addition, in November 2019, the FDA approved our second product, GIVLAARI, which was also approved by the EMA in March 2020 and Brazil in July 2020. While we have commercially launched ONPATTRO and

GIVLAARI, we have limited experience as a commercial company and there is limited information about our ability to successfully overcome many of the risks and uncertainties encountered by companies commercializing products in the biopharmaceutical industry. We also have several product candidates in late-stage clinical development, including lumasiran, which is under review by the FDA and EMA for marketing approval. To execute our business plan of building a multi-product, commercial-stage biopharmaceutical company and achieving a self-sustainable financial profile in the future, in addition to successfully marketing and selling ONPATTRO and GIVLAARI, we will need to successfully:

- execute product development activities using new technologies related to both RNAi and to the delivery of siRNAs to the relevant tissues and cells;
- build and maintain a strong intellectual property portfolio;
- gain regulatory acceptance for the development and commercialization of our product candidates and market success for ONPATTRO and GIVLAARI, as well as any other products we commercialize, including in each case, lumasiran;
- attract and retain customers for our products;
- develop and maintain successful strategic alliances; and
- manage our spending as costs and expenses increase due to clinical trials, regulatory approvals and commercialization.

If we are unsuccessful in accomplishing these objectives, we may not be able to develop product candidates, successfully commercialize ONPATTRO, GIVLAARI or any future products, including lumasiran, raise capital, if needed, repay the debt we plan to incur in 2020 and 2021, expand our business, achieve financial self-sustainability or continue our operations.

We have a history of losses and may never become and remain consistently profitable.

We have experienced significant operating losses since our inception. As of June 30, 2020, we had an accumulated deficit of \$4.09 billion. Although to date we have launched ONPATTRO in the U.S. and several other countries globally, launched GIVLAARI in the U.S. and several countries in Europe, and expect to launch our commercially approved products in additional countries during 2020, we may never attain profitability or positive cash flow from operations. For the quarter ended June 30, 2020, we recognized \$77.5 million in net product revenues from sales of ONPATTRO and GIVLAARI. While we believe 2019 was our peak net loss year, we expect to continue to incur annual net operating losses for the foreseeable future and will require substantial resources over the next several years as we expand our efforts to discover, develop and commercialize RNAi therapeutics, and aim to achieve a self-sustainable financial profile. While we believe the funding provided by our strategic financing collaboration with Blackstone should enable us to achieve a self-sustainable profile without the need for future equity financing, we will depend on our ability to generate revenues to achieve this goal. In addition to revenues derived from sales of our current and future, if any, commercially approved products, we anticipate that a portion of any revenues we generate over the next several years will continue to be from alliances with pharmaceutical and biotechnology companies. We cannot be certain that we will be able to maintain our existing alliances or secure and maintain new alliances, or meet the obligations or achieve any milestones that we may be required to meet or achieve to receive payments under our existing or new alliances.

We believe that to become and remain consistently profitable, we must succeed in discovering, developing and commercializing novel drugs with significant market potential. This will require us to become and/or continue to be successful in a range of challenging activities, including pre-clinical testing and clinical trial stages of development, obtaining regulatory approval and reimbursement for these novel drugs and manufacturing, marketing and selling them. We may never succeed as a commercial company, and may never generate revenues that are significant enough to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. If we cannot become and remain consistently profitable, the market price of our common stock could decline. In addition, we may be unable to raise capital, expand our business, develop additional product candidates or continue our operations.

We will require substantial funds to continue our research, development and commercialization activities and if the funds we require are greater than what we have estimated, we may need to critically limit or significantly scale back or cease our operations.

We have used substantial funds to develop our RNAi technologies and will require substantial funds to conduct further research and development, including pre-clinical testing and clinical trials of our product candidates, and to manufacture, market and sell ONPATTRO, GIVLAARI and any other products that are approved for commercial sale, including lumasiran. Because the length of time or activities associated with successful development of our product candidates, including vutrisiran, may be greater than we anticipate, we are unable to estimate the actual funds we will require to develop and commercialize them.

We believe 2019 was our peak net loss year, and believe that our strategic financing collaboration with Blackstone will enable us to achieve a self-sustainable financial profile without need for future equity financing. However, our future capital requirements and the period for which we expect our existing resources to support our operations may vary from what we expect. We have based our expectations on a number of factors, many of which are difficult to predict or are outside of our control, including:

- our continued progress in demonstrating that siRNAs can be active as drugs and achieve desired clinical effects;
- progress in our research and development programs, as well as what may be required by regulatory bodies to advance these programs;
- the timing, receipt and amount of milestone and other payments, if any, from present and future collaborators, if any, including milestone payments related to inclisiran, which is being advanced by our partner, MDCO (acquired by Novartis AG in January 2020);
- our ability to maintain and establish additional collaborative arrangements and/or new business initiatives;
- the resources, time and costs required to successfully initiate and complete our pre-clinical and clinical studies, obtain regulatory approvals, prepare for global commercialization of our product candidates and obtain and maintain licenses to third-party intellectual property;
- our ability to establish, maintain and operate our own manufacturing facilities in a timely and cost-effective manner;
- our ability to manufacture, or contract with third parties for the manufacture of, our product candidates for clinical testing and commercial sale;
- the impact of COVID-19 on the initiation or completion of preclinical studies or clinical trials and the supply of our products or product candidates;
- the resources, time and cost required for the preparation, filing, prosecution, maintenance and enforcement of patent claims;
- the costs associated with legal activities, including litigation, arising in the course of our business activities and our ability to prevail in any such legal disputes;
- the timing, receipt and amount of sales and royalties, if any, from ONPATTRO and GIVLAARI and our other potential products, including lumasiran; and
- the outcome of the regulatory review process and commercial success of drug products for which we are entitled to receive royalties, including inclisiran.

If our estimates, predictions and financial guidance relating to these factors are incorrect, we may need to modify our operating plan and may be required to seek additional funding in the future. We may do so through either collaborative arrangements, public or private equity offerings or debt financings, royalty or other monetization transactions or a combination of one or more of these funding sources. Additional funds may not be available to us on acceptable terms or at all.

In April 2020, we entered into a credit agreement, or Credit Agreement, for up to \$750.0 million among us, certain of our subsidiaries (together with us, the Loan Parties), funds or accounts managed or advised by GSO Capital Partners LP and certain other affiliates of Blackstone, and the other lenders from time to time party thereto, collectively, the Lenders, and Wilmington Trust, National Association, as the administrative agent for the lenders. The Credit Agreement provides for a senior secured delayed draw term loan facility to be funded in three tranches, or Term Loans, each tranche to be requested by certain dates specified in the Credit Agreement, and subject to customary terms and conditions in the case of each tranche. In the event certain borrowing conditions are not satisfied as of December 31, 2022, the Lenders are not required to fund the second and third tranches of the term loan facility. If we are unable to secure the borrowings under the second and third tranches of the term loan facility, we may not be able to replace the financing commitment on favorable terms, or at all. The Term Loans mature seven years from the date of the first draw, and bear interest at a variable rate. All obligations under the Credit Agreement will be secured, subject to certain exceptions, by security interests in certain assets, including the intellectual property owned by us relating to ONPATTRO, GIVLAARI and vutrisiran, the equity interests held by the Loan Parties in their subsidiaries, all of our ownership of the inclisiran royalty remaining after the royalty purchase and material real property, and certain personal property, including, without limitation, cash held in certain deposit accounts of the Loan Parties and equipment. The Credit Agreement contains negative covenants that, among other things and subject to certain exceptions, could restrict our ability to, incur additional liens, incur additional indebtedness, make investments, including acquisitions, engage in fundamental changes, sell or dispose of assets that constitute collateral, including certain intellectual property, pay dividends or make any distribution or payment on or redeem, retire or purchase any equity interests, amend, modify or waive certain material agreements or organizational documents and make payments of certain subordinated indebtedness. The Credit Agreement also requires us to have consolidated liquidity of at least \$100.0 million as of the last day of each fiscal quarter. Additionally, the Credit Agreement contains certain customary representations and warranties, affirmative covenants and provisions relating to events of default, including nonpayment of principal, interest and other amounts; failure to comply with covenants; the rendering of judgments or orders or default by us in respect of other material indebtedness; and certain insolvency and ERISA events. Our ability to satisfy our obligations under this agreement and meet our debt service obligations will depend upon our future performance, which will be subject to financial, business and other factors affecting our operations, many of which are beyond our control.

The terms of any financing we may be required to pursue in the future notwithstanding the funds due or available to us from Blackstone may adversely affect the holdings or the rights of our stockholders. If we raise additional funds by issuing equity securities, further dilution to our existing stockholders will result. In addition, as a condition to providing additional funding to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. For example, pursuant to our stock purchase agreement with Blackstone, we agreed to register the resale of the shares purchased on a registration statement within 60 days of April 10, 2020, and on June 5, 2020, such registration statement was filed with the Securities and Exchange Commission. In addition, subject to certain conditions, Blackstone will be entitled to participate in registered underwritten public offerings by us if other selling stockholders are included in the registration.

If we are unable to obtain additional funding on a timely basis, we may be required to significantly delay or curtail one or more of our research or development programs, or delay or curtail the continued build out of our global commercial infrastructure, and our ability to achieve our long-term strategic goals may be delayed or diminished. We also could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, product candidates or products that we would otherwise pursue on our own.

We expect our operating results to fluctuate in future periods, which may adversely affect our stock price.

Our quarterly operating results have fluctuated in the past, and we believe they will continue to do so in the future. Our operating results may fluctuate due to the level of success of our commercial efforts and resulting revenues, as well as the variable nature of our operating expenses as a result of the timing and magnitude of expenditures. In one or more future periods, our results of operations may fall below the expectations of securities analysts and investors. In that event, the market price of our common stock could substantially decline.

If the estimates we make, or the assumptions on which we rely, in preparing our condensed consolidated financial statements and/or our projected guidance prove inaccurate, our actual results may vary from those reflected in our projections and accruals.

Our condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP. The preparation of these condensed consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of our assets, liabilities, revenues and expenses, the amounts of charges accrued by us and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. We cannot assure you, however, that our estimates, or the assumptions underlying them, will be correct.

Further, from time to time we issue financial guidance relating to our expectations regarding our non-GAAP research and development and selling, general and administrative expenses, and expectations for our cash, cash equivalents and marketable debt securities available for operations, which guidance is based on estimates and the judgment of management. If, for any reason, our expenses differ materially from our guidance or we utilize our cash more quickly than anticipated, we may have to adjust our publicly announced financial guidance. If we fail to meet, or if we are required to change or update any element of, our publicly disclosed financial guidance or other expectations about our business, our stock price could decline.

The investment of our cash, cash equivalents and marketable debt securities is subject to risks which may cause losses and affect the liquidity of these investments.

As of June 30, 2020, we had \$1.93 billion in cash, cash equivalents and marketable debt and equity securities, excluding the \$24.7 million of restricted investments related to the security deposit for the lease of our corporate headquarters in Cambridge, Massachusetts and collateral to support letters of credit. We historically have invested these amounts in high-grade corporate notes, commercial paper, securities issued or sponsored by the U.S. government, certificates of deposit and money market funds meeting the criteria of our investment policy, which is focused on the preservation of our capital. Corporate notes may also include foreign bonds denominated in U.S. dollars. These investments are subject to general credit, liquidity, market and interest rate risks. We may realize losses in the fair value of these investments or a complete loss of these investments, which would have a negative effect on our condensed consolidated financial statements. In addition, should our investments cease paying or reduce the amount of interest paid to us, our interest income would suffer. The market risks associated with our investment portfolio may have an adverse effect on our results of operations, liquidity and financial condition.

Changes in tax law could adversely affect our business and financial condition.

Our business is subject to numerous international, federal, state, and other governmental laws, rules, and regulations that may adversely affect our operating results, including, taxation and tax policy changes, tax rate changes, new tax laws, or revised tax law interpretations, which individually or in combination may cause our effective tax rate to increase. In the U.S., the rules dealing with federal, state, and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect us or holders of our common stock. In recent years, many such changes have been made and changes are likely to continue to occur in the future. For example, on March 27, 2020, President Trump signed into law the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, which included certain changes in tax law intended to stimulate the U.S. economy in light of the COVID-19 pandemic, including temporary changes to the treatment of

net operating losses, interest deductibility limitations and payroll tax matters. Future changes in tax laws could have a material adverse effect on our business, cash flow, financial condition or results of operations.

Additionally, the Organization for Economic Co-operation and Development, or OECD, the EC, and individual taxing jurisdictions where we and our affiliates do business have recently focused on issues related to the taxation of multinational corporations. The OECD has released its comprehensive plan to create an agreed set of international rules for fighting base erosion and profit shifting. In addition, the OECD, the EC and individual countries are examining changes to how taxing rights should be allocated among countries considering the digital economy. As a result, the tax laws in the U.S. and other countries in which we and our affiliates do business could change on a prospective or retroactive basis and any such changes could materially adversely affect our business.

Risks Related to Our Dependence on Third Parties

We may not be able to execute our business strategy if we are unable to maintain existing or enter into new alliances with other companies that can provide business and scientific capabilities and funds for the development and commercialization of our product candidates. If we are unsuccessful in forming or maintaining these alliances on terms favorable to us, our business may not succeed.

We are continuing to advance our commercial capabilities, including in marketing, sales, market access and distribution, to support our wholly-owned products. We also continue to advance our growing pipeline of RNAi therapeutic opportunities. However, we may not have adequate capacity or capabilities to advance all of our therapeutic opportunities. Accordingly, we have entered into alliances with other companies and collaborators that we believe can provide such capabilities in certain territories and/or for certain product candidates, and we intend to enter into additional such alliances in the future. Our collaboration strategy is to form alliances that create significant value for us and our collaborators in the advancement of RNAi therapeutics as a new class of innovative medicines. Specifically, with respect to our Genetic Medicine pipeline, as a result of our broad strategic alliance with Sanofi Genzyme formed in 2014, Sanofi Genzyme is now developing and commercializing fitusiran globally. In addition, we formed a collaboration with MDCO (which was acquired by Novartis AG in January 2020) to advance inclisiran. In March 2018, we entered into a discovery collaboration with Regeneron to identify RNAi therapeutics for NASH and potentially other related diseases, and in November 2018, we and Regeneron entered into a separate, fifty-fifty collaboration to further research, co-develop and commercialize any therapeutic product candidates that emerge from these discovery efforts. In October 2017, we announced an exclusive licensing agreement with Vir for the development and commercialization of RNAi therapeutics for infectious diseases, including chronic HBV infection, and in early 2020, we expanded our exclusive licensing agreement to include the development and commercialization of RNAi therapeutics targeting SARS-CoV-2, the virus that causes the disease COVID-19, as well as up to three human host factor targets relating to susceptibility to coronaviruses, for use in connection with the treatment, palliation, diagnosis or prevention of SARS-CoV-2 and other diseases caused by coronaviruses. In April 2020, we entered into a development and commercialization collaboration with Dicerna to advance investigational RNAi therapeutics for the treatment of alpha-1 liver disease. With respect to our CNS/Ocular Disease pipeline, in April 2019, we announced a global, strategic collaboration with Regeneron to discover, develop and commercialize RNAi therapeutics for a broad range of diseases by addressing therapeutic targets expressed in the eye and CNS, in addition to a select number of targets expressed in the liver.

In such alliances, we expect our current, and may expect our future, collaborators to provide substantial capabilities in clinical development, regulatory affairs, and/or marketing, sales and distribution. Under certain of our alliances, we also may expect our collaborators to develop, market and/or sell certain of our product candidates. We may have limited or no control over the development, sales, marketing and distribution activities of these third parties. Our future revenues may depend heavily on the success of the efforts of these third parties. For example, we will rely entirely on (i) Regeneron for the development and commercialization of all programs targeting eye diseases (subject to limited exceptions), and potentially other CNS and liver programs, (ii) MDCO for all future development and commercialization of inclisiran worldwide, and (iii) Sanofi Genzyme for the development and commercialization of fitusiran worldwide. In the case of each such collaboration referenced in clauses (i)-(iii) above, we are entitled to royalties on the sales of each of these products. If our collaborators are not successful in their development and/or commercialization efforts, our future revenues from RNAi therapeutics for these indications may be adversely affected. Moreover, if the revenues generated by the royalties received from us by Blackstone with respect to inclisiran sales do not reach a certain level by the end of 2029, Blackstone will be entitled to a higher royalty percentage beginning in 2030, which would have an adverse impact on our revenues beginning in 2030.

We may not be successful in entering into future alliances on terms favorable to us due to various factors, including our ability to successfully demonstrate POC for our technology in humans, including our alternative conjugate approach for delivering CNS or ocular product candidates, our ability to demonstrate the safety and efficacy of our specific drug candidates, our ability to manufacture or have third parties manufacture RNAi therapeutics, the strength of our intellectual property and/or concerns around challenges to our intellectual property. For example, our decision in October 2016 to discontinue development of revusiran could give rise to concerns around the safety and/or efficacy of our technology platform or product candidates. In addition, the occurrence of a fatal thrombotic SAE in our fitusiran study in 2017 could contribute to further concerns about the safety of our therapeutic candidates. Even when we succeed in securing such alliances, we may not be able to maintain them if, for example, development or approval of a product candidate is delayed, challenges are raised as to the validity or scope of our

intellectual property, we are unable to secure adequate reimbursement from payors or sales of an approved drug are lower than we expected.

Furthermore, any delay in entering into collaboration agreements would likely either delay the development and commercialization of certain of our product candidates and reduce their competitiveness even if they reach the market, or prevent the development of certain product candidates. Any such delay related to our collaborations could adversely affect our business.

For certain product candidates, we have formed collaborations to fund all or part of the costs of drug development and commercialization, such as our collaborations with Regeneron, MDCO, Vir, Dicerna and Sanofi Genzyme. We may not, however, be able to enter into additional collaborations for certain other programs, and the terms of any collaboration agreement we do secure may not be favorable to us. If we are not successful in our efforts to enter into future collaboration arrangements with respect to one or more of our product candidates, we may not have sufficient funds to develop these product candidates or other product candidates internally, or to bring our product candidates to market. If we do not have sufficient funds to develop and bring our product candidates to market, we will not be able to generate revenues from these product candidates, and this will substantially harm our business.

If any collaborator materially amends, terminates or fails to perform its obligations under agreements with us, the development and commercialization of our product candidates could be delayed or terminated.

Our dependence on collaborators for capabilities and funding means that our business could be adversely affected if any collaborator materially amends or terminates its collaboration agreement with us or fails to perform its obligations under that agreement. Our current or future collaborations, if any, may not be scientifically or commercially successful. Disputes may arise in the future with respect to the ownership of rights to technology or products developed with collaborators, which could have an adverse effect on our ability to develop and commercialize any affected product candidate. Our current collaborations allow, and we expect that any future collaborations will allow, either party to terminate the collaboration for a material breach by the other party. In addition, our collaborators may have additional termination rights for convenience with respect to the collaboration or a particular program under the collaboration, under certain circumstances. For example, our agreement with MDCO, which was acquired by Novartis AG in January 2020, relating to the development and commercialization of inclisiran worldwide may be terminated by MDCO at any time upon four months' prior written notice, provided if the agreement is terminated by MDCO for convenience, MDCO has agreed to grant a license to us under certain of our technology developed in the course of MDCO's activities under the agreement, subject to a royalty to be negotiated between the parties. Moreover, any adverse actions by MDCO or Novartis with respect to the MDCO agreement could adversely impact our ability to comply with our obligations under our agreements with Blackstone. If we were to lose a commercialization collaborator, we would have to attract a new collaborator or develop expanded sales, distribution and marketing capabilities internally, which would require us to invest significant amounts of financial and management resources.

In addition, if we have a dispute with a collaborator over the ownership of technology or other matters, or if a collaborator terminates its collaboration with us, for breach or otherwise, or determines not to pursue the research, development and/or commercialization of RNAi therapeutics, it could delay our development of product candidates, result in the need for additional company resources to develop product candidates, require us to expend time and resources to develop expanded sales and marketing capabilities on a more expedited timeline, make it more difficult for us to attract new collaborators and could adversely affect how we are perceived in the business and financial communities.

Moreover, a collaborator, or in the event of a change in control of a collaborator or the assignment of a collaboration agreement to a third party, the successor entity or assignee, as in the case of MDCO and Novartis AG, could determine that it is in its interests to:

- pursue alternative technologies or develop alternative products, either on its own or jointly with others, that may be competitive with the products on which it is collaborating with us or which could affect its commitment to the collaboration with us;
- pursue higher-priority programs or change the focus of its development programs, which could affect the collaborator's commitment to us; or
- if it has marketing rights, choose to devote fewer resources to the marketing of our product candidates, if any are approved for marketing, than it does for product candidates developed without us.

If any of these occur, the development and commercialization of one or more product candidates could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own.

Although we sold a portion of the expected royalty stream and commercial milestones from the global sales of inclisiran by our collaborator, MDCO (acquired by Novartis AG in January 2020), we are entitled to retain the remaining portion of future royalties from the global sales of inclisiran and, if certain specified thresholds are met, to the remaining portion of

commercial milestone payments, and any negative developments related to inclisiran could have a material adverse effect on our receipt of those payments.

In April 2020, we sold to Blackstone 50% of the royalties payable to us with respect to net sales by MDCO, its affiliates or sublicensees of inclisiran and 75% of the commercial milestone payments payable to us under the MDCO license and collaboration agreement. If Blackstone does not receive royalty payments in respect of global sales of inclisiran equaling at least \$1.00 billion by December 31, 2029, Blackstone's royalty interest will increase to 55% effective January 1, 2030. Our receipt of future royalty payments and a portion of commercial milestone payments may be negatively impacted if the inclisiran royalty stream and commercial milestones payments are insufficient to meet the specified thresholds. Additional factors that may have an adverse effect on the potential inclisiran royalty stream and commercial milestones include:

- companies working to develop new therapies or alternative formulations of products for ASCVD;
- foreign currency movement, which could have a negative impact on MDCO's future sales of inclisiran, assuming approval, thereby reducing the royalties;
- any negative developments relating to inclisiran, such as safety, efficacy, or reimbursement issues, could reduce demand for inclisiran;
- any disputes concerning patents, proprietary rights, or license and collaboration agreements could negatively impact our receipt of commercial milestone payments or royalties; and
- adverse regulatory or legislative developments could limit or prohibit the sale of inclisiran, if approved, such as restrictions on the use of inclisiran or safety-related label changes, including enhanced risk management programs, which may significantly reduce expected royalty revenue and commercial milestone payments and could require significant expense to address the associated legal and regulatory issues.

If the revenues generated by sales of inclisiran are lower than expected, our business could be materially adversely affected.

We have limited manufacturing experience and resources and we must incur significant costs to develop this expertise and/or rely on third parties to manufacture our products.

We have limited manufacturing experience. In order to continue to commercialize ONPATTRO and GIVLAARI, continue to develop our current product candidates, including vutrisiran, apply for regulatory approvals and, if approved, commercialize future products, including lumasiran, we will need to develop, contract for, or otherwise arrange for the necessary manufacturing capabilities. Historically, our internal manufacturing capabilities were limited to small-scale production of material for use in in vitro and in vivo experiments that is not required to be produced under cGMP standards. During 2012, we developed cGMP capabilities and processes for the manufacture of patisiran formulated bulk drug product for late stage clinical trial use and commercial supply. In addition, in April 2016, we completed our purchase of a parcel of land in Norton, Massachusetts, where we are completing construction and qualification of a cGMP manufacturing facility for drug substance for clinical and, eventually, commercial use.

We may manufacture limited quantities of clinical trial materials ourselves, but otherwise we currently rely on third parties to manufacture the drug substance and finished product we will require for any clinical trials that we initiate and to support the commercial supply of ONPATTRO, GIVLAARI and any of our other product candidates, including lumasiran. There are a limited number of manufacturers that supply synthetic siRNAs. We currently rely on a limited number of CMOs for our supply of synthetic siRNAs. For example, in July 2015, we amended our manufacturing services agreement with Agilent, to provide for Agilent to supply, subject to any conflicting obligations under our third-party agreements, a specified percentage of the active pharmaceutical ingredients required for certain of our product candidates in clinical development, as well as other products the parties may agree upon in the future. We currently rely on Agilent to supply the active pharmaceutical ingredient to support the commercial supply of ONPATTRO and GIVLAARI, and we have entered into manufacturing services agreements with Agilent for such supply of ONPATTRO and GIVLAARI. There are risks inherent in pharmaceutical manufacturing that could affect the ability of our CMOs, including Agilent, to meet our delivery time requirements or provide adequate amounts of material to meet our needs. Included in these risks are potential synthesis and purification failures and/or contamination during the manufacturing process, as well as other issues with the CMO's facility and ability to comply with the applicable manufacturing requirements, which could result in unusable product and cause delays in our manufacturing timelines and ultimately delay our clinical trials and potentially put at risk commercial supply, as well as result in additional expense to us. To fulfill our siRNA requirements, we will likely need to secure alternative suppliers of synthetic siRNAs and such alternative suppliers are limited and may not be readily available, or we may be unable to enter into agreements with them on reasonable terms and in a timely manner. As noted above, in order to ensure long-term supply capabilities for our RNAi therapeutics, we are developing our own capabilities to manufacture drug substance for clinical and commercial use.

In addition to the manufacture of the synthetic siRNAs, we may have additional manufacturing requirements related to the technology required to deliver the siRNA to the relevant cell or tissue type, such as LNPs or conjugates. In some cases, the delivery technology we utilize is highly specialized or proprietary, and for technical and/or legal reasons, we may have access

to only one or a limited number of potential manufacturers for such delivery technology. In addition, the scale-up of our delivery technologies could be very difficult and/or take significant time. We also have very limited experience in such scale-up and manufacturing, requiring us to depend on a limited number of third parties, who might not be able to deliver in a timely manner, or at all. Failure by manufacturers to properly manufacture our delivery technology and/or formulate our siRNAs for delivery could result in unusable product, supply delays and shortages. Furthermore, competition for supply from our manufacturers from other companies, a breach by such manufacturers of their contractual obligations or a dispute with such manufacturers would cause delays in our discovery and development efforts, as well as additional expense to us. On March 27, 2020, President Trump signed into law the CARES Act in response to the COVID-19 pandemic. Throughout the COVID-19 pandemic, there has been public concern over the availability and accessibility of critical medical products, and the CARES Act enhances FDA's existing authority with respect to drug shortage measures. Under the CARES Act, manufacturers must have in place a risk management plan that identifies and evaluates the risks to the supply of approved drugs for certain serious diseases or conditions for each establishment where the drug or active pharmaceutical ingredient is manufactured. The risk management plan will be subject to FDA review during an inspection. If we experience shortages in the supply of our marketed products, our results could be materially impacted.

Given the limited number of suppliers for our delivery technology and drug substance, we developed cGMP capabilities and processes for the manufacture of patisiran formulated bulk drug product for late-stage clinical use and commercial supply. During 2015, we scaled our cGMP manufacturing capacity for ONPATTRO and believe we have adequate resources to supply our drug product commercial needs. In addition, as noted above, we are developing our own capabilities to manufacture drug substance for clinical and commercial use. In developing these manufacturing capabilities by building our own manufacturing facilities, we have incurred substantial expenditures, and expect to incur significant additional expenditures in the future. In addition, the construction and qualification of our drug substance facility is a lengthy process to complete and there are many risks inherent in the construction of a new facility that could result in delays and additional costs, including the need to obtain access to necessary equipment and third-party technology, if any. Also, we have had to, and will likely need to continue to, hire and train qualified employees to staff our facilities. We do not currently have a second source of supply for patisiran formulated bulk drug product. If we are unable to manufacture sufficient quantities of material or if we encounter problems with our facilities in the future, we may also need to secure alternative suppliers of patisiran formulated bulk drug product and drug substance, and such alternative suppliers may not be available, or we may be unable to enter into agreements with them on reasonable terms and in a timely manner. Given our dependence on a limited number of CMOs to supply drug substance for our commercial products and clinical candidates, and our dependence on our own facility to produce patisiran formulated bulk drug product, any delay in supply caused by the COVID-19 pandemic, in particular at Agilent or at our own facilities, could impact our ability to procure sufficient supplies for ONPATTRO and GIVLAARI, and the development of our product candidates could also be delayed. Any delay or setback in the manufacture of ONPATTRO or GIVLAARI could impede ongoing commercial supply, which could significantly impact our revenues and operating results. In addition, to the extent we or our partners rely on CMOs outside of the U.S. to supply drug substance for our product candidates, any delays or disruptions in supply caused by the COVID-19 pandemic could have a material adverse impact on the research and development activities and potential commercialization of our or our partners' product candidates.

The manufacturing process for ONPATTRO, GIVLAARI and any other products that we may develop, including lumasiran, is subject to the FDA and foreign regulatory authority approval process and we will need to meet, and will need to contract with CMOs who can meet, all applicable FDA and foreign regulatory authority requirements on an ongoing basis. In addition, if we receive the necessary regulatory approval for any product candidate, we also expect to rely on third parties, including potentially our commercial collaborators, to produce materials required for commercial supply. We may experience difficulty in obtaining adequate manufacturing capacity for our needs and the needs of our collaborators, who we have, in some instances, the obligation to supply. If we are unable to obtain or maintain CMOs for our product candidates and/or our marketed products, or to do so on commercially reasonable terms, we may not be able to successfully develop and commercialize our products.

To the extent that we have existing, or enter into future, manufacturing arrangements with third parties, we depend, and will depend in the future, on these third parties, including Agilent, to perform their obligations in a timely manner and consistent with contractual and regulatory requirements, including those related to quality control and quality assurance. The failure of Agilent or any other CMO to perform its obligations as expected, or, to the extent we manufacture all or a portion of our product candidates ourselves, our failure to execute on our manufacturing requirements, could adversely affect our business in a number of ways, including:

- we or our current or future collaborators may not be able to initiate or continue clinical trials of product candidates that are under development;
- we or our current or future collaborators may be delayed in submitting regulatory applications, or receiving regulatory approvals, for our product candidates;
- we may lose the cooperation of our collaborators;

- our facilities and those of our CMOs, and our products could be the subject of inspections by regulatory authorities that could have a negative outcome and result in delays in supply;
- we may be required to cease distribution or recall some or all batches of our products or take action to recover clinical trial material from clinical trial sites; and
- ultimately, we may not be able to meet commercial demands for our products.

If any CMO with whom we contract, including Agilent, fails to perform its obligations, we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different CMO, which we may not be able to do on reasonable terms, if at all. In either scenario, our clinical trials or commercial distribution could be delayed significantly as we establish alternative supply sources. In some cases, the technical skills required to manufacture our products or product candidates may be unique or proprietary to the original CMO and we may have difficulty, or there may be contractual restrictions prohibiting us from, transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all. In addition, if we are required to change CMOs for any reason, we will be required to verify that the new CMO maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. We will also need to verify, such as through a manufacturing comparability study, that any new manufacturing process will produce our product according to the specifications previously submitted to or approved by the FDA or another regulatory authority. The delays associated with the verification of a new CMO could negatively affect our ability to develop product candidates or commercialize our products in a timely manner or within budget. Furthermore, a CMO may possess technology related to the manufacture of our product candidate that such CMO owns independently. This would increase our reliance on such CMO or require us to obtain a license from such CMO in order to have another CMO manufacture our products or product candidates.

We have limited commercial experience and newly established capabilities for marketing, sales, market access and distribution, and expect to continue to invest significant financial and management resources to continue to build these capabilities and to establish a global commercial infrastructure. Even if we build and scale our commercial capabilities, the market may not be receptive to our commercial products.

We have limited commercial experience and newly established capabilities for marketing, sales, market access and distribution. We currently expect to rely heavily on third parties to launch and market certain of our product candidates in certain geographies, if approved. However, we intend to commercialize ONPATTRO and GIVLAARI, as well as several of our late-stage product candidates if approved, including lumasiran and vutrisiran, on our own globally. Accordingly, we have developed internal marketing, sales, market access and distribution capabilities as part of our core product strategy initially in the U.S. and the EU, with expansion ongoing globally, which has, and will continue to, require significant financial and management resources. For those products for which we will perform marketing, sales, market access and distribution functions ourselves, including ONPATTRO, GIVLAARI and, if approved, lumasiran and vutrisiran, and for future products we successfully develop where we may retain certain product development and commercialization rights, we could face a number of additional risks, including:

- developing and retaining our global sales, marketing and administrative infrastructure and capabilities;
- hiring, training, managing and supervising our personnel worldwide;
- the cost of establishing, or leveraging an established, marketing or sales force, which may not be justifiable in light of the revenues generated by any particular product and/or in any specific geographic region; and
- our direct sales and marketing efforts may not be successful.

If we are unable to continue to develop and scale our own global marketing, sales, market access and distribution capabilities for ONPATTRO, GIVLAARI and any future products, including lumasiran, if approved, we will not be able to successfully commercialize our products without reliance on third parties.

We rely on third parties to conduct our clinical trials, and if they fail to fulfill their obligations, our development plans may be adversely affected.

We rely on independent clinical investigators, contract research organizations, or CROs, and other third-party service providers to assist us in managing, monitoring and otherwise carrying out our clinical trials. We have contracted, and we plan to continue to contract with, certain third parties to provide certain services, including site selection, enrollment, monitoring, auditing and data management services. These investigators and CROs are not our employees and we have limited control over the amount of time and resources they dedicate to our programs. These third parties may have contractual relationships with other entities, some of which may be our competitors, which may draw their time and resources away from our programs. Although we depend heavily on these parties, we control only certain aspects of their activity and therefore, we cannot be assured that these third parties will adequately perform all of their contractual obligations to us in compliance with regulatory and other legal requirements and our internal policies and procedures. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with applicable

GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development, and to implement timely corrective action to any non-compliance. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, principal investigators and trial sites, including in connection with the review of marketing applications. If we or any of our CROs fail to comply with applicable GCP requirements, or fail to take any such corrective action, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, the EMA, the Pharmaceuticals and Medical Devices Agency in Japan or comparable foreign regulatory authorities may require us to take additional action or perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority in the future, such regulatory authority will determine that any of our clinical trials comply with GCP regulations.

If our third-party service providers cannot adequately and timely fulfill their obligations to us for any reason, including due to disruptions caused by the COVID-19 pandemic on their operations or at the sites they are overseeing, or if the quality and accuracy of our clinical trial data is compromised due to failure by such third party to adhere to our protocols or regulatory requirements or if such third parties otherwise fail to meet deadlines, our development plans and/or regulatory reviews for marketing approvals may be delayed or terminated. As a result, our stock price would likely be negatively impacted, and our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed.

Risks Related to Managing Our Operations

If we are unable to attract and retain qualified key management and scientists, development, medical and commercial staff, consultants and advisors, our ability to implement our business plan may be adversely affected.

We are highly dependent upon our senior management and our scientific, clinical, sales and medical staff. The loss of the service of any of the members of our senior management, including Dr. John Maraganore, our Chief Executive Officer, may significantly delay or prevent the achievement of product development and commercialization, and other business objectives. Our employment arrangements with our key personnel are terminable without notice. We do not carry key person life insurance on any of our employees.

We have grown our workforce significantly over the past several years and anticipate continuing to add additional employees as we focus on achieving our long-term strategic goals. We face intense competition for qualified individuals from numerous pharmaceutical and biotechnology companies, universities, governmental entities and other research institutions, many of which have substantially greater resources with which to attract and reward qualified individuals than we do. In addition, due to the risks associated with developing a new class of medicine, we may experience disappointing results in a clinical program and our stock price may decline as a result, as was the case following our decision in October 2016 to discontinue our revusiran program, and, to a lesser extent, following our temporary suspension of dosing in our fitusiran program in September 2017. As a result, we may face additional challenges in attracting and retaining employees. In addition, we may not be successful commercializing our approved products and as a result, we may be unable to attract and retain highly qualified sales and marketing professionals to support ONPATTRO, GIVLAARI and our future products, if approved, including lumasiran. Accordingly, we may be unable to attract and retain suitably qualified individuals in order to support our growing research, development and global commercialization efforts and initiatives, and our failure to do so could have an adverse effect on our ability to implement our future business plan.

Moreover, in response to the spread of COVID-19, we have taken temporary precautionary measures intended to help minimize the risk of the virus to our employees and their families, including implementing a global work from home policy for all employees who are able to perform their duties remotely, and have restricted on-site staff to only those personnel and contractors who must perform essential activities that must be completed on-site, limited the number of staff in any given laboratory, manufacturing facility or other facility and implemented safety practices and procedures for those individuals who are required to work in our facilities, including but not limited to mandatory health screening, the use of face coverings, physical distancing requirements and increased cleaning protocols. These actions may impair our ability to recruit and/or onboard new employees.

We may have difficulty expanding our operations successfully as we continue to evolve from a U.S.- and EU-based company primarily involved in discovery, pre-clinical testing and clinical development into a global company that develops and commercializes multiple drugs.

As we continue the commercial launches of approved products, and increase the number of product candidates we are developing, we will also need to expand our operations in the U.S. and continue to build operations in the EU and other geographies, including Asia and Latin America. To date, we have received regulatory approval for ONPATTRO in the U.S. and EU and other countries globally, and as a result of the January 2018 amendment to our Sanofi Genzyme collaboration, we now have global development and commercialization rights for ONPATTRO. In addition, we have received regulatory approval for our second RNAi therapeutic, GIVLAARI in the U.S., EU, Brazil and have also filed for marketing approval in Canada and Switzerland. We plan to file for additional regulatory approvals for both ONPATTRO and GIVLAARI in additional countries during 2020 and beyond.

As noted above, we grew our workforce significantly from 2016 through 2019, and anticipate continuing to hire additional employees globally in the future as we focus on the commercialization of ONPATTRO and GIVLAARI and achieving our long-term strategic goals. This growth has placed a strain on our administrative and operational infrastructure and, as a result, we will need to continue to develop additional and/or new infrastructure and capabilities to support our growth and obtain additional space to conduct our global operations in the U.S., the EU, Japan, Latin America and other geographies. If we are unable to develop such additional infrastructure or obtain sufficient space to accommodate our growth in a timely manner and on commercially reasonable terms, our business could be negatively impacted. As we continue the commercialization of ONPATTRO and GIVLAARI, and as the product candidates we develop enter and advance through clinical trials, we will need to continue to expand our global development, regulatory, manufacturing, quality, compliance, and marketing and sales capabilities, or contract with other organizations to provide these capabilities for us. In addition, as our operations expand due to our development progress, we will need to continue to manage additional relationships with various collaborators, suppliers and other organizations. Our ability to manage our operations and future growth will require us to continue to enhance our operational, financial and management controls and systems, reporting systems and infrastructure, and policies and procedures. We may not be able to implement enhancements to our management information and control systems in an efficient or timely manner and may discover deficiencies in existing systems and controls.

The increasing use of social media platforms presents new risks and challenges.

Social media is increasingly being used to communicate about our clinical development programs and the diseases our investigational RNAi therapeutics are being developed to treat, and we are utilizing what we believe is appropriate social media in connection with our commercialization efforts for ONPATTRO and GIVLAARI, and we intend to do the same for our future products, if approved, including lumasiran. Social media practices in the biopharmaceutical industry continue to evolve and regulations and regulatory guidance relating to such use are evolving and not always clear. This evolution creates uncertainty and risk of noncompliance with regulations applicable to our business, resulting in potential regulatory actions against us, along with the potential for litigation related to off-label marketing or other prohibited activities. For example, for our clinical-stage candidates, patients may use social media channels to comment on their experience in an ongoing blinded clinical study or to report an alleged AE. When such disclosures occur, there is a risk that study enrollment may be adversely impacted, we fail to monitor and comply with applicable adverse event reporting obligations or that we may not be able to defend our business or the public's legitimate interests in the face of the political and market pressures generated by social media due to restrictions on what we may say about our investigational products. There is also a risk of inappropriate disclosure of sensitive information or negative or inaccurate posts or comments about us on any online platform, including a blog on the internet, or a post on a website, that can be distributed rapidly and could negatively harm our reputation. If any of these events were to occur or we otherwise fail to comply with applicable regulations, we could incur liability, face regulatory actions or incur other harm to our business.

Our business and operations could suffer in the event of system failures or unauthorized or inappropriate use of or access to our systems.

We are increasingly dependent on our information technology systems and infrastructure for our business. We collect, store and transmit sensitive information including intellectual property, proprietary business information and personal information in connection with business operations. The secure maintenance of this information is critical to our operations and business strategy. Some of this information could be an attractive target of criminal attack or unauthorized access and use by third parties with a wide range of motives and expertise, including organized criminal groups, "hacktivists," patient groups, disgruntled current or former employees and others. Cyber-attacks are of ever-increasing levels of sophistication, and despite our security measures, our information technology and infrastructure may be vulnerable to such attacks or may be breached, including due to employee error or malfeasance.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage or interruption from computer viruses, unauthorized or inappropriate access or use, natural disasters, pandemics (including COVID-19), terrorism, war, and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of pre-clinical trial data or data from completed or ongoing clinical trials for our product candidates could result in delays in our regulatory filings and development efforts, as well as delays in the commercialization of our products, and significantly increase our costs. To the extent that any disruption, security breach or unauthorized or inappropriate use or access to our systems were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, including but not limited to patient, employee or vendor information, we could incur notification obligations to affected individuals and government agencies, liability, including potential lawsuits from patients, collaborators, employees, stockholders or other third parties and liability under foreign, federal and state laws that protect the privacy and security of personal information, and the development and potential commercialization of our product candidates could be delayed.

The results of the United Kingdom’s referendum on withdrawal from the EU may have a negative effect on global economic conditions, financial markets and our business.

In June 2016, the United Kingdom, or UK, held a referendum in which voters approved an exit from the EU, commonly referred to as “Brexit.” This referendum has created political and economic uncertainty, particularly in the UK and the EU, and this uncertainty may persist for years. The UK officially withdrew from the EU on January 31, 2020, however the effects of the departure on both the EU and the UK are still highly uncertain, as many details of the divorce have yet to be addressed. The withdrawal could, among other outcomes, disrupt the free movement of goods, services and people between the UK and the EU, and result in increased legal and regulatory complexities, as well as potential higher costs of conducting business in Europe. Given the lack of comparable precedent, it is unclear what financial, trade and legal implications the withdrawal of the UK from the EU would have and how such withdrawal would affect us.

For example, Brexit could result in the UK or the EU significantly altering its regulations affecting the clearance or approval of our product candidates that are developed in the UK. Any new regulations could add time and expense to the conduct of our business, as well as the process by which our products receive regulatory approval in the UK, the EU and elsewhere. In addition, the announcement of Brexit and the withdrawal of the UK from the EU have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets, and may significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. Any of these effects of Brexit, among others, could adversely affect our business, our results of operations, liquidity and financial condition.

Risks Related to Our Industry

Risks Related to Development, Clinical Testing and Regulatory Approval of Our Product Candidates

Any product candidates we or our partners develop may fail in development or be delayed to a point where they do not become commercially viable.

Before obtaining regulatory approval for the commercial distribution of our product candidates, we must conduct, at our own expense, extensive nonclinical tests and clinical trials to demonstrate the safety and/or efficacy in humans of our product candidates. Nonclinical and clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome, and the historical failure rate for product candidates is high. For example, in October 2016, we discontinued development of one of our product candidates, which included a Phase 3 clinical trial. We currently have multiple other programs in clinical development, including internal and partnered programs in Phase 3 development, as well as several earlier-stage clinical programs. In December 2019, we reported positive topline results from our ILLUMINATE-A Phase 3 clinical trial for lumasiran, an investigational RNAi therapeutic targeting GO in development for the treatment of PH1, and in April 2020, we submitted an NDA, which was accepted by the FDA. The FDA has granted a Priority Review for the NDA and has set an action date of December 3, 2020 under the Prescription Drug User Fee Act, and has indicated that they are not currently planning an advisory committee meeting as part of the NDA review. Additionally, on March 31, 2020, we submitted an MAA for lumasiran with the EMA, which has been validated by the EMA. However, we may not be able to further advance this or any other product candidate through clinical trials and regulatory approval.

Additionally, several of our planned and ongoing clinical trials utilize an “open-label” trial design. An “open-label” clinical trial is one where both the patient and investigator know whether the patient is receiving the investigational product candidate or either an existing approved drug or placebo. Most typically, open-label clinical trials test only the investigational product candidate and sometimes may do so at different dose levels. Open-label clinical trials are subject to various limitations that may exaggerate any therapeutic effect as patients in open-label clinical trials are aware when they are receiving treatment. Open-label clinical trials may be subject to a “patient bias” where patients perceive their symptoms to have improved merely due to their awareness of receiving an experimental treatment. In addition, open-label clinical trials may be subject to an “investigator bias” where those assessing and reviewing the physiological outcomes of the clinical trials are aware of which patients have received treatment and may interpret the information of the treated group more favorably given this knowledge. The results from an open-label trial may not be predictive of future clinical trial results with any of our product candidates for which we include an open-label clinical trial when studied in a controlled environment with a placebo or active control.

If we enter into clinical trials, the results from nonclinical testing or early clinical trials of a product candidate may not predict the results that will be obtained in subsequent subjects or in subsequent human clinical trials of that product candidate or any other product candidate. There is a high failure rate for drugs proceeding through clinical studies. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in clinical development even after achieving promising results in earlier studies, and any such setbacks in our clinical development could have a material adverse effect on our business and operating results. Moreover, ONPATPRO, GIVLAARI and our current product candidates, including lumasiran, vutrisiran, fitusiran and inclisiran, each employ novel delivery technologies that, with the exception of inclisiran, have yet to be extensively evaluated in human clinical trials and proven safe and effective.

In addition, we, the FDA or other applicable regulatory authorities, or an institutional review board, or IRB, or similar foreign review board or committee, may delay initiation of or suspend clinical trials of a product candidate at any time for

various reasons, including if we or they believe the healthy volunteer subjects or patients participating in such trials are being exposed to unacceptable health risks. Among other reasons, adverse side effects of a product candidate or related product on healthy volunteer subjects or patients in a clinical trial could result in our decision, or a decision by the FDA or foreign regulatory authorities, to suspend or terminate the trial, or, in the case of regulatory agencies, a refusal to approve a particular product candidate for any or all indications of use. For example, in October 2016, we announced our decision to discontinue development of revusiran, an investigational RNAi therapeutic that was being developed for the treatment of patients with cardiomyopathy due to hATTR amyloidosis. Our decision followed the recommendation of the revusiran ENDEAVOUR Phase 3 study Data Monitoring Committee, or DMC, to suspend dosing and the observation of an imbalance in mortality in revusiran-treated patients as compared to those on placebo. We conducted a comprehensive evaluation of the revusiran data and reported the results of our evaluation in August 2017. Following our evaluation, we continue to believe that the decision to discontinue development of revusiran does not affect ONPATTRO or any of our other investigational RNAi therapeutic programs in development. In September 2017, we announced that we had temporarily suspended dosing in all ongoing fitusiran studies pending further review of a fatal thrombotic SAE and agreement with regulatory authorities on a risk mitigation strategy. In December 2017, we reached alignment with study investigators and the FDA on safety measures and a risk mitigation strategy to enable resumption of dosing in clinical studies with fitusiran, including our Phase 2 open-label extension, or OLE, study, and the ATLAS Phase 3 program, including protocol-specified guidelines and additional investigator and patient education concerning reduced doses of replacement factor or bypassing agent to treat any breakthrough bleeds in fitusiran studies.

Clinical trials of a new product candidate require the enrollment of a sufficient number of patients, including patients who are suffering from the disease the product candidate is intended to treat and who meet other eligibility criteria. Rates of patient enrollment are affected by many factors, including the size of the patient population, the age and condition of the patients, the stage and severity of disease, the availability of clinical trials for other investigational drugs for the same disease or condition, the nature of the protocol, the proximity of patients to clinical sites, the availability of effective treatments for the relevant disease, and the eligibility criteria for the clinical trial. For example, we or our partners may experience difficulty enrolling our clinical trials, including, but not limited to, the ongoing clinical trials for fitusiran, due to the availability of existing approved treatments, as well as other investigational treatments in development. Moreover, given the temporary suspension of dosing in our fitusiran studies in September 2017 due to a fatal thrombotic SAE, people with hemophilia may be more reluctant to enroll in the ATLAS Phase 3 program of fitusiran. In addition, in November 2018 we announced that due to recruitment challenges, we had discontinued a Phase 2 study of cemdisiran in atypical hemolytic uremic syndrome and are focusing our cemdisiran clinical development efforts in a different indication. Delays or difficulties in patient enrollment or difficulties retaining trial participants, including as a result of the availability of existing or other investigational treatments or safety concerns, including the impact of public health emergencies such as the COVID-19 pandemic, can result in increased costs, longer development times or termination of a clinical trial.

Although our investigational RNAi therapeutics have been generally well-tolerated in our clinical trials to date, new safety findings may emerge. For example, as noted above, in September 2017, we announced that we had temporarily suspended dosing in all ongoing fitusiran studies pending further review of a fatal thrombotic SAE that occurred in a patient with hemophilia A without inhibitors who was receiving fitusiran in our Phase 2 OLE study. In addition, in October 2016, we made the decision to discontinue our revusiran program. Following reports in the revusiran Phase 2 OLE study of new onset or worsening peripheral neuropathy, the revusiran ENDEAVOUR Phase 3 study DMC assembled in early October 2016 at our request to review these reports and ENDEAVOUR safety data on an unblinded basis. The DMC did not find conclusive evidence for a drug-related neuropathy signal in the ENDEAVOUR trial, but informed us that the benefit-risk profile for revusiran no longer supported continued dosing. We subsequently reviewed unblinded ENDEAVOUR data which revealed an imbalance of mortality in the revusiran arm as compared to placebo. Further, a review by us in 2017 of the ENDEAVOUR results subsequent to the completion of follow-up of the patients post-dosing discontinuation revealed an imbalance in new onset or worsening peripheral neuropathy in the revusiran arm as compared to placebo. We had previously reported, in July 2016, preliminary data from our revusiran Phase 2 OLE study for 12 patients who had reached the 12-month endpoint as of the data transfer date of May 26, 2016. SAEs were observed in 14 patients, one of which, a case of lactic acidosis, was deemed possibly related to the study drug and the patient discontinued treatment. There were a total of seven deaths reported at that time in the revusiran OLE study, all of which were unrelated to the study drug. The majority of the AEs were mild or moderate in severity; injection site reactions, or ISRs, were reported in 12 patients. In August 2015, we reported that three patients had discontinued from the revusiran Phase 2 OLE study due to recurrent localized reactions at the injection site or a diffuse rash; no further discontinuations due to ISRs had occurred as of May 26, 2016.

In our ENVISION Phase 3 study of givosiran in patients with AHP, AEs were reported in 89.6% of givosiran patients and 80.4% of placebo patients; SAEs were reported in 20.8% of givosiran patients and 8.7% of placebo patients. Of the SAEs reported in givosiran patients, there were two cases of chronic kidney disease, or CKD, and one case each of asthma, device-related infection, gastroenteritis, hypoglycemia, abnormal liver function test, major depression, pain management and pyrexia. Three SAEs in givosiran patients were reported as related to study drug: pyrexia, abnormal liver function test and CKD. The two SAEs of CKD noted above were considered serious due to elective hospitalization for diagnostic evaluation. There were no deaths in the study. One patient in the givosiran arm discontinued treatment due to an increase in alanine aminotransferase, or ALT, level greater than eight times the upper limit of normal, a protocol-defined stopping rule. The increase in ALT levels

subsequently resolved. AEs reported in greater than 10% of givosiran patients and seen more frequently compared to placebo were nausea, ISRs, CKD, and fatigue. Four of five of the patients with AEs reported as CKD had a prior history of CKD or a baseline estimated glomerular filtration rate less than 60 mL/min/1.73 m². No patients had clinically significant proteinuria and there were no treatment discontinuations due to renal AEs. In June 2020, we announced new data from the OLE period of the ENVISION Phase 3 study, which noted that the safety profile of givosiran in the OLE period was consistent with that observed in the double-blind period, and there were no new safety findings.

In our ALN-VSP clinical trial, one patient with advanced pancreatic neuroendocrine cancer with extensive involvement of the liver developed hepatic failure five days following the second dose of ALN-VSP and subsequently died; this was deemed possibly related to the study drug. As demonstrated by the discontinuation of our revusiran program in October 2016 and the temporary suspension of dosing in September 2017 in our fitusiran studies, the occurrence of SAEs and/or AEs can result in the suspension or termination of clinical trials of a product candidate by us or the FDA or a foreign regulatory authority. The occurrence of SAEs and/or AEs could also result in refusal by the FDA or a foreign regulatory authority to approve a particular product candidate for any or all indications of use.

Clinical trials also require the review, oversight and approval of IRBs or, outside of the U.S., an independent ethics committee, which continually review clinical investigations and protect the rights and welfare of human subjects. Inability to obtain or delay in obtaining IRB or ethics committee approval can prevent or delay the initiation and completion of clinical trials, and the FDA or foreign regulatory authorities may decide not to consider any data or information derived from a clinical investigation not subject to initial and continuing IRB or ethics committee review and approval, as the case may be, in support of a marketing application.

Our product candidates that we develop may encounter problems during clinical trials that will cause us, an IRB, ethics committee or regulatory authorities to delay, suspend or terminate these trials, or that will delay or confound the analysis of data from these trials. If we experience any such problems, we may not have the financial resources to continue development of the product candidate that is affected, or development of any of our other product candidates. We may also lose, or be unable to enter into, collaborative arrangements for the affected product candidate and for other product candidates we are developing.

A failure of one or more of our clinical trials can occur at any stage of testing. We may experience numerous unforeseen events during, or as a result of, nonclinical testing and the clinical trial process that could delay or prevent regulatory approval or our ability to commercialize our product candidates, including:

- our nonclinical tests or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional nonclinical testing or clinical trials, or we may abandon projects that we expect to be promising;
- delays in filing IND applications or comparable foreign applications or delays or failure in obtaining the necessary approvals from regulators or IRBs/ethics committees in order to commence a clinical trial at a prospective trial site, or their suspension or termination of a clinical trial once commenced;
- conditions imposed on us by an IRB or ethics committee, or the FDA or comparable foreign authorities regarding the scope or design of our clinical trials;
- problems in engaging IRBs or ethics committees to oversee clinical trials or problems in obtaining or maintaining IRB or ethics committee approval of trials;
- delays in enrolling patients and volunteers into clinical trials, and variability in the number and types of patients and volunteers available for clinical trials, including as a result of the COVID-19 pandemic;
- disruptions caused by man-made or natural disasters or public health pandemics or epidemics or other business interruptions, including the current COVID-19 pandemic;
- high drop-out rates for patients and volunteers in clinical trials;
- negative or inconclusive results from our clinical trials or the clinical trials of others for product candidates similar to ours;
- inadequate supply or quality of product candidate materials or other materials necessary for the conduct of our clinical trials or disruption or delays in the clinical supply due to the COVID-19 pandemic;
- greater than anticipated clinical trial costs;
- serious and unexpected drug-related side effects experienced by participants in our clinical trials or by individuals using drugs similar to our product candidates;
- poor or disappointing effectiveness of our product candidates during clinical trials;
- unfavorable FDA or other regulatory agency inspection and review of a clinical trial site or records of any clinical or nonclinical investigation;

- failure of our third-party contractors or investigators to comply with regulatory requirements, including GCP and cGMP, or otherwise meet their contractual obligations in a timely manner, or at all;
- governmental or regulatory delays and changes in regulatory requirements, policy and guidelines, including the imposition of additional regulatory oversight around clinical testing generally or with respect to our technology in particular; or
- interpretations of data by the FDA and similar foreign regulatory agencies that differ from ours.

Even if we successfully complete clinical trials of our product candidates, any given product candidate may not prove to be a safe and effective treatment for the disease for which it was being tested.

We may be unable to obtain U.S. or foreign regulatory approval for our product candidates and, as a result, we may be unable to commercialize such product candidates.

Our product candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, approval, recordkeeping, reporting, labeling, storage, pricing, marketing and distribution of drugs. Rigorous nonclinical testing and clinical trials and an extensive regulatory approval process are required to be successfully completed in the U.S. and in many foreign jurisdictions before a new drug can be marketed. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. It is possible that the product candidates we are developing will not obtain the regulatory approvals necessary for us or our collaborators to begin selling them.

The time required to obtain FDA and other regulatory approvals is unpredictable but typically takes many years following the commencement of clinical trials, depending upon the type, complexity and novelty of the product candidate. The standards that the FDA and its foreign counterparts use when regulating us are not always applied predictably or uniformly and can change. Any analysis we perform of data from nonclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unexpected delays or increased costs due to new government regulations, for example, from future legislation or administrative action, or from changes in FDA policy during the period of product development, clinical trials and FDA regulatory review. It is impossible to predict whether legislative changes will be enacted, or whether FDA or foreign regulations, guidance or interpretations will be changed, or what the impact of such changes, if any, may be.

Because the drugs we are developing represent a new class of drug, the FDA and its foreign counterparts have not yet established any definitive policies, practices or guidelines in relation to these drugs. The lack of policies, practices or guidelines may hinder or slow review by the FDA of any regulatory filings that we may submit. Moreover, the FDA may respond to these submissions by defining requirements we may not have anticipated. Such responses could lead to significant delays in the development of our product candidates. In addition, because there may be approved treatments for some of the diseases for which we may seek approval, or treatments in development which are approved by the time we apply for approval, in order to receive regulatory approval, we may need to demonstrate through clinical trials that the product candidates we develop to treat these diseases, if any, are not only safe and effective, but safer or more effective than existing products. In April 2020, we announced that we submitted an NDA for lumasiran, which was accepted by the FDA and granted Priority Review. The FDA has set an action date of December 3, 2020 under the Prescription Drug User Fee Act, and has indicated that they are not currently planning an advisory committee meeting as part of the NDA review. Additionally, in March 2020, we submitted an MAA for lumasiran with the EMA, which has been validated by the EMA. Lumasiran was previously granted an accelerated assessment by the EMA. Interruption or delays in the operations of the FDA, EMA and comparable foreign regulatory agencies due to the COVID-19 pandemic, may impact the review, inspection and approval timelines for our product candidates, including lumasiran. Any such interruption or delay by the FDA, EMA or comparable foreign regulatory agency in light of COVID-19 pandemic could have a material adverse effect on our efforts to obtain regulatory approval for lumasiran, or our collaborator MDCO's efforts to obtain regulatory approval for inclisiran, which could have a material adverse effect on our financial results.

Any delay or failure in obtaining required approvals for our product candidates could have a material adverse effect on our ability to generate revenues from any product candidate for which we may seek approval in the future. Furthermore, any regulatory approval to market any product may be subject to limitations on the approved uses for which we may market the product or the labeling or other restrictions, which could limit each such product's market opportunity and have a negative impact on our results of operations and our stock price. In addition, the FDA has the authority to require a Risk Evaluation and Mitigations Strategy, or REMS, plan as part of an NDA, or after approval, which may impose further requirements or restrictions on the distribution or use of an approved drug, such as limiting prescribing to certain physicians or medical centers that have undergone specialized training, limiting treatment to patients who meet certain safe-use criteria and requiring treated patients to enroll in a registry. In the EU, we could be required to adopt a similar plan, known as a risk management plan, and our products could be subject to specific risk minimization measures, such as restrictions on prescription and supply, the conduct of post-marketing safety or efficacy studies, or the distribution of patient and/or prescriber educational materials. In either instance, these limitations and restrictions may limit the size of the market for the product and affect reimbursement by third-party payors.

We are also subject to numerous foreign regulatory requirements governing, among other things, the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process varies among countries and includes all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Approval by the FDA does not ensure approval by regulatory authorities outside the U.S. and vice versa.

Even if we or our partners obtain regulatory approvals, our marketed drugs will be subject to ongoing regulatory oversight. If we or our partners fail to comply with continuing U.S. and foreign requirements, our approvals could be limited or withdrawn, we could be subject to other penalties, and our business would be seriously harmed.

Following any initial regulatory approval of drugs we or our partners may develop, including ONPATTRO, which was approved in the U.S. and EU in August 2018, and in several other geographies thereafter, and GIVLAARI, which was approved in the U.S. in November 2019, in the EU in March 2020 and in Brazil in July 2020, we will also be subject to continuing regulatory oversight, including the review of adverse drug experiences and clinical results that are reported after our drug products are made commercially available. This would include results from any post-marketing tests or surveillance to monitor the safety and efficacy of ONPATTRO, GIVLAARI or other drug products required as a condition of approval or agreed to by us. The regulatory approvals that we receive for ONPATTRO and GIVLAARI, as well as any regulatory approvals we receive for any other product candidates, including lumasiran, may also be subject to limitations on the approved uses for which the product may be marketed. Other ongoing regulatory requirements include, among other things, submissions of safety and other post-marketing information and reports, registration and listing, as well as continued compliance with good practice quality guidelines and regulations, including cGMP requirements and GCP requirements for any clinical trials that we conduct post-approval. In addition, we are conducting, and intend to continue to conduct, clinical trials for our product candidates, and we intend to seek approval to market our product candidates, in jurisdictions outside of the U.S., and therefore will be subject to, and must comply with, regulatory requirements in those jurisdictions.

The FDA has significant post-market authority, including, for example, the authority to require labeling changes based on new safety information and to require post-market studies or clinical trials to evaluate serious safety risks related to the use of a drug and to require withdrawal of the product from the market. The FDA also has the authority to require a REMS plan after approval, which may impose further requirements or restrictions on the distribution or use of an approved drug. As ONPATTRO and GIVLAARI are used commercially, we or others could identify previously unknown side effects or known side effects could be observed as being more frequent or severe than in clinical studies or earlier post-marketing periods, in which case:

- sales of ONPATTRO or GIVLAARI may be more modest than originally anticipated;
- regulatory approvals for ONPATTRO or GIVLAARI may be restricted or withdrawn;
- we may decide, or be required, to send product warning letters or field alerts to physicians, pharmacists and hospitals;
- additional nonclinical or clinical studies, changes in labeling, adoption of a REMS plan, or changes to manufacturing processes, specifications and/or facilities may be required; and
- government investigations or lawsuits, including class action suits, may be brought against us.

Any of the above occurrences could reduce or prevent sales of ONPATTRO or GIVLAARI, increase our expenses and impair our ability to successfully commercialize either ONPATTRO or GIVLAARI.

The CMO and manufacturing facilities we use to make ONPATTRO, GIVLAARI and certain of our current product candidates, including our Cambridge facility, our future Norton facility, and Agilent and other CMOs, will also be subject to periodic review and inspection by the FDA and other regulatory agencies. For example, Agilent and our Cambridge-based facility were subject to regulatory inspection by the FDA and the EMA in connection with the review of our applications for regulatory approval for ONPATTRO and GIVLAARI, and may be subject to similar inspection in connection with any subsequent applications for regulatory approval of ONPATTRO or GIVLAARI filed in other territories or in connection with the pending FDA regulatory application for lumasiran. The discovery of any new or previously unknown problems with our facilities or our CMOs, or our or their manufacturing processes or facilities, may result in restrictions on the drug or CMO or facility, including delay in approval or, in the future, withdrawal of the drug from the market. We have developed cGMP capabilities and processes for the manufacture of patisiran formulated bulk drug product for commercial use. In addition, in April 2016, we completed our purchase of a parcel of land in Norton, Massachusetts, where we are completing construction of a cGMP manufacturing facility for drug substance for clinical and, eventually, commercial use. We may not have the ability or capacity to manufacture material at a broader commercial scale in the future. We may manufacture clinical trial materials or we may contract a third party to manufacture these materials for us. Reliance on CMOs entails risks to which we would not be subject if we manufactured products ourselves, including reliance on the CMO for regulatory compliance.

If we or our collaborators, CMOs or service providers fail to comply with applicable continuing regulatory requirements in the U.S. or foreign jurisdictions in which we may seek to market our products, we or they may be subject to, among other things, fines, warning letters, holds on clinical trials, refusal by the FDA or foreign regulatory authorities to approve pending

applications or supplements to approved applications, suspension or withdrawal of regulatory approval, product recalls and seizures, refusal to permit the import or export of products, operating restrictions, injunction, civil penalties and criminal prosecution.

Even if we receive regulatory approval to market our product candidates, the market may not be receptive to our product candidates upon their commercial introduction, which will prevent us from becoming profitable.

The product candidates that we are developing are based upon new technologies or therapeutic approaches. Key participants in pharmaceutical marketplaces, such as physicians, third-party payors and consumers, may not accept a product intended to improve therapeutic results based on RNAi technology. As a result, it may be more difficult for us to convince the medical community and third-party payors to accept and use our product, or to provide favorable reimbursement.

Other factors that we believe will materially affect market acceptance of our product candidates include:

- the timing of our receipt of any marketing approvals, the terms of any approvals and the countries in which approvals are obtained;
- the safety and efficacy of our product candidates, as demonstrated in clinical trials and as compared with alternative treatments, if any;
- relative convenience and ease of administration of our product candidates;
- the willingness of patients to accept potentially new routes of administration or new or different therapeutic approaches and mechanisms of action;
- the success of our physician education programs;
- the availability of adequate government and third-party payor reimbursement;
- the pricing of our products, particularly as compared to alternative treatments, and the market perception of such prices and any price increase that we may implement in the future; and
- availability of alternative effective treatments for the diseases that product candidates we develop are intended to treat and the relative risks, benefits and costs of those treatments.

For example, ONPATTRO utilizes an intravenous mode of administration with pre-medication that physicians and/or patients may not readily adopt, or which may not compete favorably with other available options, including inotersen, marketed by Akcea Therapeutics, Inc., or Akcea, which is administered subcutaneously, or tafamidis, marketed by Pfizer, which is in pill form. In addition, fitusiran represents a new approach to treating hemophilia which may not be readily accepted by patients and their caregivers.

The patient populations suffering from hATTR amyloidosis, AHP and PH1 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 from ONPATTRO, GIVLAARI and, if approved, lumasiran, may be adversely affected.

Our estimates regarding the potential market size for ONPATTRO, GIVLAARI or any future products, including lumasiran, at the time we commence commercialization, may be materially different from the actual market size, including as a result of the indication approved by regulatory authorities, which could result in significant changes in our business plan and may have a material adverse effect on our results of operations and financial condition. For example, the indication approved by the FDA for ONPATTRO is for the treatment of the polyneuropathy of hATTR amyloidosis and not for the treatment of cardiomyopathy or other manifestations of the disease. In addition, the U.S. label does not include data from the exploratory cardiac endpoints included in our APOLLO Phase 3 study. This could have an adverse impact on the market opportunity for ONPATTRO in the U.S. In addition, our efforts to raise disease awareness and improve diagnosis of hATTR amyloidosis have been and may continue to be impacted by the COVID-19 pandemic. For example, Alnylam Act[®], our third-party genetic screening initiative in the U.S., Canada and Brazil, experienced a decrease in submitted samples in the second quarter as a result of the COVID-19 pandemic. 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.

We may incur significant liability if enforcement authorities allege or determine that we are engaging in commercial activities or promoting our commercially approved products in a way that violates applicable regulations.

Physicians have the discretion to prescribe approved drug products for uses that are not described in the product's labeling and that differ from those approved by the FDA or other applicable regulatory agencies. Off-label uses are common across medical specialties. Although the FDA and other regulatory agencies that approve drug products do not regulate a physician's practice of medicine or choice of treatments, the FDA and other regulatory agencies regulate a manufacturer's communications regarding off-label use and prohibit off-label promotion, as well as the dissemination of false or misleading labeling or promotional materials, including by their agents. Manufacturers and their agents may not promote drugs for off-label uses or provide off-label information in the promotion of drug products that is not consistent with the approved labeling for those

products. For example, we may not promote ONPATTRO in the U.S. for use in any indications other than the treatment of the polyneuropathy of hATTR amyloidosis in adults. The FDA and other regulatory and enforcement authorities actively enforce laws and regulations prohibiting promotion of off-label uses and the promotion of products for which marketing approval has not been obtained. A company that is found to have improperly promoted off-label uses may be subject to corrective advertising in addition to significant liability, which may include civil and administrative remedies as well as criminal sanctions.

Notwithstanding regulations related to product promotion, the FDA and other regulatory authorities allow companies to engage in truthful, non-misleading and non-promotional scientific exchange concerning their products, and we intend to engage in medical education activities and communicate with healthcare providers in compliance with all applicable laws and regulatory guidance. Nonetheless, the FDA, other applicable regulatory authorities, competitors, and other third parties may take the position that we are not in compliance with such regulations, and if such non-compliance is proven, it could harm our reputation, financial condition or divert financial and management resources from our core business, and would have a material adverse effect on our business, financial condition and results of operations. Moreover, any threatened or actual government enforcement actions or lawsuits by third parties could also generate adverse publicity, which could decrease demand for our products and require that we devote substantial resources that could be used productively on other aspects of our business.

In addition to our medical education efforts, we also offer patient support services to assist patients receiving treatment with our commercially approved products. Manufacturers have increasingly become the focus of government investigation of patient support programs based on allegations that through such services illegal inducements are provided to physicians and/or patients, leading to improper utilization of government resources through Medicare, Medicaid and other government programs. Companies that are found to have violated laws such as the federal Anti-Kickback Statute and/or False Claims Act, or FCA, face significant liability, including civil and administrative penalties, criminal sanctions, and potential exclusion from participation in government programs. We have designed our programs in a manner that we believe complies with all applicable laws and regulations and have implemented a robust compliance program to support a compliant corporate culture and compliance with such laws.

Any drugs we develop may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, thereby harming our business.

The regulations that govern marketing approvals, pricing and reimbursement for new drugs vary widely from country to country. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. We are actively monitoring these regulations as we market and sell ONPATTRO and GIVLAARI and as several of our other programs move through late stages of development. However, a number of our programs are currently in the earlier stages of development and we will not be able to assess the impact of price regulations for such programs for a number of years. We might obtain regulatory approval for a product, including ONPATTRO and GIVLAARI, in a particular country, but then be subject to price regulations that delay our commercial launch of the product and negatively impact the revenues we are able to generate from the sale of the product in that country and potentially in other countries due to reference pricing.

Our ability to commercialize ONPATTRO, GIVLAARI or any future products, including lumasiran, successfully also will depend in part on the extent to which reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. ONPATTRO, GIVLAARI and other products for which we are able to obtain marketing approval, including lumasiran, may not be considered cost-effective, and the amount reimbursed may be insufficient to allow us to sell ONPATTRO, GIVLAARI or any future products, including lumasiran on a competitive basis. Increasingly, the third-party payors who pay for or reimburse patients or healthcare providers, such as government and private insurance plans, are requiring that drug companies provide them with predetermined discounts from list prices, and are seeking to reduce the prices charged or the amounts reimbursed for drug products. In the U.S., we have entered into more than ten VBAs and are negotiating additional VBAs for ONPATTRO with certain private health insurers. In addition, we have entered into seven VBAs and are negotiating additional VBAs for GIVLAARI. The goal of these agreements is to ensure that we are paid based on the ability of our commercially approved products to deliver results in the real world setting comparable to those demonstrated in clinical trials. Partnering with payers on these agreements is intended to provide more certainty to them for their investment, and help accelerate coverage decisions for patients. The agreements are structured to link our commercially approved products' performance in real-world use to financial terms. If the price we are able to charge for ONPATTRO, GIVLAARI or any other products we develop, including lumasiran, or the reimbursement provided for such products, is inadequate in light of our development and other costs, or if reimbursement is denied, our return on investment could be adversely affected. In addition, we have stated publicly that we intend to grow through continued scientific innovation rather than arbitrary price increases. Specifically, we have stated that we will not raise the price of any product for which we receive marketing approval over the rate of inflation, as determined by the consumer price index for urban consumers (approximately 2.2% currently) absent a significant value driver. Our patient access philosophy could also negatively impact the revenues we are able to generate from the sale of one or more of our products in the future.

Some of the drugs we market need to be administered under the supervision of a physician or other healthcare professional on an outpatient basis, including ONPATRO and GIVLAARI. Under currently applicable U.S. law, certain drugs that are not usually self-administered (including injectable drugs) may be eligible for coverage under the Medicare Part B program if:

- they are incident to a physician's services;
- they are reasonable and necessary for the diagnosis or treatment of the illness or injury for which they are administered according to accepted standards of medical practice; and
- they have been approved by the FDA and meet other requirements of the statute.

There may be significant delays in obtaining coverage for newly-approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or foreign regulatory authorities. Moreover, eligibility for coverage does not imply that any drug will be reimbursed in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution or that covers a particular provider's cost of acquiring the drug. Interim payments for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement may be based on payments allowed for lower-cost drugs that are already reimbursed, may be incorporated into existing payments for other services and may reflect budgetary constraints or imperfections in Medicare data. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the U.S. On July 24, 2020, President Trump signed four Executive Orders aimed at lowering drug prices. The Executive Orders direct the Secretary of Health and Human Services to: eliminate protection under an Anti-Kickback Statute safe harbor for certain retrospective price reductions provided by drug manufacturers to sponsors of Medicare Part D plans or pharmacy benefit managers that are not applied at the point-of-sale; allow the importation of certain drugs from other countries through individual waivers, permitting the re-importation of insulin products, and prioritizing finalization of the proposed rule to permit the importation of drugs from Canada; depending on whether pharmaceutical manufacturers agree to other measures, ensure that payment by the Medicare program for certain Medicare Part B drugs is not higher than the payment by other designated countries; and allow certain low-income individuals receiving insulin and epinephrine purchased by a Federally Qualified Health Center, or FQHC, as part of the 340B drug program to purchase those drugs at the discounted price paid by the FQHC. The FDA has also issued a Draft Guidance document outlining a potential pathway for manufacturers to obtain an additional National Drug Code for an FDA-approved drug that was originally intended to be marketed in a foreign country and that was authorized for sale in that foreign country. It is unclear if, when, and to what extent the Executive Orders and the Draft Guidance may be implemented. The regulatory and market implications of the notice of Executive Orders and Draft Guidance are unknown at this time, but legislation, regulations or policies allowing the reimportation of drugs, if enacted and implemented, could decrease the price we receive for our products and adversely affect our future revenues and prospects for profitability. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates. Our inability to promptly obtain coverage or adequate reimbursement rates from both government-funded and private payors for ONPATRO, GIVLAARI or other new drugs that we develop, including lumasiran, and for which we obtain regulatory approval could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products, and our overall financial condition.

We believe that the efforts of governments and third-party payors to contain or reduce the cost of healthcare and legislative and regulatory proposals to broaden the availability of healthcare will continue to affect the business and financial condition of pharmaceutical and biopharmaceutical companies. Specifically, there have been several recent U.S. Congressional inquiries and proposed federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs.

A number of other legislative and regulatory changes in the healthcare system in the U.S. and other major healthcare markets have been proposed or enacted in recent months and years, and such efforts have expanded substantially in recent years. These developments have included prescription drug benefit legislation that was enacted in 2003 and took effect in January 2006, healthcare reform legislation enacted by certain states, and major healthcare reform legislation that was passed by Congress and enacted into law in the U.S. in 2010. These developments could, directly or indirectly, affect our ability to sell ONPATRO, GIVLAARI or future products, if approved, including lumasiran, at a favorable price.

In particular, in March 2010, the Patient Protection and Affordable Care Act, also referred to as the Affordable Care Act, or the ACA, was signed into law. This legislation changed the system of healthcare insurance and benefits intended to broaden coverage and control costs. The law also contains provisions that affect companies in the pharmaceutical industry and other healthcare related industries by imposing additional costs and changes to business practices. Among the provisions affecting pharmaceutical companies are the following:

- Mandatory rebates for drugs sold into the Medicaid program were increased, and the rebate requirement was extended to drugs used in risk-based Medicaid managed care plans.

- The 340B Drug Pricing Program under the Public Health Service Act was extended to require mandatory discounts for drug products sold to certain critical access hospitals, cancer hospitals and other covered entities.
- Pharmaceutical companies are required to offer discounts on brand-name drugs to patients who fall within the Medicare Part D coverage gap, commonly referred to as the “donut hole.”
- Pharmaceutical companies are required to pay an annual non-tax deductible fee to the federal government based on each company’s market share of prior year total sales of branded products to certain federal healthcare programs, such as Medicare, Medicaid, Department of Veterans Affairs and Department of Defense. Since we expect our branded pharmaceutical sales to constitute a small portion of the total federal healthcare program pharmaceutical market, we do not expect this annual assessment to have a material impact on our financial condition.
- The law provides that approval of an application for a follow-on biologic product may not become effective until 12 years after the date on which the reference innovator biologic product was first licensed by the FDA, with a possible six-month extension for pediatric products. After this exclusivity ends, it will be easier for generic manufacturers to enter the market, which is likely to reduce the pricing for such products and could affect our profitability.
- The law creates a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected.
- The law expands eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer’s Medicaid rebate liability.
- The law expands the entities eligible for discounts under the Public Health Service Act pharmaceutical pricing program.
- The law expands healthcare fraud and abuse laws, including the civil FCA and the federal Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance.
- The law establishes new requirements to report financial arrangements with physicians and teaching hospitals and to annually report drug samples that manufacturers and distributors provide to physicians.
- The law establishes a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.
- The law established the Center for Medicare and Medicaid Innovation within the Centers for Medicare and Medicaid Services, or CMS, to test innovative payment and service delivery methods.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation’s automatic reduction to several government programs. These changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2029; however, these Medicare sequester reductions will be suspended from May 1, 2020 through December 31, 2020 due to the COVID-19 pandemic. The American Taxpayer Relief Act of 2012, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for ONPATTRO, GIVLAARI or any of our product candidates for which we may obtain regulatory approval, including lumasiran, or the frequency with which ONPATTRO, GIVLAARI or any future product, including lumasiran, is prescribed or used.

The full effects of the U.S. healthcare reform legislation cannot be known until the law is fully implemented through regulations or guidance issued by the CMS and other federal and state healthcare agencies. The financial impact of the U.S. healthcare reform legislation over the next few years will depend on a number of factors, including, but not limited, to the policies reflected in implementing regulations and guidance, and changes in sales volumes for products affected by the new system of rebates, discounts and fees. This legislation may also have a positive impact on our future net sales, if any, by increasing the aggregate number of persons with healthcare coverage in the U.S.

Since its enactment, there have been numerous judicial, administrative, executive, and legislative challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. Various portions of the ACA are currently undergoing legal and constitutional challenges in the Fifth Circuit Court and the United States Supreme Court; the Trump Administration has issued various Executive Orders which eliminated cost sharing subsidies and various provisions that would impose a fiscal burden on states or a cost, fee, tax, penalty or regulatory burden on individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices; and Congress has introduced several pieces of legislation aimed at significantly revising or repealing the ACA. It is unclear whether the ACA will be overturned, repealed, replaced, or further amended. We cannot predict what affect further changes to the ACA would have

on our business. The costs of prescription pharmaceuticals in the U.S. have also been the subject of considerable discussion in the U.S., and members of Congress and the Trump administration have stated that they will address such costs through new legislative and administrative measures. To date, there have been several U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products. At the federal level, Congress and the Trump administration have each indicated that it will continue to pursue new legislative and/or administrative measures to control drug costs. The Trump administration released a “Blueprint,” or plan, to reduce the cost of drugs, increase drug manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products, and reduce the out of pocket costs of drug products paid by consumers. The Trump administration’s Blueprint contains certain measures that the U.S. Department of Health and Human Services is already working to implement. Although some proposals related to the administration’s Blueprint may require additional authorization to become effective, may ultimately be withdrawn, or may face challenges in the courts, the Congress and the Trump administration have indicated that they will continue to seek new legislative and administrative measures to control drug costs. For example, on September 25, 2019, the Senate Finance Committee introduced the Prescription Drug Pricing Reduction Act of 2019, a bill intended to reduce Medicare and Medicaid prescription drug prices. The proposed legislation would restructure the Part D benefit, modify payment methodologies for certain drugs, and impose an inflation cap on drug price increases. Another bill, the Lower Drug Costs Now Act of 2019, which passed out of the House of Representatives on December 12, 2019, and would require the U.S. Department of Health and Human Services to directly negotiate drug prices with manufacturers. It is unclear whether either of these bills will make it through both chambers of Congress and be signed into law, and if either is enacted, what effect it would have on our business; however enactment of either of these bills could have a material adverse effect on our business and prospects.

At the state level, legislatures have become increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing. Some of these measures include price or patient reimbursement constraints, discounts, restrictions on certain product access, marketing cost disclosure and transparency measures, and, in some cases, measures designed to encourage importation from other countries and bulk purchasing. In addition, regional health care authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other health care programs. These measures could reduce the ultimate demand for our products, once approved, or put pressure on our product pricing.

We cannot predict what healthcare reform initiatives may be adopted in the future. Further federal and state legislative and regulatory developments are likely, and we expect ongoing initiatives in the U.S. to increase pressure on drug pricing. Such reforms could have an adverse effect on anticipated revenues from ONPATTRO, GIVLAARI or other product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop drug candidates.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department’s Office of Foreign Assets Controls, the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. From time to time, we may engage third parties for clinical trials outside of the United States, to sell our products abroad, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Governments outside the U.S. may impose strict price controls, which may adversely affect our revenues, if any.

The pricing of prescription pharmaceuticals is also subject to governmental control outside the U.S. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of regulatory approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidates to other available therapies. If reimbursement of our products is

unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our ability to generate revenues and become profitable could be impaired.

In some countries, including Member States of the EU, or Japan, the pricing of prescription drugs is subject to governmental control. Additional countries may adopt similar approaches to the pricing of prescription drugs. In such countries, pricing negotiations with governmental authorities can take considerable time after receipt of regulatory approval for a product. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Moreover, political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after coverage and reimbursement have been obtained. Reference pricing used by various countries and parallel distribution, or arbitrage between low-priced and high-priced countries, can further reduce prices. In some countries, we may be required to conduct a clinical study or other studies that compare the cost-effectiveness of a product candidate to other available therapies in order to obtain or maintain reimbursement or pricing approval, which is time-consuming and costly. We cannot be sure that such prices and reimbursement will be acceptable to us or our strategic partners. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If pricing is set at unsatisfactory levels or if reimbursement of our products is unavailable or limited in scope or amount, our revenues from sales by us or our strategic partners and the potential profitability of ONPATTRO, GIVLAARI or any future products, including lumasiran, in those countries would be negatively affected. Another impact from the tightening pricing control could be felt from greater competition from less expensive generic or biosimilar products once the exclusivity expires; the governments have adopted policies to switch prescribed products to generic versions in order to cut the medical cost.

If we or our collaborators, CMOs or service providers fail to comply with healthcare laws and regulations, or legal obligations related to privacy, data protection and information security, we or they could be subject to enforcement actions, which could affect our ability to develop, market and sell our products and may harm our reputation.

As a manufacturer of pharmaceuticals, we are subject to federal, state, and comparable foreign healthcare laws and regulations pertaining to fraud and abuse and patients' rights, in addition to legal obligations related to privacy, data protection and information security. These laws and regulations include:

- The U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce either the referral of an individual for a healthcare item or service, or the purchasing or ordering of an item or service, for which payment may be made under a federal healthcare program such as Medicare or Medicaid.
- The U.S. federal false claims laws, including the FCA, which prohibit, among other things, individuals or entities from knowingly presenting or causing to be presented, claims for payment by government-funded programs such as Medicare or Medicaid that are false or fraudulent, making, using or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government, or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. Manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The FCA also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the FCA and to share in any monetary recovery.
- The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity can be found guilty of violating HIPAA without actual knowledge of the statute or specific intent to violate it.
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, which imposes requirements relating to the privacy, security, and transmission of individually identifiable health information; and requires notification to affected individuals and regulatory authorities of certain breaches of security of individually identifiable health information.
- The U.S. federal Open Payments requirements, which were implemented by the CMS pursuant to the Physician Payments Sunshine Act as part of the ACA. Under the Open Payments Program, manufacturers of medical devices, medical supplies, biological products and drugs covered by Medicare, Medicaid and the Children's Health Insurance Programs must report all transfers of value, including consulting fees, travel reimbursements, research grants, and other payments made to physicians (currently defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals as well as ownership and investment interests held by physicians and their immediate family members. Legislation passed in 2018 expands the scope of covered recipients to non-physician provider such as physician assistants and advanced practice nurses, effective in 2022.

- Federal statutory and regulatory requirements applicable to pricing and sales of product to Federal Government Agencies.
- Federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.
- State and foreign laws comparable to each of the above federal laws, including in the EU laws prohibiting giving healthcare professionals any gift or benefit in kind as an inducement to prescribe our products, national transparency laws requiring the public disclosure of payments made to healthcare professionals and institutions, and data privacy laws, in addition to anti-kickback and false claims laws applicable to commercial insurers and other non-federal payors, requirements for mandatory corporate regulatory compliance programs, and laws relating to government reimbursement programs, patient data privacy and security.
- European Privacy Laws including Regulation 2016/679, known as the General Data Protection Regulation, or the GDPR, and the e-Privacy Directive (2002/58/EC), and the national laws implementing each of them, as well as the privacy laws of Japan and other territories. Failure to comply with our obligations under the privacy regime could expose us to significant fines and/or adverse publicity, which could have material adverse effects on our reputation and business.
- The California Consumer Privacy Act of 2018, or CCPA, effective as of January 1, 2020, that gives California residents expanded rights to access and require deletion of their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation.

Some state laws also require pharmaceutical manufacturers to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, in addition to requiring manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures and pricing information. State and foreign laws also govern the privacy and security of health information, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

In the EU, the GDPR replaced the EU Data Protection Directive on May 25, 2018. The GDPR introduced new data protection requirements in the EU, as well as potential fines for noncompliance of up to the greater of €20,000,000 or 4% of total annual global revenue. The regulation imposes numerous new requirements for the collection, use and disclosure of personal information, including: more stringent requirements relating to data subject consent; what information must be shared with data subjects regarding how their personal information is used; the obligation to notify regulators and affected individuals of personal data breaches; extensive new internal privacy governance obligations; and obligations to honor expanded rights of individuals in relation to their personal information (e.g., the right to access, correct and delete their data). In addition, the GDPR maintains the EU Data Protection Directive's restrictions on cross-border data transfer. The GDPR increases the responsibility and liability of pharmaceutical companies in relation to processing personal data, and companies may be required to put in place additional mechanisms to ensure compliance with the new EU data protection rules. Further, Brexit has created uncertainty with regard to the status of the UK as an "adequate country" for the purposes of data transfers outside the EEA. In particular, it is unclear how data transfers to and from the UK will be regulated. These changes may require us to find alternative bases for the compliant transfer of personal data from the UK to the U.S., and we are monitoring developments in this area.

If our operations are found to be in violation of any of the aforementioned requirements, we may be subject to penalties, including civil or criminal penalties, criminal prosecution, monetary damages, the curtailment or restructuring of our operations, loss of eligibility to obtain approvals from the FDA, or exclusion from participation in government contracting, healthcare reimbursement or other government programs, including Medicare and Medicaid, or the imposition of a corporate integrity agreement with the Office of Inspector General of the Department of Health and Human Services, any of which could adversely affect our financial results. We are continuing to establish our global compliance infrastructure following the commercial launches of ONPATTRO in the third quarter of 2018, and GIVLAARI in December 2019, and as we prepare for the launch of our products in additional countries, assuming regulatory approvals. Although effective compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, these risks cannot be entirely eliminated. Any action against us for an alleged or suspected violation could cause us to incur significant legal expenses and could divert our management's attention from the operation of our business, even if our defense is successful. In addition, achieving and sustaining compliance with applicable laws and regulations may be costly to us in terms of money, time and resources.

If we or our collaborators, CMOs or service providers fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to enforcement actions, which could affect our ability to develop, market and sell ONPATTRO GIVLAARI, or any other future products, successfully and could harm our reputation and lead to reduced acceptance of our products by the market. These enforcement actions include, among others:

- adverse regulatory inspection findings;

- untitled letters or warning letters;
- voluntary or mandatory product recalls or public notification or medical product safety alerts to healthcare professionals;
- restrictions on, or prohibitions against, marketing our products;
- restrictions on, or prohibitions against, importation or exportation of our products;
- suspension of review or refusal to approve pending applications or supplements to approved applications;
- exclusion from participation in government-funded healthcare programs;
- exclusion from eligibility for the award of government contracts for our products;
- suspension or withdrawal of product approvals;
- product seizures;
- injunctions; and
- civil and criminal penalties, up to and including criminal prosecution resulting in fines, exclusion from healthcare reimbursement programs and imprisonment.

Moreover, federal, state or foreign laws or regulations are subject to change, and while we, our collaborators, CMOs and/or service providers currently may be compliant, that could change due to changes in interpretation, prevailing industry standards or the legal structure.

We are subject to governmental regulation and other legal obligations, particularly related to privacy, data protection and information security, and we are subject to consumer protection laws that regulate our marketing practices and prohibit unfair or deceptive acts or practices. Our actual or perceived failure to comply with such obligations could harm our business.

The GDPR imposes strict requirements on controllers and processors of personal data, including special protections for “special category data,” which includes health, biometric and genetic information of data subjects located in the EU. Further, GDPR provides a broad right for EU Member States to create supplemental national laws, such as laws relating to the processing of health, genetic and biometric data, which could further limit our ability to use and share such data or could cause our costs to increase, and harm our business and financial condition. GDPR grants individuals the opportunity to object to the processing of their personal information, allows them to request deletion of personal information in certain circumstances, and provides the individual with an express right to seek legal remedy in the event the individual believes his or her rights have been violated. Further, the GDPR imposes strict rules on the transfer of personal data out of the EU to the U.S. or other regions that have not been deemed to offer “adequate” privacy protections.

Failure to comply with the requirements of the GDPR and the related national data protection laws of the EU Member States, which may deviate slightly from the GDPR, may result in fines of up to 4% of total global annual revenue, or €20,000,000, whichever is greater, and in addition to such fines, we may be the subject of litigation and/or adverse publicity, which could have material adverse effect on our reputation and business. As a result of the implementation of the GDPR, we are required to put in place additional mechanisms to ensure compliance with the new data protection rules. For example, the GDPR requires us to make more detailed disclosures to data subjects, requires disclosure of the legal basis on which we can process personal data, may make it harder for us to obtain valid consent for processing, will require the appointment of a data protection officer where sensitive personal data (i.e., health data) is processed on a large scale, introduces mandatory data breach notification requirements throughout the EU, imposes additional obligations on us when we are contracting with service providers and requires us to adopt appropriate privacy governance including policies, procedures, training and data audit.

We are subject to the supervision of local data protection authorities in those jurisdictions where we are monitoring the behavior of individuals in the EU (i.e., undertaking clinical trials). We depend on a number of third parties in relation to the provision of our services, a number of which process personal data of EU individuals on our behalf. With each such provider we enter or intend to enter into contractual arrangements under which they are contractually obligated to only process personal data according to our instructions, and conduct or intend to conduct diligence to ensure that they have sufficient technical and organizational security measures in place.

We are also subject to evolving European privacy laws on electronic marketing and cookies. The EU is in the process of replacing the e-Privacy Directive (2002/58/EC) with a new set of rules taking the form of a regulation, which will be directly implemented in the laws of each European member state, without the need for further enactment. While the e-Privacy Regulation was originally intended to be adopted on May 25, 2018 (alongside the GDPR), it is still going through the European legislative process. Draft regulations were rejected by the Permanent Representatives Committee of the Council of EU on November 22, 2019; it is not clear when new regulations will be adopted in 2020.

There is significant uncertainty related to the manner in which data protection authorities will seek to enforce compliance with GDPR. Further, Brexit has created uncertainty with regard to the status of the UK as an ‘adequate country’ for the purposes of data transfers outside the EEA. In particular, it is unclear how data transfers to and from the UK will be regulated. Enforcement uncertainty and the costs associated with ensuring GDPR and e-Privacy compliance may be onerous and may adversely affect our business, financial condition, results of operations and prospects.

Compliance with U.S. and international data protection laws and regulations could require us to take on more onerous obligations in our contracts, restrict our ability to collect, use and disclose data, or in some cases, impact our ability to operate in certain jurisdictions. Failure to comply with these laws and regulations could result in government enforcement actions (which could include civil, criminal and administrative penalties), private litigation, and/or adverse publicity and could negatively affect our operating results and business. Moreover, clinical trial subjects, employees and other individuals about whom we or our potential collaborators obtain personal information, as well as the providers who share this information with us, may limit our ability to collect, use and disclose the information. Claims that we have violated individuals’ privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Our ability to obtain services, reimbursement or funding from the federal government may be impacted by possible reductions in federal spending and services, and any inability on our part to effectively adapt to such changes could substantially affect our financial position, results of operations and cash flows.

Under the Budget Control Act of 2011, the failure of Congress to enact deficit reduction measures of at least \$1.2 trillion for the years 2013 through 2021 triggered automatic cuts to most federal programs. These cuts included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013 (however, these Medicare sequester reductions will be suspended from May 1, 2020 through December 31, 2020 due to the COVID-19 pandemic). Certain of these automatic cuts have been implemented resulting in reductions in Medicare payments to physicians, hospitals, and other healthcare providers, among other things. Due to legislation amending the statute, including the Bipartisan Budget Act of 2018, these reductions will stay in effect through 2030 unless additional Congressional action is taken. The full impact on our business of these automatic cuts is uncertain.

If other federal spending is reduced, any budgetary shortfalls may also impact the ability of relevant agencies, such as the FDA or the National Institutes of Health to continue to function. Amounts allocated to federal grants and contracts may be reduced or eliminated. These reductions may also impact the ability of relevant agencies to timely review and approve drug research and development, manufacturing, and marketing activities, which may delay our ability to develop, market and sell ONPATTRO, GIVLAARI and any other products we may develop, including lumasiran.

Separately, in response to the COVID-19 pandemic, on March 10, 2020 the FDA announced its intention to postpone most inspections of foreign manufacturing facilities and products through April 2020. On March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities and provided guidance regarding the conduct of clinical trials. As of June 23, 2020, the FDA noted it was conducting mission critical domestic and foreign inspections to ensure compliance of manufacturing facilities with FDA quality standards. On July 10, 2020, the FDA announced its goal of restarting domestic on-site inspections during the week of July 20, 2020, but such activities will depend on data about the virus’ trajectory in a given state and locality and the rules and guidelines that are put in place by state and local governments. The FDA has developed a rating system to assist in determining when and where it is safest to conduct prioritized domestic inspections. Regulatory authorities outside the U.S. may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. Additionally, as of June 23, 2020, the FDA noted it was continuing to ensure timely reviews of applications for medical products during the COVID-19 pandemic in line with its user fee performance goals; however, the FDA may not be able to continue its current pace and review timelines could be extended. If a prolonged government shutdown occurs, or if global health concerns related to COVID-19 continue to prevent the FDA or other regulatory authorities from conducting certain aspects of their regular review and approval processes within specified or customary time periods, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Resolving such delays could force us or our collaborators to incur significant costs, could limit our allowed activities or the allowed activities of our collaborators, could diminish any competitive advantages that we or our collaborators may attain or could adversely affect our business, financial condition, results of operations and prospects, the value of our common stock and our ability to bring new products to market as forecasted. Even without such delay, there is no guarantee we will receive approval for our product candidates on a timely basis, or at all.

There is a substantial risk of product liability claims in our business. If we are unable to obtain sufficient insurance, a product liability claim against us could adversely affect our business.

Our business exposes us to significant potential product liability risks that are inherent in the development, testing, manufacturing and marketing of human therapeutic products. Product liability claims could delay or prevent completion of our clinical development programs. Following the decision to discontinue clinical development of revusiran, we conducted a comprehensive evaluation of available revusiran data. We reported the results of this evaluation in August 2017, however, our

investigation did not result in a conclusive explanation regarding the cause of the mortality imbalance observed in the ENDEAVOUR Phase 3 study. In addition, in September 2017, we announced that we had temporarily suspended dosing in all ongoing fitusiran studies pending further review of a fatal thrombotic SAE and agreement with regulatory authorities on a risk mitigation strategy. Notwithstanding the risks undertaken by all persons who participate in clinical trials, and the information on risks provided to study investigators and patients participating in our clinical trials, including the revusiran and fitusiran studies, it is possible that product liability claims will be asserted against us relating to the worsening of a patient's condition, injury or death alleged to have been caused by one of our product candidates, including revusiran or fitusiran. Such claims might not be fully covered by product liability insurance. If we succeed in marketing products, including ONPATTRO and GIVLAARI, product liability claims could result in an FDA investigation of the safety and effectiveness of our products, our manufacturing processes and facilities or our marketing programs, and potentially a recall of our products or more serious enforcement action, limitations on the approved indications for which they may be used, or suspension or withdrawal of approvals. Regardless of the merits or eventual outcome, liability claims may also result in decreased demand for our products, injury to our reputation, costs to defend the related litigation, a diversion of management's time and our resources, substantial monetary awards to trial participants or patients and a decline in our stock price. We currently have product liability insurance that we believe is appropriate for our stage of development, including the marketing and sale of ONPATTRO and GIVLAARI. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material adverse effect on our business.

Our employees may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements or insider trading violations, which could significantly harm our business.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with governmental regulations, comply with healthcare fraud and abuse and anti-kickback laws and regulations in the U.S. and abroad, or failure to report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of, including improper trading based upon, information obtained in the course of clinical studies, which could result in regulatory sanctions and serious harm to our reputation. We have adopted a code of business conduct and ethics and a robust compliance program, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our research, development and manufacturing involve the use of hazardous materials, chemicals and various radioactive compounds. We maintain quantities of various flammable and toxic chemicals in our facilities in Cambridge and Norton that are required for our research, development and manufacturing activities. We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials. We believe our procedures for storing, handling and disposing these materials in our Cambridge and Norton facilities comply with the relevant guidelines of the City of Cambridge, the town of Norton, the Commonwealth of Massachusetts and the Occupational Safety and Health Administration of the U.S. Department of Labor. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of biohazardous materials.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Risks Related to Patents, Licenses and Trade Secrets

If we are not able to obtain and enforce patent protection for our discoveries, our ability to develop and commercialize our product candidates will be harmed.

Our success depends, in part, on our ability to protect proprietary compositions, methods and technologies that we develop under the patent and other intellectual property laws of the U.S. and other countries, so that we can prevent others from unlawfully using our inventions and proprietary information. However, we may not hold proprietary rights to some patents required for us to manufacture and commercialize our proposed products. Because certain U.S. patent applications are confidential until the patents issue, such as applications filed prior to November 29, 2000, or applications filed after such date which will not be filed in foreign countries, third parties may have filed patent applications for subject matter covered by our pending patent applications without our being aware of those applications, and our patent applications may not have priority over those applications. For this and other reasons, we may be unable to secure desired patent rights, thereby losing desired exclusivity. Further, we or our licensees may be required to obtain licenses under third-party patents to market ONPATTRO or GIVLAARI or further develop and commercialize future products such as lumasiran and inclisiran, currently under review with the FDA, or continuing to develop candidates in our pipeline being developed by us or our licensees. If licenses are not available to us or not available on reasonable terms, we or our licensees may not be able to market the affected products or conduct the desired activities.

Our strategy depends on our ability to rapidly identify and seek patent protection for our discoveries. In addition, we may rely on third-party collaborators to file patent applications relating to proprietary technology that we develop jointly during certain collaborations. The process of obtaining patent protection is expensive and time-consuming. If our present or future collaborators fail to file and prosecute all necessary and desirable patent applications at a reasonable cost and in a timely manner, our business may be adversely affected. Despite our efforts and the efforts of our collaborators to protect our proprietary rights, unauthorized parties may be able to obtain and use information that we regard as proprietary. While issued patents are presumed valid, this does not guarantee that the patent will survive a validity challenge or be held enforceable. Any patents we have obtained, or obtain in the future, may be challenged, invalidated, adjudged unenforceable or circumvented by parties attempting to design around our intellectual property. Moreover, third parties or the United States Patent and Trademark Office, or USPTO, may commence interference proceedings involving our patents or patent applications. Any challenge to, finding of unenforceability or invalidation or circumvention of, our patents or patent applications, would be costly, would require significant time and attention of our management, could reduce or eliminate royalty payments to us from third party licensors and could have a material adverse effect on our business.

Our pending patent applications may not result in issued patents. The patent position of pharmaceutical or biotechnology companies, including ours, is generally uncertain and involves complex legal and factual considerations. The standards that the USPTO and its foreign counterparts use to grant patents are not always applied predictably or uniformly and can change. Similarly, the ultimate degree of protection that will be afforded to biotechnology inventions, including ours, in the U.S. and foreign countries, remains uncertain and is dependent upon the scope of the protection decided upon by patent offices, courts and lawmakers. Moreover, there are periodic discussions in the Congress of the United States and in international jurisdictions about modifying various aspects of patent law. For example, the America Invents Act, or AIA, included a number of changes to the patent laws of the U.S. If any of the enacted changes do not provide adequate protection for discoveries, including our ability to pursue infringers of our patents for substantial damages, our business could be adversely affected. One major provision of the AIA, which took effect in March 2013, changed U.S. patent practice from a first-to-invent to a first-to-file system. If we fail to file an invention before a competitor files on the same invention, we no longer have the ability to provide proof that we were in possession of the invention prior to the competitor's filing date, and thus would not be able to obtain patent protection for our invention. There is also no uniform, worldwide policy regarding the subject matter and scope of claims granted or allowable in pharmaceutical or biotechnology patents.

Accordingly, we do not know the degree of future protection for our proprietary rights or the breadth of claims that will be allowed in any patents issued to us or to others. We also rely to a certain extent on trade secrets, know-how and technology, which are not protected by patents, to maintain our competitive position. If any trade secret, know-how or other technology not protected by a patent were to be disclosed to or independently developed by a competitor, our business and financial condition could be materially adversely affected.

Failure to obtain and maintain all available regulatory exclusivities, broad patent scope and to maximize patent term restoration or extension on patents covering our products may lead to loss of exclusivity and early generic entry resulting in a loss of market share and/or revenue.

We license patent rights from third-party owners. If such owners do not properly or successfully obtain, maintain or enforce the patents underlying such licenses, our competitive position and business prospects may be harmed.

We are a party to a number of licenses that give us rights to third-party intellectual property that is necessary or useful for our business. In particular, we have obtained licenses from, among others, Cancer Research Technology Ltd., Ionis, the Massachusetts Institute of Technology, or MIT, Whitehead Institute for Biomedical Research, or Whitehead, Max Planck Innovation GmbH (formerly known as Garching Innovation GmbH), or Max Planck, and Arbutus. We also intend to enter into additional licenses to third-party intellectual property in the future.

Our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents issue in respect of these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects. In addition, we sublicense our rights under various third-party licenses to our collaborators. Any impairment of these sublicensed rights could result in reduced revenues under our collaboration agreements or result in termination of an agreement by one or more of our collaborators.

Other companies or organizations may challenge our patent rights or may assert patent rights that prevent us from developing and commercializing our products.

RNAi is a relatively new scientific field, the commercial exploitation of which has resulted in many different patents and patent applications from organizations and individuals seeking to obtain patent protection in the field. We have obtained grants and issuances of RNAi patents and have licensed many of these patents from third parties on an exclusive basis. The issued patents and pending patent applications in the U.S. and in key markets around the world that we own or license claim many different methods, compositions and processes relating to the discovery, development, manufacture and commercialization of RNAi therapeutics.

Specifically, we have a portfolio of patents, patent applications and other intellectual property covering: fundamental aspects of the structure and uses of siRNAs, including their use as therapeutics, and RNAi-related mechanisms; chemical modifications to siRNAs that improve their suitability for therapeutic and other uses; siRNAs directed to specific targets as treatments for particular diseases; delivery technologies, such as in the fields of carbohydrate conjugates and cationic liposomes; and all aspects of our specific development candidates.

As the field of RNAi therapeutics is maturing, patent applications are being fully processed by national patent offices around the world. There is uncertainty about which patents will issue, and, if they do, as to when, to whom, and with what claims. It is likely that there will be significant litigation and other proceedings, such as interference, re-examination and opposition proceedings, as well as *inter partes* and post-grant review proceedings introduced by provisions of the AIA, which became available to third party challengers on September 16, 2012, in various patent offices relating to patent rights in the RNAi field. In addition, third parties may challenge the validity of our patents. For example, a third party has filed an opposition in the EPO against our owned patent EP 2723758, with claims directed to compositions and methods of ANGPTL3, arguing that the granted claims are invalid. We expect that additional oppositions will be filed in the EPO and elsewhere, and other challenges will be raised relating to other patents and patent applications in our portfolio. In many cases, the possibility of appeal exists for either us or our opponents, and it may be years before final, unappealable rulings are made with respect to these patents in certain jurisdictions. The timing and outcome of these and other proceedings is uncertain and may adversely affect our business if we are not successful in defending the patentability and scope of our pending and issued patent claims. Even if our rights are not directly challenged, disputes could lead to the weakening of our intellectual property rights. Our defense against any attempt by third parties to circumvent or invalidate our intellectual property rights could be costly to us, could require significant time and attention of our management and could have a material adverse effect on our business and our ability to successfully compete in the field of RNAi.

There are many issued and pending patents that claim aspects of oligonucleotide chemistry and modifications that we may need for our siRNA marketed products ONPATTRO and GIVLAARI, our late-stage therapeutic candidates being developed by us or our licensees, including lumasiran, inclisiran and fitusiran, as well as our other pipeline products. There are also many issued patents that claim targeting genes or portions of genes that may be relevant for siRNA drugs we wish to develop. In addition, there may be issued and pending patent applications that may be asserted against us in a court proceeding or otherwise based upon the asserting party's belief that we may need such patents for our siRNA therapeutic candidates or marketed products, including ONPATTRO and GIVLAARI, or further develop and commercialize future products such as lumasiran and inclisiran, currently under review with the FDA, or continuing to develop candidates in our pipeline being developed by us or our licensees. Thus, it is possible that one or more organizations will hold patent rights to which we may need a license, or hold patent rights which could be asserted against us. If those organizations refuse to grant us a license to such patent rights on reasonable terms and/or a court rules that we need such patent rights that have been asserted against us and we are not able to obtain a license on reasonable terms, we may be unable to market products, including ONPATTRO or GIVLAARI, or perform research and development or other activities covered by such patents. For example, during 2017 and 2018, Silence Therapeutics plc, or Silence, filed claims in several jurisdictions, including the High Court of England and Wales, and named us and our wholly owned subsidiary Alnylam UK Ltd. as co-defendants. Silence alleged various claims, including that ONPATTRO infringed one or more Silence patents. There were also a number of related actions brought by us or Silence in connection with this intellectual property dispute. In December 2018, we entered into a Settlement and License Agreement with Silence, resolving all ongoing claims, administrative proceedings, and regulatory proceedings worldwide between us regarding, among other issues, patent infringement, patent invalidity and breach of contract.

If we become involved in patent litigation or other proceedings related to a determination of rights, we could incur substantial costs and expenses, substantial liability for damages or be required to stop our product development and commercialization efforts.

Third parties may sue us for infringing their patent rights. For example, in October 2017 Silence sued us in the UK alleging that ONPATTRO and other investigational RNAi therapeutics we or MDCO are developing infringed one or more Silence patents. Likewise, we may need to resort to litigation to enforce a patent issued or licensed to us or to determine the scope and validity of proprietary rights of others or protect our proprietary information and trade secrets. For example, during the second quarter of 2015, we filed a trade secret misappropriation lawsuit against Dicerna to protect our rights in the RNAi assets we purchased from Merck Sharp & Dohme Corp., or Merck. We and Dicerna settled the ongoing litigation between us in April 2018 and in December 2018 we and Silence settled all ongoing litigation between us. A third party may also claim that we have improperly obtained or used its confidential or proprietary information. For example, in March 2011, Arbutus Biopharma Corp., or Arbutus, filed a civil complaint against us alleging, among other things, misappropriation of its confidential and proprietary information and trade secrets. In November 2012, we settled this litigation and restructured our contractual relationship with Arbutus. In connection with this restructuring, we incurred a \$65.0 million charge to operating expenses during the fourth quarter of 2012.

In protecting our intellectual patent rights through litigation or other means, a third party may claim that we have improperly asserted our rights against them. For example, in August 2017, Dicerna successfully added counterclaims against us in the above-referenced trade secret lawsuit alleging that our lawsuit represented abuse of process and claiming tortious interference with its business. In addition, in August 2017, Dicerna filed a lawsuit against us in the United States District Court of Massachusetts alleging attempted monopolization by us under the Sherman Antitrust Act. As noted above, in April 2018, we and Dicerna settled the ongoing litigation between us.

Furthermore, third parties may challenge the inventorship of our patents or licensed patents. For example, in March 2011, The University of Utah, or Utah, filed a complaint against us, Max Planck Gesellschaft Zur Foerderung Der Wissenschaften e.V. and Max Planck Innovation, together, Max Planck, Whitehead, MIT and the University of Massachusetts, claiming that a professor of Utah was the sole inventor, or in the alternative, a joint inventor of certain of our in-licensed patents. Utah was seeking correction of inventorship of the Tuschl patents, unspecified damages and other relief. After several years of court proceedings and discovery, the court granted our motions for summary judgment, and dismissed Utah's state law damages claims as well. During the pendency of this litigation, as well as the Arbutus and Dicerna litigation described above, we incurred significant costs, and in each case, the litigation diverted the attention of our management and other resources that would otherwise have been engaged in other activities.

In addition, in connection with certain license and collaboration agreements, we have agreed to indemnify certain third parties for certain costs incurred in connection with litigation relating to intellectual property rights or the subject matter of the agreements. The cost to us of any litigation or other proceeding relating to intellectual property rights, even if resolved in our favor, could be substantial, and litigation would divert our management's efforts. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of any litigation or legal proceeding could delay our research, development and commercialization efforts and limit our ability to continue our operations.

If any parties successfully claim that our creation or use of proprietary technologies infringes upon or otherwise violates their intellectual property rights, we might be forced to pay damages, potentially including treble damages, if we are found to have willfully infringed on such parties' patent rights. In addition to any damages we might have to pay, a court could issue an injunction requiring us to stop the infringing activity or obtain a license. Any license required under any patent may not be made available on commercially reasonable terms, if at all. In addition, such licenses are likely to be non-exclusive and, therefore, our competitors may have access to the same technology licensed to us. If we fail to obtain a required license and are unable to design around a patent, we may be unable to effectively market some of our technology and products, which could limit our ability to generate revenues or achieve profitability and possibly prevent us from generating revenue sufficient to sustain our operations. Moreover, we expect that a number of our collaborations will provide that royalties payable to us for licenses to our intellectual property may be offset by amounts paid by our collaborators to third parties who have competing or superior intellectual property positions in the relevant fields, which could result in significant reductions in our revenues from products developed through collaborations.

If we fail to comply with our obligations under any licenses or related agreements, we may be required to pay damages and could lose license or other rights that are necessary for developing, commercializing and protecting our RNAi technology, as well as ONPATTRO, GIVLAARI and any other product candidates that we develop, or we could lose certain rights to grant sublicenses.

Our current licenses impose, and any future licenses we enter into are likely to impose, various development, commercialization, funding, milestone, royalty, diligence, sublicensing, insurance, patent prosecution and enforcement, and other obligations on us. If we breach any of these obligations, or use the intellectual property licensed to us in an unauthorized manner, we may be required to pay damages and the licensor may have the right to terminate the license or render the license

non-exclusive, which could result in us being unable to develop, manufacture, market and sell products that are covered by the licensed technology or enable a competitor to gain access to the licensed technology. Moreover, we could incur significant costs and/or disruption to our business and distraction of our management defending against any breach of such licenses alleged by the licensor. For example, in June 2018, Ionis sent us a notice claiming that it is owed payments under our second amended and restated strategic collaboration and license agreement as a result of the January 2018 amendment of our collaboration agreement with Sanofi Genzyme and the related Exclusive TTR License and AT3 License Terms. Ionis claims it is owed technology access fees based on rights granted and amounts paid to us in connection with the Sanofi Genzyme restructuring. In November 2018, we received notice that Ionis had filed a Demand for Arbitration with the Boston office of the American Arbitration Association against us, asserting, among other things, breach of contract. In December 2018, we filed our answer to Ionis's Demand for Arbitration, denying any liability to Ionis. The hearing portion of the arbitration process was completed in June 2020, and post-hearing briefs were submitted by the parties on July 31, 2020. Responsive briefs are required to be filed on August 31, 2020. We now expect a decision from the arbitration panel in late 2020. While we dispute that any additional technology access fees are owed to Ionis, and also dispute Ionis's claim for interest and attorney's fees in the event that it were to be awarded technology access fees, if it is determined through arbitration that Ionis is entitled to additional technology access fees, we will have to pay Ionis such additional fees, plus potentially interest and attorney's fees on one or more claims. There can be no assurance that we will resolve this matter favorably or that it will not have a material adverse impact on our future results of operations. At this time, we are unable to predict the likelihood of a favorable or unfavorable outcome.

Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights. In addition, while we cannot currently determine the amount of the royalty obligations we will be required to pay on sales of ONPATRO, GIVLAARI or future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in ONPATRO, GIVLAARI or other products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

Confidentiality agreements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information.

In order to protect our proprietary technology and processes, we rely in part on confidentiality agreements with our collaborators, employees, consultants, outside scientific collaborators and sponsored researchers, and other advisors. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover trade secrets and proprietary information, and in such cases we could not assert any trade secret rights against such party. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Risks Related to Competition

The pharmaceutical market is intensely competitive. If we are unable to compete effectively with existing drugs, new treatment methods and new technologies, we may be unable to commercialize successfully any drugs that we develop.

The pharmaceutical market is intensely competitive and rapidly changing. Many large pharmaceutical and biotechnology companies, academic institutions, governmental agencies and other public and private research organizations are pursuing the development of novel drugs for the same diseases that we are targeting or expect to target. Many of our competitors have:

- much greater financial, technical and human resources than we have at every stage of the discovery, development, manufacture and commercialization of products;
- more extensive experience in pre-clinical testing, conducting clinical trials, obtaining regulatory approvals, and in manufacturing, marketing and selling drug products;
- product candidates that are based on previously tested or accepted technologies;
- products that have been approved or are in late stages of development; and
- collaborative arrangements in our target markets with leading companies and research institutions.

We will face intense competition from drugs that have already been approved and accepted by the medical community for the treatment of the conditions for which we may develop drugs. We also expect to face competition from new drugs that enter the market. There are a number of drugs currently under development, which may become commercially available in the future, for the treatment of conditions for which we may try to develop drugs. These drugs may be more effective, safer, less expensive, or marketed and sold more effectively, than any products we develop. For example, we developed ONPATRO for the treatment of hATTR amyloidosis. In August 2018, the FDA approved ONPATRO lipid complex injection for the treatment of the polyneuropathy of hATTR amyloidosis in adults, and the EC granted marketing authorisation for ONPATRO for the treatment of hATTR amyloidosis in adults with stage 1 or stage 2 polyneuropathy. We are aware of other approved products used to treat this disease, including tafamidis, marketed by Pfizer, which is now approved in the U.S., the EU, Japan,

Brazil, Argentina, Israel, Russia, South Korea and certain countries in Latin America, and inotersen, developed by Ionis and licensed to Akcea, which is now approved in the U.S., the EU, Canada and Brazil, as well as product candidates in various stages of clinical development, including an additional investigational drug being developed by Ionis. Finally, we are aware that Eidos Therapeutics, Inc., or Eidos, initiated a Phase 3 clinical trial of AG10, a TTR stabilizer, in ATTR-CM in February 2019, and expects enrollment of the Phase 3 clinical trial in ATTR-CM to be completed in the first half of 2021. Eidos also plans to initiate a Phase 3 clinical trial of AG10 in ATTR-PN patients in the second half of 2020. While we believe that ONPATTRO has and will continue to have a competitive product profile, it is possible it will not compete favorably with these products and product candidates, or others, and, as a result, may not achieve commercial success. Moreover, positive data and/or the commercial success of competitive products could negatively impact our stock price.

If we continue to successfully develop product candidates, and obtain approval for them, we will face competition based on many different factors, including:

- the safety and effectiveness of our products relative to alternative therapies, if any;
- the ease with which our products can be administered and the extent to which patients accept relatively new routes of administration;
- the timing and scope of regulatory approvals for these products;
- the availability and cost of manufacturing, marketing and sales capabilities;
- the price of our products relative to alternative approved therapies;
- reimbursement coverage; and
- patent position.

We are aware of product candidates in various stages of clinical development for the treatment of PH1 which would compete with lumasiran, our investigational RNAi therapeutic now in registration for the treatment of this disease, including Oxabact®, a bacteria-based investigational therapy in Phase 3 development by OxThera AB, reloxaliase an investigational enzyme therapy in Phase 3 development for primary or severe secondary hyperoxaluria by Allena Pharmaceuticals, Inc., and nedosiran, an investigational RNAi therapeutic in development by Dicerna for the treatment of PH. In July 2019, the FDA granted a Breakthrough Therapy Designation to nedosiran for the treatment of patients with PH, and in November 2019, Dicerna announced that it initiated dosing in PHYOX2 pivotal clinical trial of nedosiran that is expected to enroll approximately 36 patients with PH1 and PH type 2. In April 2020, we and Dicerna granted each other a non-exclusive cross-license to our respective intellectual property related to our lumasiran product candidate, and Dicerna's nedosiran product candidate. Our competitors may develop or commercialize products with significant advantages over any products we develop based on any of the factors listed above or on other factors. In addition, our competitors may develop strategic alliances with or receive funding from larger pharmaceutical or biotechnology companies, providing them with an advantage over us. Our competitors may therefore be more successful in commercializing their products than we are, which could adversely affect our competitive position and business. Competitive products may make any products we develop obsolete or noncompetitive before we can recover the expenses of developing and commercializing our product candidates. Such competitors could also recruit our employees, which could negatively impact our level of expertise and the ability to execute on our business plan. Furthermore, we also face competition from existing and new treatment methods that reduce or eliminate the need for drugs, such as the use of advanced medical devices. The development of new medical devices or other treatment methods for the diseases we are targeting could make our product candidates noncompetitive, obsolete or uneconomical.

We face competition from other companies that are working to develop novel drugs and technology platforms using technology similar to ours. If these companies develop drugs more rapidly than we do or their technologies, including delivery technologies, are more effective, our ability to successfully commercialize drugs may be adversely affected.

In addition to the competition we face from competing drugs in general, we also face competition from other companies working to develop novel drugs using technology that competes more directly with our own. We are aware of several other companies that are working to develop RNAi therapeutic products. Some of these companies are seeking, as we are, to develop chemically synthesized siRNAs as drugs. Others are following a gene therapy approach, with the goal of treating patients not with synthetic siRNAs but with synthetic, exogenously-introduced genes designed to produce siRNA-like molecules within cells. Companies working on chemically synthesized siRNAs include, but are not limited to, Takeda Pharmaceutical Company Ltd., or Takeda, Marina Biotech, Inc., Arrowhead Pharmaceuticals, Inc., or Arrowhead, and its subsidiary, Calando Pharmaceuticals, Inc., or Calando, Quark Pharmaceuticals, Inc., or Quark, Silence, Arbutus, Sylentis, S.A.U., or Sylentis, Dicerna and its collaborators, WAVE Life Sciences Ltd., Arcturus Therapeutics, Inc., and Genevant Sciences, launched by Arbutus and Roivant Sciences. In addition, we granted licenses or options for licenses to Ionis, Benitec Biopharma Ltd., Arrowhead, and its subsidiary, Calando, Arbutus, Quark, Sylentis and others under which these companies may independently develop RNAi therapeutics against a limited number of targets. Any one of these companies may develop its RNAi technology more rapidly and more effectively than us.

In addition, as a result of agreements that we have entered into, Takeda has obtained a non-exclusive license, and Arrowhead, as the assignee of Novartis AG, has obtained specific exclusive licenses for 30 gene targets, that include access to certain aspects of our technology. We also compete with companies working to develop antisense-based drugs. Like RNAi therapeutics, antisense drugs target mRNAs in order to suppress the activity of specific genes. Akcea has received marketing approval for an antisense drug, inotersen that was developed by Ionis, in the U.S., the EU, Canada and Brazil, for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hATTR amyloidosis. Several antisense drugs developed by Ionis have been approved and are currently marketed, and Ionis has multiple antisense product candidates in clinical trials. Ionis is also developing antisense drugs using ligand-conjugated GalNAc technology licensed from us, and these drugs have been shown to have increased potency at lower doses in clinical and pre-clinical studies, compared with antisense drugs that do not use such licensed GalNAc technology. The development of antisense drugs is more advanced than that of RNAi therapeutics, and antisense technology may become the preferred technology for drugs that target mRNAs to silence specific genes.

In addition to competition with respect to RNAi and with respect to specific products, we face substantial competition to discover and develop safe and effective means to deliver siRNAs to the relevant cell and tissue types. Safe and effective means to deliver siRNAs to the relevant cell and tissue types may be developed by our competitors, and our ability to successfully commercialize a competitive product would be adversely affected. In addition, substantial resources are being expended by third parties in the effort to discover and develop a safe and effective means of delivering siRNAs into the relevant cell and tissue types, both in academic laboratories and in the corporate sector. Some of our competitors have substantially greater resources than we do, and if our competitors are able to negotiate exclusive access to those delivery solutions developed by third parties, we may be unable to successfully commercialize our product candidates.

Risks Related to Our Common Stock

If our stock price fluctuates, purchasers of our common stock could incur substantial losses.

The market price of our common stock has fluctuated significantly and may continue to fluctuate significantly in response to factors that are beyond our control. The stock market in general has from time to time experienced extreme price and volume fluctuations, and the biotechnology sector in particular has experienced extreme price and volume fluctuations. The market prices of securities of pharmaceutical and biotechnology companies have been extremely volatile, and have experienced fluctuations that often have been unrelated or disproportionate to the clinical development progress or operating performance of these companies, including as a result of adverse development events. For example, the trading price for our common stock and the common stock of other biopharmaceutical companies has been highly volatile during the period of the COVID-19 pandemic. The COVID-19 pandemic continues to rapidly evolve, and the extent to which the pandemic may impact our business will depend on future developments, which are highly uncertain and cannot be predicted with confidence. These broad market and sector fluctuations have resulted and could in the future result in extreme fluctuations in the price of our common stock, which could cause purchasers of our common stock to incur substantial losses.

We may incur significant costs from class action litigation.

Our stock price may fluctuate for many reasons, including as a result of public announcements regarding the progress of our development and commercialization efforts or the development and commercialization efforts of our collaborators and/or competitors, the addition or departure of our key personnel, variations in our quarterly operating results and changes in market valuations of pharmaceutical and biotechnology companies. For example, in October 2016, we announced that we were discontinuing the development of revusiran and our stock price declined significantly as a result and in September 2017, following our temporary suspension of dosing in our fitusiran program, our stock also declined, although to a lesser extent. When the market price of a stock has been volatile as our stock price has been, holders of that stock have occasionally brought securities class action litigation against the company that issued the stock.

For example, a class action complaint was filed on September 26, 2018 in the United States District Court for the Southern District of New York. The complaint, as amended, or the Complaint, alleges that we and our Chief Executive Officer, former Chief Financial Officer and certain of our other executive officers violated certain federal securities laws, specifically under Sections 10(b) and 20(a) of the Exchange Act, and Rule 10b-5 promulgated thereunder. The plaintiff seeks unspecified damages on behalf of a purported class of purchasers of our common stock between September 20, 2017 and September 12, 2018. On March 23, 2020, the Court granted our motion and dismissed the Complaint without prejudice. Pursuant to a prior Order of the Court, on June 1, 2020, plaintiff filed a motion seeking leave to file a further amended complaint. That motion was fully briefed on June 22, 2020, and remains pending with the Court. We believe that the allegations contained in the now dismissed Complaint are without merit. However, whether or not the plaintiff's claims are successful, this type of litigation is often expensive and diverts management's attention and resources, which could adversely affect the operation of our business. If we are ultimately required to pay significant defense costs, damages or settlement amounts, in excess of our insurance coverage, such payments could adversely affect our operations.

We may be the target of similar litigation in the future. For example, on September 12, 2019, the Chester County Employees Retirement Fund, individually and on behalf of all others similarly situated, filed a purported securities class action complaint alleging violation of federal securities laws against us, certain of our current and former directors and officers, and the underwriters of our November 14, 2017 public stock offering, in the Supreme Court of the State of New York, New York

County, or the New York State Securities Litigation. We believe the allegations in the New York State Securities Litigation, like those in the Complaint described above, are without merit and if our motion to dismiss the case is not successful, we intend to defend the case vigorously. This litigation and future litigation could result in substantial costs and divert our management's attention and resources, which could cause serious harm to our business, operating results and financial condition. We maintain liability insurance; however, if any costs or expenses associated with this or any other litigation exceed our insurance coverage, we may be forced to bear some or all of these costs and expenses directly, which could be substantial.

Future sales of shares of our common stock, including by our significant stockholders, us or our directors and officers, could cause the price of our common stock to decline.

A small number of our stockholders beneficially own a substantial amount of our common stock. As of June 30, 2020, our six largest stockholders beneficially owned in excess of 50% of our outstanding shares of common stock. If our significant stockholders, or we or our officers and directors, sell substantial amounts of our common stock in the public market, or there is a perception that such sales may occur, the market price of our common stock could be adversely affected. Sales of common stock by our significant stockholders might make it more difficult for us to raise funds by selling equity or equity-related securities in the future at a time and price that we deem appropriate.

Regeneron's ownership of our common stock could delay or prevent a change in corporate control.

As of May 21, 2019, the closing date of the stock purchase in connection with the 2019 Regeneron collaboration, Regeneron held approximately 4% of our outstanding common stock and has the right to increase its ownership up to 30%. This concentration of ownership could harm the market price of our common stock in the future by:

- delaying, deferring or preventing a change in control of our company;
- impeding a merger, consolidation, takeover or other business combination involving our company; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our certificate of incorporation and our bylaws may delay or prevent an acquisition of us or a change in our management. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. These provisions include:

- a classified board of directors;
- a prohibition on actions by our stockholders by written consent;
- limitations on the removal of directors; and
- advance notice requirements for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. These provisions would apply even if the proposed merger or acquisition could be considered beneficial by some stockholders.

ITEM 6. EXHIBITS.

10.1†#	Patent Cross-License Agreement dated April 3, 2020 between Dicerna Pharmaceuticals, Inc. and the Registrant.
10.2†#	Purchase and Sale Agreement dated April 10, 2020 between BX Bodyguard Royalties L.P. and the Registrant.
10.3*#	Credit Agreement dated April 10, 2020 by and among the Registrant, as Borrower, the Guarantors from time to time party thereto, the Lenders from time to time party thereto, and Wilmington Trust, National Association, as Administrative Agent.
10.4	Stock Purchase Agreement by and among the Registrant, as Borrower, and the investors listed in Exhibit A thereto, dated April 10, 2020 (filed as Exhibit 4.2 to the Registrant's Registration Statement on Form S-3 filed on June 5, 2020 (File No. 333-238989) and incorporated herein by reference).
10.5**#	Second Amendment to 2018 Stock Incentive Plan, as amended.
10.6**#	Amendment to Amended and Restated 2004 Employee Stock Purchase Plan, as amended.
31.1	Certification of principal executive officer pursuant to Rule 13a-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
31.2	Certification of principal financial officer pursuant to Rule 13a-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
32.1	Certification of principal executive officer pursuant to Rule 13a-14(b) promulgated under the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code.
32.2	Certification of principal financial officer pursuant to Rule 13a-14(b) promulgated under the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101.*)
*	Schedules, exhibits and similar supporting attachments or agreements to the Credit Agreement are omitted pursuant to Item 601(b)(2) of Regulation S-K. The Registrant agrees to furnish a supplemental copy of any omitted schedule or similar attachment to the Securities and Exchange Commission upon request.
**	Management contracts or compensatory plans or arrangements.
†	Portions of this exhibit (indicated by asterisks) have been omitted in accordance with the rules of the Securities and Exchange Commission.
#	Filed herewith.

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.

ALNYLAM PHARMACEUTICALS, INC.

Date: August 6, 2020

/s/ John M. Maraganore

John M. Maraganore, Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Date: August 6, 2020

/s/ Jeffrey V. Poulton

Jeffrey V. Poulton
Executive Vice President, Chief Financial Officer
(Principal Financial and Accounting Officer)

PATENT CROSS-LICENSE AGREEMENT

between

DICERNA PHARMACEUTICALS, INC.

and

ALNYLAM PHARMACEUTICALS, INC.

April 3, 2020

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PATENT CROSS-LICENSE AGREEMENT

THIS PATENT CROSS-LICENSE AGREEMENT (the “**Agreement**”), effective as of April 3, 2020 (the “**Effective Date**”), is by and between Dicerna Pharmaceuticals, Inc., a corporation organized and existing under the laws of Delaware, with its principal business office located at 33 Hayden Avenue, Lexington, MA 02421 (“**Dicerna**”) and Alnylam Pharmaceuticals, Inc., a corporation organized and existing under the laws of Delaware, with its principal business office located at 675 West Kendall Street, Henri A. Termeer Square, Cambridge, MA 02142 (“**Alnylam**”). Dicerna and Alnylam are each referred to individually as a “**Party**” and together as the “**Parties**”.

BACKGROUND

WHEREAS, Dicerna and Alnylam wish to grant each other non-exclusive patent licenses on the terms set forth in herein.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the sufficiency of which is acknowledged by both Parties, the Parties agree as follows:

1. DEFINITIONS AND INTERPRETATIONS

Capitalized terms used in this Agreement shall have the meanings specified in this Article 1, or as defined elsewhere in this Agreement.

1.1 “Acquired Party” has the meaning set forth in Section 2.7.

1.2 “Acquirer” has the meaning set forth in the definition of “**Change of Control**”.

1.3 “Additional Alnylam In-Licenses” means the agreements set forth in Section A of Exhibit A.

1.4 “Additional Dicerna In-Licenses” means the agreements set forth in Section A of Exhibit B.

1.5 “Affiliate” means, with respect to a Party, any legal entity which, at the time such determination is being made, is controlled by, controlling or under common control with such Party. As used in this definition, the term “control,” whether used as a noun or a verb, refers to the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of a legal entity, whether through the ownership of voting rights (e.g., fifty percent (50%) or more of the equity, the ordinary voting power or the general partnership interest), by contract or otherwise.

1.6 “Alnylam Existing In-Licenses” means the agreements set forth in Section B of Exhibit A.

1.7 “Alnylam Existing Third Party Agreements” means (a) the Alnylam Existing In-Licenses and (b) the agreements set forth in Section C of Exhibit A. Alnylam Existing Third Party

Agreements also include any Additional Alnylam In-License included within the definition of Alnylam Existing Third Party Agreements pursuant to Section 2.5.2(a).

1.8 “Alnylam Indemnified Party” has the meaning set forth in Section 12.2.

1.9 “Alnylam In-License” means any (a) the Alnylam Existing In-Licenses; (b) any Additional Alnylam In-License included within the definition of Alnylam Existing Third Party Agreements pursuant to Section 2.5.2(a); and (c) any agreement between Alnylam (or its Affiliates) and a Third Party entered into after the Effective Date pursuant to which Alnylam acquires Control of any Patent Rights that Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Dicerna Products in the Field in the Territory; but only to the extent such agreement is designated as an Alnylam In-License pursuant to Section 2.5.1.

1.10 “Alnylam Licensed Patent Rights” means (a) the Patent Rights that are Controlled by Alnylam or its Affiliates as of the Effective Date, as set forth in a list agreed upon by the Parties contemporaneously with the execution of this Agreement; and (b) any additional Patent Rights that (x) are Controlled by Alnylam or its Affiliates as of the Effective Date or during the Term, (y) Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Dicerna Products in the Field in the Territory, and (z) are included in the definition of Alnylam Licensed Patent Rights pursuant to Section 2.4.1. For the avoidance of doubt, the Alnylam Licensed Patent Rights do not include (i) any Patent Rights Covering any targeting ligand or other siRNA delivery technology other than GalNAc or (ii) any Patent Rights licensed to Alnylam under [***].

1.11 “Alnylam Products” means Lumasiran and any Backups thereof.

1.12 “Annual Net Sales” means, with respect to a particular Product and Calendar Year, all Net Sales of such Product during such Calendar Year.

1.13 “Applicable Laws” means all federal, state, local, national and supra-national laws, statutes, rules and regulations, including any rules, regulations, guidelines or requirements of Regulatory Authorities, taxing authorities, national securities exchange or securities listing organizations that may be in effect from time to time during the Term and applicable to a particular activity hereunder.

1.14 “Assigning Party” has the meaning set forth in Section 6.3.1.

1.15 “Backup” means (a) with respect to Lumasiran, any RNAi Therapeutic, other than Lumasiran, that meets all of the following requirements: (i) is Directed to same target gene as Lumasiran; (ii) does not include any targeting ligand or other siRNA delivery technology other than GalNAc; (iii) is Controlled by Alnylam prior to or after the Effective Date; and (iv) can be used in the Field; and (b) with respect to Nedosiran, any RNAi Therapeutic, other than Nedosiran, that meets all of the following requirements: (i) is Directed to same target gene as Nedosiran; (ii) does not include any targeting ligand or other siRNA delivery technology other than GalNAc; (iii) is Controlled by Dicerna prior to or after the Effective Date; and (iv) can be used in the Field.

1.16 “Business Day” means any day other than a Saturday, Sunday or any other day on which commercial banks in New York, New York, U.S.A. are authorized or required by Applicable Laws to remain closed.

1.17 “Calendar Quarter” means any respective period of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31 of any Calendar Year.

1.18 “Calendar Year” means each successive period of twelve (12) months commencing on January 1 and ending on December 31.

1.19 “Change of Control” means with respect to a Party (or its ultimate parent), (a) a merger, acquisition, consolidation or reorganization of such Party (or its ultimate parent) with a Third Party that results in the voting securities of such Party (or its ultimate parent) outstanding immediately prior thereto, or any securities into which such voting securities have been converted or exchanged, ceasing to represent more than [***] of the combined voting power of the surviving entity or the parent of the surviving entity immediately after such merger or consolidation, (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the “beneficial owner” (as such term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, and Rule 13d-3 thereunder (or, in each case, any successor thereto), except that a Person shall be deemed to have “beneficial ownership” of all shares that any such Person has the right to acquire, whether such right may be exercised immediately or only after the passage of time), directly or indirectly, of more than [***] of the combined voting power of the outstanding securities of such Party (or its ultimate parent), or (c) the sale or other transfer to a Third Party, whether directly or indirectly by a Party or an Affiliate thereof, of all or substantially all of such Party’s (or its ultimate parent’s) business. The acquiring or combining Third Party in any of (a), (b) or (c), and any of such Third Party’s Affiliates (whether in existence as of or any time following the applicable transaction, but other than the acquired Party and its Affiliates in existence prior to the applicable transaction or Affiliates it controls after the applicable transaction) are referred to collectively herein as the “Acquirer”.

1.20 “Claims” has the meaning set forth in Section 12.1.

1.21 “Clinical Trial” means any human clinical trial.

1.22 “CNS” means central nervous system, which includes the brain and spinal cord, dorsal root, trigeminal, pterygopalatine ganglia, submandibular ganglia, otic ganglia, and ciliary ganglia, but excluding peripheral nerves (other than dorsal root, trigeminal, pterygopalatine ganglia, submandibular ganglia, otic ganglia, and ciliary ganglia), the neuromuscular junction and muscle.

1.23 “Code” has the meaning set forth in Section 10.6.

1.24 “Combination Product” means a pharmaceutical formulation containing as its active ingredients both a Product and one or more other therapeutically active compounds or ingredients.

1.25 “Commercialization” or “**Commercialize**” means any and all activities directed to the offering for sale and sale of a Product, or other compound, product or therapy including: (a)

activities directed to storing, marketing, promoting, detailing, distributing, importing, exporting, selling and offering to sell that Product, or other compound, product or therapy; (b) conducting Clinical Trials after Marketing Authorization of a Product, or other compound, product or therapy with respect to such Product, or other compound, product or therapy; (c) interacting with Regulatory Authorities regarding the foregoing; and (d) seeking pricing approvals and reimbursement approvals (as applicable) for that Product, or other compound, product or therapy in the Territory. When used as a verb, to “**Commercialize**” and “**Commercializing**” means to engage in Commercialization and “**Commercialized**” has a corresponding meaning.

1.26 “Commercially Reasonable Efforts” of a Party means that level of efforts, expertise and resources commonly applied by such Party to carry out a particular task or obligation, consistent with the general practice followed by such Party relating to other pharmaceutical compounds, products or therapies owned by it, or to which it has exclusive rights, which are of similar market potential at a similar stage in their development or product life, taking into account issues of safety and efficacy, product profile, the competitiveness of other products in development and in the marketplace, supply chain management considerations, the proprietary position of the compound, product or therapy (including with respect to patent or regulatory exclusivity), the regulatory structure involved, the profitability of the applicable compound, product or therapy (including pricing and reimbursement status achieved), and other relevant technical, legal, scientific or medical factors. [***]

1.27 “Confidentiality Agreement” has the meaning set forth in Section 13.11.

1.28 “Confidential Information” means all Know-How or other information or materials of a Party, in any form (written, oral, electronic, photographic, or otherwise) that is confidential or proprietary, including:

(a) all such information or materials regarding or concerning any Product of such Party, or any other technical or business information;

(b) all communications between the Parties or information of whatever kind whether recorded or not and, if recorded, in whatever medium, relating to or arising out of this Agreement, whether disclosed prior to or after entering into this Agreement;

(c) any information that the Party indicates in writing is information of a confidential nature or which is marked “confidential”; and

(d) all copies and excerpts of the communications, information, notes, reports and documents in whatever form referred to in subclauses (a) through (d) of this definition.

For purposes of the confidentiality obligations set forth herein the terms and conditions of this Agreement shall be deemed Confidential Information of both Parties for purposes of the restriction on disclosure.

1.29 “Control” or “**Controlled**” means, with respect to any Patent Right or other intellectual property right, that a Party owns or has a license to, such Patent Right or other intellectual property right, and in each case, has the power to grant to the other Party, access, a

license, or a sublicense (as applicable) to the same on the terms and conditions set forth in this Agreement without violating any obligations of the granting Party owed to a Third Party; provided that, with respect to rights to any Third Party Patent Right or other intellectual property right that is licensed to, or otherwise obtained by, (i) a Party or its Affiliates pursuant to an agreement entered into by such Party or any of its Affiliates after the Effective Date, or (ii) Alnylam or its Affiliates pursuant to any Additional Alnylam In-License or Dicerna or its Affiliates pursuant to an Additional Dicerna In-License, such Third Party Patent Rights or other intellectual property right shall be deemed not to be under the Control of such Party or its Affiliates unless and until the agreement pursuant to which such rights are obtained becomes an In-License pursuant to Section 2.5.1 or Section 2.5.2, as the case may be.

1.30 “Covered” or “Cover” means, with respect to a Product in a particular country and a particular Patent Right, that the manufacture, use, sale or importation of such Product in such country would, but for the licenses granted herein, infringe a Valid Claim in such Patent Right.

1.31 “Development” or “Develop” means, with respect to a Product (or other compound, product or therapy), any Research, non-clinical and clinical drug development activities that are necessary or useful to obtain Marketing Authorization for such Product, or other compound, product or therapy, including completions of Clinical Trials and the preparation and filing of Regulatory Filings and all regulatory affairs related to the foregoing. When used as a verb, **“Developing”** means to engage in Development and **“Developed”** has a corresponding meaning. For clarity, **“Development”** shall not include any Commercialization activities.

1.32 “Dicerna Existing In-Licenses” means the agreements set forth in Section B of Exhibit B.

1.33 “Dicerna Existing Third Party Agreements” means (a) the Dicerna Existing In-Licenses and (b) the agreements set forth in Section C of Exhibit B. Dicerna Existing Third Party Agreements also include any Additional Dicerna In-License included within the definition of Dicerna Existing Third Party Agreements pursuant to Section 2.5.2(b).

1.34 “Dicerna Indemnified Party” has the meaning set forth in Section 12.1.

1.35 “Dicerna In-License” means any (a) Dicerna Existing In-Licenses; (b) any Additional Dicerna In-License included within the definition of Dicerna Existing Third Party Agreements pursuant to Section 2.5.2(b), and (c) any agreement between Dicerna (or its Affiliates) and a Third Party entered into after the Effective Date pursuant to which Dicerna acquires Control of any Patent Rights that Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Alnylam Products in the Field in the Territory, but only to the extent such agreement is designated as a Dicerna In-License pursuant to Section 2.5.1.

1.36 “Dicerna Licensed Patent Rights” means (a) the Patent Rights that are Controlled by Dicerna or its Affiliates as of the Effective Date, as set forth in a list agreed upon by the Parties contemporaneously with the execution of this Agreement; and (b) any additional Patent Rights that (x) are Controlled by Dicerna or its Affiliates as of the Effective Date or during the Term, (y) Cover the Research, Development, registration, making (including formulation), having made, use,

Commercialization, or other exploitation of Alnylam Products in the Field in the Territory, and (z) are included in the definition of Dicerna Licensed Patent Rights pursuant to Section 2.4.2. For the avoidance of doubt, the Dicerna Licensed Patent Rights do not include any Patent Rights Covering any targeting ligand or other siRNA delivery technology other than GalNAc.

1.37 “Dicerna Product” means Nedosiran and any Backups thereof.

1.38 “Directed to” means, with respect to an siRNA and a target gene, [***].

1.39 “Dispute” has the meaning set forth in Section 13.4.1.

1.40 “Executive Officer” means an executive officer that is designated by a Party during the Term from time to time for dispute resolution purposes.

1.41 “Existing Third Party Agreements” means the Alnylam Existing Third Party Agreements and Dicerna Existing Third Party Agreements.

1.42 “Eye” means all parts of the eye, which for the avoidance of doubt, includes the cornea, iris, fovea, lens, macula, optic nerve, retina, pupil, sclera, and vitreous, and all periocular, periorbital and other accessory structures that support eye homeostasis, including conjunctiva, tissues of upper and lower eyelids, and fornices, meibomian glands, lacrimal glands and extraocular muscles.

1.43 “FDA” means the United States Food and Drug Administration and any successor thereto.

1.44 “Field” means the treatment or prevention of PH-related pathologies excluding any applications in the CNS or Eye (such as, without limitation, diseases or pathologies of the CNS or Eye, or any administration to the CNS or Eye, including intrathecal administration or intraocular administration).

1.45 “First Commercial Sale” means the first sale of a Product by Dicerna (in the case of the Dicerna Products) or by Alnylam (in the case of the Alnylam Products), or one of its Affiliates or their Sublicensees, to an unaffiliated third party after receipt of all Marketing Authorizations required to market and sell the applicable Product have been obtained in the country in which such Product is sold. Sales for purposes of testing a Product and sample purposes shall not be deemed a First Commercial Sale. Furthermore, for purposes of clarity, the term **“First Commercial Sale”** as used in this Agreement shall not include: (i) any distribution or other sale solely for so-called treatment IND sales, named patient sales, compassionate or emergency use sales or pre-license sales, in each case provided that such Product is distributed without charge or sold at or below cost; (ii) intercompany transfers to Affiliates of Dicerna (in the case of the Dicerna Products) or of Alnylam (in the case of the Alnylam Products) or between such entities and a Sublicensee of Dicerna (in the case of the Dicerna Products) or of Alnylam (in the case of the Alnylam Products) or an Affiliate, provided that a subsequent sale to an unaffiliated Third Party by such Affiliate of Dicerna (in the case of the Dicerna Products) or of Alnylam (in the case of the Alnylam Products) or Sublicensee is not considered an intercompany transfer; nor (iii) other similar non-commercial sales.

1.46 “First Target” has the meaning set forth in the definition of **“Directed to”**.

1.47 “GalNAc” means an N-acetylgalactosamine ligand.

1.48 “Governmental Authority” means any court, commission, authority, department, ministry, official or other instrumentality of, or being vested with public authority under any law of, any country, state or local authority or any political subdivision thereof, or any association of countries.

1.49 “IND” means an investigational new drug application filed with the FDA with respect to a Product or other compound, product or therapy, or an equivalent application filed with a Regulatory Authority in a country other than the United States to commence a Clinical Trial of pharmaceutical product.

1.50 “Indemnified Party” has the meaning set forth in Section 12.3.1.

1.51 “Indemnifying Party” has the meaning set forth in Section 12.3.1.

1.52 “In-License” mean an Alnylam In-License or a Dicerna In-License.

1.53 “Internal Revenue Code” means the Internal Revenue Code of 1986, as amended.

1.54 “Know-How” means all technical, scientific, and other information, know-how, data, inventions, discoveries, trade secrets, specifications, instructions, techniques, processes, designs, drawings, formulae, methods, practices, protocols, expertise and other information and technology applicable to formulations, compositions or products or to their manufacture, development, registration, use, marketing or sale or to methods of assaying or testing them, and all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, efficacy, safety and pharmacovigilance, chemistry, manufacturing and controls, quality control, preclinical and clinical data relevant to any of the foregoing. For clarity, Know-How includes any such information comprised or embodied in any applicable physical materials, and excludes Patent Rights.

1.55 “Licensing Party” has the meaning set forth in Section 2.5.1.

1.56 “Losses” has the meaning set forth in Section 12.1.

1.57 “Lumasiran” means the molecule being Developed by Alnylam as of the Effective Date known or referred to by Alnylam as lumasiran, as further described in Exhibit D.

1.58 “Marketing Authorization” means, collectively, all Regulatory Approvals (including any pricing, reimbursement or access approvals) from the relevant Regulatory Authority necessary to initiate marketing and selling a Product in any country.

1.59 “MicroRNA” or **“miRNA”** means a structurally defined functional RNA molecule usually between [***] nucleotides in length, which is derived from an endogenous, genetically-encoded non-coding RNA which is predicted to be processed into a hairpin RNA structure that is a

substrate for the double-stranded RNA-specific ribonuclease drosha and subsequently is predicted to serve as a substrate for the enzyme dicer, a member of the RNase III enzyme family.

1.60 “MicroRNA Mimic” means a single-stranded or double-stranded oligonucleotide with the same or substantially similar base composition and sequence (including chemically modified bases) as a particular natural miRNA and which is designed to mimic the activity of such miRNA. For clarity, MicroRNA Mimic excludes a double-stranded oligonucleotide which functions or is designed to function as an siRNA.

1.61 “Nedosiran” means the molecule being Developed by Dicerna as of the Effective Date known or referred to by Dicerna as Nedosiran (formerly designated DCR-PHXC), as further described in Exhibit C.

1.62 “Net Sales” shall mean, [***].

1.63 “Non-Acquired Party” has the meaning set forth in Section 2.7.

1.64 “Non-Assigning Party” has the meaning set forth in Section 6.3.1.

1.65 “Notice of Dispute” has the meaning set forth in Section 13.4.1.

1.66 “Patent Challenge by Alnylam” has the meaning set forth in Section 10.4.

1.67 “Patent Challenge by Dicerna” has the meaning set forth in Section 10.3.

1.68 “Patent Rights” means the rights and interests in and to issued patents and pending patent applications (which, for purposes of this Agreement, include certificates of invention, applications for certificates of invention and priority rights) in any country or region, including all provisional applications, substitutions, continuations, continuations-in-part, continued prosecution applications including requests for continued examination, divisional applications and renewals, and all letters patent or certificates of invention granted thereon, and all reissues, reexaminations, extensions (including pediatric exclusivity patent extensions), term restorations, renewals, substitutions, confirmations, registrations, revalidations, revisions and additions of or to any of the foregoing, and all foreign counterparts of any of the foregoing.

1.69 “Payee” has the meaning set forth in Section 6.3.2.

1.70 “Payor” has the meaning set forth in Section 6.3.2.

1.71 “Person” means any individual, corporation, partnership, association, joint-stock company, trust, unincorporated organization or government or political subdivision thereof.

1.72 “PH” means collectively primary hyperoxaluria types I, II and III.

1.73 “Pre-Existing Affiliates” has the meaning set forth in Section 2.7.

1.74 “Product” means all formulations, versions, or SKUs of Alnylam Product and/or Dicerna Product, as applicable, for use in the Field.

1.75 “Regulatory Approval” means, collectively, any and all approvals (including supplements, amendments, pre- and post-approvals, pricing and reimbursement approvals), licenses, registrations or authorizations (including marketing and labeling authorizations) granted by or received from any Regulatory Authority that are necessary for the Research, Development, registration, manufacture (including formulation), distribution, importation, exportation, use, and Commercialization of a pharmaceutical product (including a Product) in a given jurisdiction.

1.76 “Regulatory Authority” means the FDA or any counterpart to the FDA outside the United States, or other Governmental Authority with authority over the Research, Development, registration, making (including formulation), use and Commercialization of a pharmaceutical product (including a Product), which may include the authority to grant the required reimbursement and pricing approvals for such sale.

1.77 “Regulatory Filings” means, individually or collectively, all applications, filings, submissions, licenses, registrations, permits, notifications, and authorizations (including marketing and labeling authorizations) or waivers with respect to the testing, Research, Development, registration, manufacture (including formulation), use and Commercialization of a Product made to or received from any Regulatory Authority in a given country, including INDs.

1.78 “Research” means all activities related to the research, identification, generation, formatting, screening, testing (including in vitro and animal models, but not in human subjects), stability testing, toxicology and formulation of compounds, products or therapies.

1.79 “RNAi Therapeutic” means any product that is based on or comprises at least one siRNA.

1.80 “Royalty” has the meaning set forth in [Section 5.1.2](#).

1.81 “Royalty Term” means (i) with respect to each Dicerna Product in each country, the period from the First Commercial Sale of such Dicerna Product in such country until such Dicerna Product is no longer being Covered by a Valid Claim of the Alnylam Licensed Patent Rights in such country, and (ii) with respect to each Alnylam Product in each country, the period from the First Commercial Sale of such Alnylam Product in such country until such Alnylam Product is no longer being Covered by a Valid Claim of the Dicerna Licensed Patent Rights in such country.

1.82 “Second Target” has the meaning set forth in the definition of “**Directed to**”.

1.83 “siRNA” means an oligonucleotide composition of native or chemically modified RNA that targets a gene through activation of the RNA interference pathway, and that is not a MicroRNA, MicroRNA antagonist or MicroRNA Mimic.

1.84 “Sublicensed Party” has the meaning set forth in [Section 2.5.3](#).

1.85 “Sublicensee” means a Third Party that is granted a license or sublicense to Research, Develop, make, have made, use, Commercialize or otherwise exploit Products in the

Field in the Territory or any portion thereof, beyond the mere right to purchase Products from a Party and its Affiliates.

1.86 “Sublicensor Party” has the meaning set forth in Section 2.5.3.

1.87 “Term” has the meaning set forth in Section 10.1.

1.88 “Territory” means worldwide.

1.89 “Third Party” means any Person other than Dicerna or Alnylam or an Affiliate of Dicerna or Alnylam.

1.90 “United States” or **“U.S.”** means the United States of America and its territories and possessions.

1.91 “USD” and **“\$”** means United States dollars.

1.92 “Valid Claim” means any claim of: (a) an issued and unexpired patent, which claim has not been (i) revoked or held unenforceable, unpatentable or invalid by a decision of a court or other governmental agency of competent jurisdiction that is not appealable or has not been appealed within the time allowed for appeal, nor (ii) abandoned, disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer or otherwise; or (b) a pending patent application that has not been pending for more than [***] years from the date of its earliest priority date that has not been cancelled, withdrawn, or abandoned, or finally rejected without the possibility of appeal or refiling; in each case of (a) and (b) (i) claiming the making, using, selling, offering for sale, importation or other exploitation of a Product and (ii) included within the Alnylam Licensed Patent Rights or the Dicerna Licensed Patent Rights. A pending claim that ceases to be a Valid Claim due to the time limit in clause (b) shall, if it later issues, qualify again as a Valid Claim, provided that it meets the requirements of clause (a) of the foregoing definition.

1.93 “VAT” has the meaning set forth in Section 6.3.5.

2. LICENSES

2.1 License Grants

2.1.1 License Grant to Dicerna. Subject to the terms and conditions of this Agreement and the Alnylam Existing Third Party Agreements, Alnylam (on behalf of itself and its Affiliates) hereby grants to Dicerna a perpetual, irrevocable, non-exclusive license, with the right to grant sublicenses (through multiple tiers) as provided in Section 2.2, under the Alnylam Licensed Patent Rights to Research, Develop, register, make (including formulate), have made, use, Commercialize, or otherwise exploit the Dicerna Products in the Field in the Territory during the Term.

2.1.2 License Grant to Alnylam. Subject to the terms and conditions of this Agreement and the Dicerna Existing Third Party Agreements, Dicerna (on behalf of itself and its

Affiliates) hereby grants to Alnylam a perpetual, irrevocable, non-exclusive license, with the right to grant sublicenses (through multiple tiers) as provided in Section 2.2, under the Dicerna Licensed Patent Rights to Research, Develop, register, make (including formulate), have made, use, Commercialize, or otherwise exploit the Alnylam Products in the Field in the Territory during the Term.

2.2 Sublicense Rights. Subject to the terms and conditions of this Agreement, Dicerna and Alnylam shall each have the right to grant sublicenses, in full or in part, under any and all rights licensed to Dicerna and Alnylam, respectively, under Section 2.1 to its Affiliates and to any Third Party; subject, at all times, to the terms and conditions of this Agreement, and provided, further, that each Party shall still be entitled to receive under or as a result of any such sublicense the same Royalty as set forth in this Agreement. Notwithstanding the foregoing, neither Party may grant any sublicenses under this Section 2.2 to any such Third Party if such sublicense is not part of a broader license to such Third Party that includes other material Patent Rights or other material intellectual property owned or controlled by the sublicensing Party.

2.3 Covenants.

2.3.1 Alnylam covenants that it will not: (a) willfully take any action that (i) would impose or result in a lien, charge or encumbrance of the Alnylam Licensed Patent Rights that would prevent or limit Dicerna's exercise of its license rights to such Alnylam Licensed Patent Rights, or (ii) would materially adversely affect the license rights granted to Dicerna under this Agreement; or (b) assign, transfer, convey or otherwise grant to any Person any rights to any Alnylam Licensed Patent Rights (or any rights to any Patent Rights that would otherwise be included in the Alnylam Licensed Patent Rights if not assigned, transferred, conveyed, or otherwise granted to a Third Party), in any manner that is inconsistent with the licenses granted to Dicerna pursuant to Section 2.1.1.

2.3.2 Dicerna covenants that it will not: (a) willfully take any action that (i) would impose or result in a lien, charge or encumbrance of the Dicerna Licensed Patent Rights that would prevent or limit Alnylam's exercise of its license rights to such Dicerna Licensed Patent Rights, or (ii) would materially adversely affect the license rights granted to Alnylam under this Agreement; or (b) assign, transfer, convey or otherwise grant to any Person any rights to any Dicerna Licensed Patent Rights (or any rights to any Patent Rights that would otherwise be included in the Dicerna Licensed Patent Rights if not assigned, transferred, conveyed, or otherwise granted to a Third Party), in any manner that is inconsistent with the licenses granted to Alnylam pursuant to Section 2.1.2.

2.4 Additional Licensed Patent Rights.

2.4.1 With regards to any additional Patent Rights (other than Patent Rights Covering any [***]) that (a) are Controlled by Alnylam or its Affiliates as of the Effective Date or during the Term, (b) Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Dicerna Products in the Field in the Territory, and (c) are not already listed for inclusion in the definition of Alnylam Licensed Patent Rights, Dicerna shall have the option, exercisable during the Term upon written notice to Alnylam, and on a Patent Right-by-Patent Right basis, to expand the definition of

Alnylam Licensed Patent Rights under this Agreement to include such additional Patent Rights. Upon receipt of such written notice from Dicerna, such additional Patent Rights will thereafter be included within the definition of Alnylam Licensed Patent Rights and licensed to Dicerna Pursuant to Section 2.1.1, and the list mentioned in Section 1.10(a) will be updated accordingly.

2.4.2 With regards to any additional Patent Rights (other than Patent Rights Covering any targeting ligand or other siRNA delivery technology other than GalNAc) that (a) are Controlled by Dicerna or its Affiliates as of the Effective Date or during the Term, (b) Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Alnylam Products in the Field in the Territory, and (c) are not already listed for inclusion in the definition of Dicerna Licensed Patent Rights, Alnylam shall have the option, exercisable during the Term upon written notice to Dicerna, and on a Patent Right-by-Patent Right basis, to expand the definition of Dicerna Licensed Patent Rights under this Agreement to include such additional Patent Rights. Upon receipt of such written notice from Alnylam, such additional Patent Rights will thereafter be included within the definition of Dicerna Licensed Patent Rights and licensed to Alnylam Pursuant to Section 2.1.2, and the list mentioned in Section 1.36(a) will be updated accordingly.

2.5 In-Licenses.

2.5.1 Acceptance of In-Licenses. In the event that either Party (the “**Licensing Party**”) or its Affiliate enters into an agreement with a Third Party after the Effective Date meets the criteria set forth in clause (b) of the definition of Dicerna In-License or clause (b) of the definition of Alnylam In-License (as the case may be), then the Licensing Party will promptly provide the other Party with notice and a copy of the applicable Third Party agreement. Within [***] days following receipt of such notice, the other Party will decide, in its sole discretion, whether to accept the applicable Third Party agreement as an Alnylam In-License or Dicerna In-License, as the case may be, and provide notice of such decision to the Licensing Party. In the event that such other Party declines to accept such agreement as an Alnylam In-License or Dicerna In-License, as the case may be, any rights granted to the Licensing Party thereunder will not be deemed to be “Controlled” by the Licensing Party or licensed to the other Party under this Agreement. In the event that the other Party accepts such Third Party agreement as an Alnylam In-License or Dicerna In-License, as the case may be, (i) such agreement will thereafter be included within the definition of Alnylam In-License or Dicerna In-License, as applicable, (ii) any rights granted to the Licensing Party thereunder will be deemed to be “Controlled” by the Licensing Party and sublicensed to the other Party pursuant to the terms of this Agreement, and (iii) the Parties will negotiate in good faith an allocation of the respective share each Party shall bear for payments made or to be made under such Third Party Agreement such that each Party will equitably bear responsibility for those payments arising from its activities under the rights licensed under such Third Party agreement (or in the case of the Party that is the sublicensee, arising from the grant of such sublicense).

2.5.2 Additional In-Licenses.

(a) Dicerna shall have the option, exercisable during the Term upon written notice to Alnylam, and on an Additional Alnylam In-License by Additional Alnylam In-License basis, to expand the definition of Alnylam Licensed Patent Rights under this

Agreement to include the Patent Rights Controlled by Alnylam under such Additional Alnylam In-License. Upon receipt of such written notice from Dicerna, such agreement will thereafter be included within the definition of the Alnylam Existing Third Party Agreements, and all rights granted to Alnylam thereunder will be deemed to be “Controlled” by Alnylam and sublicensed to Dicerna under this Agreement effective as of the date of such written notice, and Exhibit A will be updated accordingly. For the avoidance of doubt, in no event shall this Section 2.5.2(a) permit the Alnylam Licensed Patent Rights to expand to include (i) any Patent Rights Covering [***] or (ii) any Patent Rights licensed to Alnylam [***].

(b) Alnylam shall have the option, exercisable during the Term upon written notice to Alnylam, and on an Additional Dicerna In-License by Additional Dicerna In-License basis, to expand the definition of Dicerna Licensed Patent Rights under this Agreement to include the Patent Rights Controlled by Dicerna under such Additional Dicerna In-License. Upon receipt of such written notice from Alnylam, such agreement will thereafter be included within the definition of the Dicerna Existing Third Party Agreements, and all rights granted to Dicerna thereunder will be deemed to be “Controlled” by Dicerna and sublicensed to Alnylam under this Agreement effective as of the date of such written notice, and Exhibit B will be updated accordingly. For the avoidance of doubt, in no event shall this Section 2.5.2(b) permit the Dicerna Licensed Patent Rights to expand to include any Patent Rights Covering [***].

2.5.3 Compliance. Each Party acknowledges and agrees that the sublicenses and other rights granted by the other Party to such first Party in this Agreement are subject to the terms of any In-Licenses to which such other Party or any of its Affiliates is a party. Each Party granted a sublicense pursuant to this Agreement under any of the In-Licenses of the other Party (or any of its Affiliates) (the Party granted a sublicense, the “**Sublicensed Party**,” and the Party granting the sublicense, the “**Sublicensor Party**”) shall comply with, and perform and take such actions as may be required to allow the Sublicensor Party to comply with, all applicable terms and conditions of the In-Licenses of the Sublicensor Party to the extent (a) applicable to (i) the Sublicensed Party’s rights or obligations relating to the Development, manufacture or Commercialization of Products under this Agreement or (ii) the filing, prosecution, maintenance, extension, defense, enforcement or the further sublicensing of the Alnylam Licensed Patent Rights (if Alnylam is the Sublicensor Party) or the Dicerna Licensed Patent Rights (if Dicerna is the Sublicensor Party) to the extent relevant to the Sublicensed Party’s rights or obligations relating to the Development, manufacture or Commercialization of Products under this Agreement, and (b) the Sublicensed Party has been given written notice or provided a copy of such terms and conditions on or before the later of (i) the Effective Date and (ii) the date on which such In-License is first required to have been provided to the Sublicensed Party hereunder, including any such terms and conditions relating to sublicensing, patent matters, confidentiality, reporting, audit rights, indemnification and diligence. Without limiting the foregoing, (x) the Parties shall, from time to time, upon the reasonable request of either Party, discuss the terms of any In-License and (y) each Sublicensed Party shall prepare and deliver to the Sublicensor Party any reports required under the applicable In-Licenses of the Sublicensor Party sufficiently in advance to enable the Sublicensor Party to comply with its obligations under the applicable In-Licenses, to the extent that the Sublicensed Party had been made aware of such

provisions sufficiently in advance of the date on which such compliance is required in order for such Sublicensed Party to properly prepare such reports.

2.6 No Implied Licenses or Rights. Except as expressly set forth in this Agreement, neither Party, by virtue of this Agreement, shall acquire any license or other interest, by implication or otherwise, in any materials, Know-How, Patent Rights or other intellectual property rights Controlled by the other Party or its Affiliates not expressly granted under this Agreement. Furthermore, notwithstanding anything to the contrary in this Agreement, by entering into this Agreement, neither Party is forfeiting any rights that such Party may have, including its rights to perform Research in compliance with 35 U.S.C. § 271(e)(1) or any experimental or Research use exemption that may apply in any country.

2.7 Effect of Change of Control. [***]

2.8 Covenant Not to Sue.

2.8.1 With regards to any Patent Rights that (a) are Controlled by Alnylam or its Affiliates as of the Effective Date or during the Term, (b) Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Dicerna Products in the Field in the Territory, and (c) are not included in the definition of Alnylam Licensed Patent Rights, Alnylam and its Affiliates hereby agree and covenant not to sue Dicerna, Dicerna's Affiliates, and any direct and indirect Sublicensees, during the Term in the event that a Dicerna Product or the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation thereof in the Field infringes such Patent Rights. Notwithstanding the foregoing, the Patent Rights subject to the covenant not to sue granted under this Section 2.8.1 shall not include any Patent Rights Covering any targeting ligand or other siRNA delivery technology other than GalNAc. In addition, if Dicerna or any of its Affiliates (x) commences or participates in any action or proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any Patent Rights subject to the covenant not to sue granted under this Section 2.8.1 or any claim thereof or (y) actively assists any other Person or entity in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any such Patent Rights or any claim thereof, then, to the extent permitted by the Applicable Laws, the covenant not to sue granted under this Section 2.8.1 shall terminate with respect to such Patent Rights.

2.8.2 With regards to any Patent Rights that (a) are Controlled by Dicerna or its Affiliates as of the Effective Date or during the Term, (b) Cover the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation of Alnylam Products in the Field in the Territory, and (c) are not included in the definition of Dicerna Licensed Patent Rights, Dicerna and its Affiliates hereby agree and covenant not to sue Alnylam, Alnylam's Affiliates, and any direct and indirect Sublicensees, during the Term in the event that a Alnylam Product or the Research, Development, registration, making (including formulation), having made, use, Commercialization, or other exploitation thereof in the Field infringes such Patent Rights. Notwithstanding the foregoing, the Patent Rights subject to the covenant not to sue granted under this Section 2.8.2 shall not include any Patent Rights Covering

any targeting ligand or other siRNA delivery technology other than GalNAc. In addition, if Alnylam or any of its Affiliates (x) commences or participates in any action or proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any Patent Rights subject to the covenant not to sue granted under this Section 2.8.2 or any claim thereof or (y) actively assists any other Person or entity in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any such Patent Rights or any claim thereof, then, to the extent permitted by the Applicable Laws, the covenant not to sue granted under this Section 2.8.2 shall terminate with respect to such Patent Rights.

3. DEVELOPMENT AND REGULATORY

3.1 Development Responsibilities. As between the Parties, Dicerna shall have sole discretion and authority with respect to all decisions concerning the Research and Development of Dicerna Products in the Field, including the clinical and regulatory strategy of such Dicerna Products. As between the Parties, Alnylam shall have sole discretion and authority with respect to all decisions concerning the Research and Development of Alnylam Products in the Field, including the clinical and regulatory strategy of such Alnylam Products.

3.2 Regulatory Responsibilities.

3.2.1 As between the Parties, Dicerna shall, with respect to the Dicerna Products, (i) be responsible for the preparation, submission, and maintenance of all Regulatory Filings and obtaining and maintaining Regulatory Approvals and shall have sole control over all interactions with the applicable Regulatory Authority, (ii) have sole responsibility for safety management, including the timely reporting to the appropriate Governmental Authorities, of all adverse events and any other information concerning the safety of Dicerna Products, in each case, in accordance with Applicable Laws and (iii) own all right, title and interest in and to any and all Regulatory Filings and Regulatory Approvals and hold all such Regulatory Filings and Regulatory Approvals in its name.

3.2.2 As between the Parties, Alnylam shall, with respect to Alnylam Products, (i) be responsible for the preparation, submission, and maintenance of all Regulatory Filings and obtaining and maintaining Regulatory Approvals and have sole control over all interactions with the applicable Regulatory Authority, (ii) have sole responsibility for safety management, including the timely reporting to the appropriate Governmental Authorities, of all adverse events and any other information concerning the safety, in each case, in accordance with Applicable Laws, and (iii) own all right, title and interest in and to any and all Regulatory Filings and Regulatory Approvals and hold all such Regulatory Filings and Regulatory Approvals in its name.

3.3 Costs of Development. Dicerna shall be responsible for its own costs and expenses for the Research and Development of the Dicerna Products, and Alnylam shall be responsible for its own costs and expenses for the Research and Development of Alnylam Products.

4. COMMERCIALIZATION AND MANUFACTURING

4.1 Commercialization by Dicerna. As between the Parties, Dicerna shall have the sole right and be responsible at its own expense for the Commercialization and manufacture of the Dicerna Products. All decisions concerning the Commercialization and manufacture of Dicerna Products within the Territory, including the marketing and sales of Dicerna Products, and the design, price, and promotion of Dicerna Products are within the sole discretion of Dicerna.

4.2 Commercialization by Alnylam. As between the Parties, Alnylam shall have the sole right and be responsible at its own expense for the Commercialization and manufacture of the Alnylam Products. All decisions concerning the Commercialization and manufacture of Alnylam Products within the Territory, including the marketing and sales of Alnylam Products, and the design, price, and promotion of Alnylam Products, are within the sole discretion of Alnylam.

5. FINANCIAL PROVISIONS

5.1 Royalties to Alnylam.

5.1.1 Dicerna shall pay Alnylam a Royalty as set forth in Section 5.1.2 on a country-by-country and Dicerna Product-by-Dicerna Product basis during the Royalty Term, in each case subject to the Royalty reductions set forth below in this Section 5.1.

5.1.2 Royalties. During the Royalty Term, Dicerna shall pay Alnylam a royalty on a Dicerna Product-by-Dicerna Product and country-by-country basis an amount equal to [***] of Net Sales of Dicerna Product (each such royalty payment, a “Royalty”).

5.1.3 Royalty Reduction - Third Party Royalties – Anti-Stacking. If Dicerna determines that it is necessary for Dicerna or its Affiliates or Sublicensees to obtain a license from a Third Party after the Effective Date in order to Research, Develop, make (including formulate), have made, use, Commercialize or otherwise exploit a Dicerna Product in a particular country, Dicerna shall have the right to deduct [***] of all upfront, milestone, Royalty or other payments due under such license with the Third Party (to the extent not already subject to the payment sharing pursuant to Section 2.5.1) from the Royalty owing to Alnylam during the applicable period for the such Dicerna Product under Section 5.1.2, subject to the Royalty reduction floor as set forth below; provided, that any credit not applied because of such Royalty reduction floor may be carried forward to future Calendar Quarters. Notwithstanding the foregoing, in no event shall the Dicerna be permitted to reduce royalties payable to Alnylam pursuant to this Section 5.1.3 below [***] of the royalties otherwise payable under Section 5.1.2.

5.2 Royalties to Dicerna.

5.2.1 Alnylam shall pay Dicerna a Royalty as set forth in Section 5.2.2 on a country-by-country and Alnylam Product-by-Alnylam Product basis during the Royalty Term, in each case subject to the Royalty reductions set forth below in this Section 5.2.

5.2.2 Royalties. During the Royalty Term, Alnylam shall pay Dicerna a Royalty on an Alnylam Product-by-Alnylam Product and country-by-country basis on Annual Net Sales of Alnylam Product at the applicable Royalty rate set forth below, based on the time period during which such Net Sales accrue.

<u>Time Period During Which Net Sales Accrue</u>	<u>Royalty Rate</u>
[***]	[***]
[***]	[***]

5.2.3 Royalty Reduction - Third Party Royalties – Anti-Stacking. If Alnylam determines that it is necessary for Alnylam or its Affiliates or Sublicensees to obtain a license from a Third Party after the Effective Date in order to Research, Develop, make (including formulate), have made, use, Commercialize or otherwise exploit an Alnylam Product in a particular country, Alnylam shall have the right to deduct [***] of all upfront, milestone, Royalty or other payments due under such license with the Third Party (to the extent not already subject to the payment sharing pursuant to Section 2.5.1) from the Royalty owing to Dicerna during the applicable period for the such Alnylam Product under Section 5.2.2, subject to the Royalty reduction floor as set forth below; provided, that any credit not applied because of such Royalty reduction floor may be carried forward to future Calendar Quarters. Notwithstanding the foregoing, in no event shall the Alnylam be permitted to reduce royalties payable to Dicerna pursuant to this Section 5.2.3 below [***] of the royalties otherwise payable under Section 5.2.2.

6. REPORTS AND PAYMENT TERMS

6.1 Payment Terms. During the Royalty Term with respect to any Royalties due from one Party to the other under this Agreement, the paying Party shall furnish to the other Party a quarterly report on sales of the paying Party’s Product within [***] days after each [***]. Such report shall include the Net Sales of such Product and the Royalties due (in USD). Royalties shown to have accrued by each report provided under this Section 6.1 shall be due and payable [***]. In addition, the paying Party will, in advance of each such quarterly report and solely to the extent practicable, provide the other Party with preliminary good faith estimates of the Net Sales for the paying Party’s Product for the applicable [***].

6.2 Payment Currency / Exchange Rate. All payments to be made by under this Agreement shall be made in USD. Payments shall be made by electronic wire transfer of immediately available funds to the account of the recipient Party, as designated in writing to the paying Party. If any currency conversion is required in connection with the calculation of amounts payable hereunder, such conversion shall be [***].

6.3 Taxes.

6.3.1 Income Taxes. Except as provided in this Section 6.3.1, each Party shall pay all income and other taxes (including interest) imposed on or measured with respect to its own income accruing or paid to it under this Agreement. Notwithstanding anything in this Agreement to the contrary, if one Party’s assignment of this Agreement (such Party, the “**Assigning Party**”) leads to the imposition of income tax liability on the other Party (such Party, the “**Non-Assigning Party**”) that would not have been imposed in the absence of such action or in an increase in such liability above the liability that would have been imposed in the absence of such action, the Assigning Party will indemnify and hold harmless the Non-Assigning Party from any such additional or increased income tax liability (except to the extent that the Non-Assigning Party or any of its Affiliates can obtain a refund or credit for such amounts, provided that the Non-

Assigning Party will be reimbursed f by the Assigning Party or any reasonable out of pocket costs incurred in obtaining such a refund or credit).

6.3.2 Withholding Taxes. If provision is made in law or regulation of any country for withholding of taxes of any type, levies or other charges with respect to any royalty or other amounts payable under this Agreement to a Party (the “**Payee**”), then the other Party (the “**Payor**”) shall timely pay such tax, levy or charge for and on behalf of the Payee to the proper Governmental Authority, and shall promptly furnish Payee with appropriate proof of payment of the withheld taxes as well as the official receipts sufficient to enable the Payee to claim credits for such payments of taxes; provided, however, that notwithstanding anything in this Agreement to the contrary, if an Assigning Party’s assignment of this Agreement leads to the imposition of withholding tax liability on a Non-Assigning Party that would not have been imposed in the absence of such action or in an increase in such liability above the liability that would have been imposed in the absence of such action, the Assigning Party will indemnify and hold harmless a Non-Assigning Party from any such additional or increased withholding tax liability (except to the extent that a Non-Assigning Party or any of its Affiliates can obtain a refund or credit of such withholding taxes, provided that a Non-Assigning Party will be reimbursed for any reasonable out of pocket costs incurred in obtaining such a refund or credit). The Parties shall cooperate and exercise their reasonable best efforts to ensure that any such withholding taxes are mitigated or reduced to the extent possible under the provisions of any Applicable Laws, and shall provide the Payee reasonable assistance (including the provision of any tax forms and other information) in order to allow the Payee to obtain the benefit of any present or future treaty against double taxation or exemption from, refund or reduction in taxes which may apply to such payments. To the extent that a Party is required to deduct and withhold taxes on any such payment pursuant to this Section 6.3.2, such Party will provide the Payee with written notice of the required withholding as promptly as reasonably practical (and in any event, no later than [**]) prior to making such payment. To the extent such amounts are so deducted and withheld and timely remitted to the relevant tax authorities, such amounts shall be treated for all purposes under this Agreement as having been paid to the Party to whom such amounts would otherwise have been paid.

6.3.3 Foreign-Derived Deduction Eligible Income Reporting. Alnylam shall obtain and deliver to Dicerna, on an annual basis and within [**] days of Dicerna’s request to provide, information as reasonably requested by Dicerna and in Alnylam’s possession to meet any documentation requirements imposed by regulations issued under Section 250 of the Internal Revenue Code for the treatment of an appropriate portion of such amounts as “foreign-derived deduction eligible income” within the meaning of Section 250 of the Internal Revenue Code and the regulations thereunder.

6.3.4 No Partnership for Tax Purposes. The Parties acknowledge and agree that this Agreement is not intended to treated as a partnership or joint venture for United States federal and state tax purposes, and the Parties further agree to file all tax returns (including information returns) consistent with the foregoing intended tax treatment unless required by a final determination within the meaning of Section 1313 of the Internal Revenue Code.

6.3.5 Value Added Tax. It is understood and agreed between the Parties that any payments made by any Party under this Agreement are exclusive of any value added tax (“**VAT**”)

or similar tax imposed upon such payments. Where VAT is properly chargeable in respect of any supply of goods or services made under this Agreement, the Party paying the consideration for that supply will pay the amount of VAT subject to receipt of a valid tax invoice issued in accordance with Applicable Laws.

6.4 Audit Rights (Financial).

6.4.1 [*]**

7. INTELLECTUAL PROPERTY RIGHTS

7.1 Ownership of Patent Rights. [*]**

7.2 Filing, Prosecution, Enforcement and Defense.

7.2.1 Filing and Prosecution.

(a) Alnylam Licensed Patent Rights. [***]

(b) Dicerna Licensed Patent Rights. [***]

7.2.2 Enforcement and Defense.

(a) Enforcement of Alnylam Licensed Patent Rights. [***]

(b) Enforcement of Dicerna Licensed Patent Rights. [***]

7.2.3 Recovery. The Party having the right to initiate any infringement suit under Section 7.2.2 above shall have the sole and exclusive right to select counsel for any such suit and shall pay all expenses of the suit, including attorneys' fees and court costs and reimbursement of the other Party's reasonable out-of-pocket expense in rendering assistance requested by the initiating Party. In connection with any such suit under Section 7.2.2, any damages, license fees, royalties or other compensation (including any amount received in settlement of such litigation), such amounts shall be allocated in all cases to the Party Controlling the asserted Patent Rights.

8. CONFIDENTIALITY

8.1 Duty of Confidence. During the Term and for [***] years thereafter, all Confidential Information disclosed by one Party to the other Party hereunder shall be maintained in confidence by the recipient Party and shall not be disclosed to any Third Party or used for any purpose, except as set forth herein, without the prior written consent of the disclosing Party. The recipient Party may only use Confidential Information of the other Party for purposes of exercising its rights and fulfilling its obligations under this Agreement and may disclose Confidential Information of the other Party and its Affiliates to employees, agents, contractors, consultants and advisers of the recipient Party and its Affiliates, licensees and Sublicensees to the extent reasonably necessary for such purposes; provided that such persons and entities are bound by confidentiality and non-use of the Confidential Information consistent with the confidentiality provisions of this Agreement as they apply to the recipient Party.

8.2 Exceptions. The obligations under this Article 8 shall not apply to any information to the extent the recipient Party can demonstrate by competent evidence that such information:

8.2.1 is (at the time of disclosure) or becomes (after the time of disclosure) known to the public or part of the public domain through no breach of this Agreement by the recipient Party or its Affiliates;

8.2.2 was known to, or was otherwise in the possession of, the recipient Party or its Affiliates prior to the time of disclosure by the disclosing Party;

8.2.3 is disclosed to the recipient Party or an Affiliate on a non-confidential basis by a Third Party that is entitled to disclose it without breaching any confidentiality obligation to the disclosing Party or any of its Affiliates; or

8.2.4 is independently developed by or on behalf of the recipient Party or its Affiliates, as evidenced by its written records, without use of or reference to the Confidential Information disclosed by the disclosing Party or its Affiliates under this Agreement.

8.3 Authorized Disclosures. Subject to this Section 8.3, the recipient Party may disclose Confidential Information (including the Agreement) belonging to the other Party:

8.3.1 if such disclosure is deemed necessary by counsel to the recipient Party to be disclosed to such Party's attorneys, independent accountants or financial advisors, for the sole purpose of enabling such attorneys, independent accountants or financial advisors to provide advice to the recipient Party, on the condition that such Persons are bound by confidentiality and non-use obligations consistent with the confidentiality provisions of this Agreement as they apply to the recipient Party;

8.3.2 to the extent required in connection with any judicial or administrative process relating to or arising from this Agreement (including any enforcement hereof) or to comply with applicable court orders or governmental regulations;

8.3.3 if the recipient Party is required by judicial or administrative process to disclose Confidential Information that is subject to the non-disclosure provisions of this Article 8, in which case such Party shall promptly inform the other Party of the disclosure that is being sought in order to provide the other Party an opportunity to challenge or limit the disclosure obligations. Confidential Information that is disclosed as permitted by this Section 8.3 shall remain otherwise subject to the confidentiality and non-use provisions of this Article 8, and the Party disclosing Confidential Information as permitted by this Section 8.3 shall take all steps reasonably necessary, including obtaining an order of confidentiality and otherwise cooperating with the other Party, to ensure the continued confidential treatment of such Confidential Information;

8.3.4 if the recipient Party is required to make a disclosure by law, regulation or legal process, including by the rules or regulations of any tax authority, the United States Securities and Exchange Commission, or any other similar regulatory agencies in a country other than the United States or of any stock exchange or other securities trading institution. In such event, a Party

disclosing Confidential Information of the other Party under this Section 8.3.4 shall disclose only such Confidential Information of such other Party as is required to be disclosed; or

8.3.5 if such disclosure is to the recipient Party's bona fide potential or existing collaborators, financial partners, investors, acquirers or lenders, the recipient Party may disclose the terms of this Agreement to such collaborators, financial partners, investors, acquirers or lenders who have executed a non-disclosure agreement restricting such collaborators, financial partners, investor, acquirer or lender to use the terms of this Agreement solely for purposes of, and to the extent necessary for, evaluating the potential or existing collaboration, financial partnership, investment, acquisition or financing, restricting access to such individuals as may need to know the information for such evaluation, and strictly prohibiting disclosure of such terms by the prospective or existing collaborators, financial partners, investor, acquirer, or lender.

9. PUBLICITY

9.1 Publicity. The Parties have mutually approved a joint press release attached hereto as Exhibit E. Each Party agrees not to issue any other press release or other public statement, whether oral or written, disclosing the terms hereof or any of the activities conducted hereunder without the prior written consent of the other Party; provided, however, that neither Party will be prevented from complying with any duty of disclosure it may have pursuant to Applicable Laws or pursuant to the rules of any recognized stock exchange or quotation system subject to the restrictions set forth in Section 8.3.

10. TERM AND TERMINATION

10.1 Term. Subject to Article 10, the term of this Agreement (the "**Term**") will commence on the Effective Date and (subject to earlier termination in accordance with this Article 10) will expire upon the expiration of the last-to-expire Patent Rights licensed under Article 2.

10.2 Remedies for Breach; No Early Termination. If Dicerna or any of its Affiliates on the one hand or Alnylam or any of its Affiliates on the other breaches this Agreement and such breach remains uncured for more than [***] days after the receipt by the breaching Party of notice specifying the breach and requiring its remedy, provided, prior to such notice being delivered, the Parties had fully complied with Section 13.4 (except as may otherwise be provided in Section 13.4.3); then on each such occasion, the non-breaching Party shall have the right to seek monetary damages for such breach, whether or not cured, and/or to seek equitable relief (including restraining orders, specific performance or other injunctive relief) to prevent such uncured breach from continuing or such breach from occurring again in the future. The prevailing Party in such an action for monetary damages or equitable relief shall be entitled to recover reasonable attorneys' fees and expenses from the other Party. The Parties acknowledge and agree that the remedies provided for in this Section 10.2 are the sole and exclusive remedies for any breach of this Agreement, and no breach of this Agreement shall constitute grounds for termination of this Agreement or any of the rights or obligations set forth herein.

10.3 Challenges of Patent Rights by Dicerna. If, during the Term, Dicerna or any of its Affiliates (a) commences or participates in any action or proceeding (including any patent

opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any Patent Rights licensed to Dicerna under this Agreement or any claim thereof or (b) actively assists any other Person or entity in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any Patent Rights licensed to Dicerna under this Agreement or any claim thereof (each of (a) and (b), a **“Patent Challenge by Dicerna”**), then, to the extent permitted by the Applicable Laws, Alnylam shall have the right, exercisable within [***] days following receipt of notice regarding such Patent Challenge by Dicerna, in its sole discretion, to give notice to Dicerna that Alnylam may terminate the license granted to Dicerna under Section 2.1.1 (which termination will be effective [***] days following such notice (or such longer period as Alnylam may designate in such notice)), and, unless Dicerna or such Affiliate withdraws or causes to be withdrawn all such challenge(s) within such [***] day period such that such challenge is actually withdrawn and no longer pending, Alnylam will have the right at its sole discretion to either terminate the license granted to Dicerna under Section 2.1.1 or reduce the royalty paid by Alnylam to [***], by providing written notice thereof to Dicerna. The foregoing sentence shall not apply with respect to (i) any Patent Rights that Alnylam first asserts against Dicerna or any of its Affiliates where the Patent Challenge by Dicerna is made in defense of such assertion or (ii) any Patent Challenge commenced by a Third Party that, after the Effective Date, acquires or is acquired by Dicerna or its Affiliates or its or their business or assets, whether by stock purchase, merger, asset purchase or otherwise, but only with respect to Patent Challenges commenced prior to the closing of such acquisition.

10.4 Challenges of Patent Rights by Alnylam. If, during the Term, Alnylam or any of its Affiliates (a) commences or participates in any action or proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the validity or enforceability of any Patent Rights licensed to Alnylam under this Agreement or any claim thereof or (b) actively assists any other Person or entity in bringing or prosecuting any action or proceeding (including any patent opposition or re-examination proceeding) challenging or denying the validity or enforceability of any Patent Rights licensed to Alnylam under this Agreement or any claim thereof (each of (a) and (b), a **“Patent Challenge by Alnylam”**), then, to the extent permitted by the Applicable Laws, Dicerna shall have the right, exercisable within [***] days following receipt of notice regarding such Patent Challenge by Alnylam, in its sole discretion, to give notice to Alnylam that Dicerna may terminate the license granted to Dicerna under Section 2.1.2 (which termination will be effective [***] days following such notice (or such longer period as Dicerna may designate in such notice)), and, unless Alnylam or such Affiliate withdraws or causes to be withdrawn all such challenge(s) within such [***]-day period such that such challenge is actually withdrawn and no longer pending, Dicerna will have the right at its sole discretion to either terminate the license granted to Alnylam under Section 2.1.2 or reduce the royalty paid by Dicerna to [***], by providing written notice thereof to Alnylam. The foregoing sentence shall not apply with respect to (i) any Patent Rights that Dicerna first asserts against Alnylam or any of its Affiliates where the Patent Challenge by Alnylam is made in defense of such assertion or (ii) any Patent Challenge commenced by a Third Party that, after the Effective Date, acquires or is acquired by Alnylam or its Affiliates or its or their business or assets, whether by stock purchase, merger, asset purchase or otherwise, but only with respect to Patent Challenges commenced prior to the closing of such acquisition.

10.5 Survival. Termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such termination, nor affect in any way the survival of any other right, duty or obligation of the Parties which is expressly stated elsewhere in this Agreement to survive such termination. Without limiting the foregoing and except as expressly set forth otherwise in this Agreement, Section 1, Section 5 (solely to the extent any payments became payable prior to the effective date of such expiration or termination), Section 6 (with respect to Sections 6.1, 6.2, and 6.3, solely to the extent any payments became payable prior to the effective date of such expiration or termination), Section 7, Section 8, Section 9, Section 10.5, Section 12, and Section 13 shall survive to the extent applicable. Except as otherwise expressly provided herein, all other rights and obligations of the Parties under this Agreement shall terminate upon termination of this Agreement. For clarity, the Parties acknowledge and agree that the license grants in Section 2.1 are intended to be perpetual and irrevocable, subject to Sections 10.3 and 10.4.

10.6 Bankruptcy Code. If this Agreement is rejected by a Party as a debtor under Section 365 of the United States Bankruptcy Code or similar provision in the bankruptcy laws of another jurisdiction (the “**Code**”), then, notwithstanding anything else in this Agreement to the contrary, all licenses and rights to licenses granted under or pursuant to this Agreement by the Party in bankruptcy to the other Party are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the Code (or similar provision in the bankruptcy laws of the jurisdiction), licenses of rights to “intellectual property” as defined under Section 101(35A) of the Code (or similar provision in the bankruptcy laws of another applicable jurisdiction). The Parties agree that a Party that is a licensee of rights under this Agreement shall retain and may fully exercise all of its rights and elections under the Code, and that upon commencement of a bankruptcy proceeding by or against a Party under the Code, the other Party shall be entitled to a complete duplicate of, or complete access to (as such other Party deems appropriate), any such intellectual property and all embodiments of such intellectual property, if not already in such other Party’s possession, shall be promptly delivered to such other Party: (a) upon any such commencement of a bankruptcy proceeding upon written request therefor by such other Party, unless the bankrupt Party elects to continue to perform all of its obligations under this Agreement; or (b) if not delivered under the foregoing subclause (a), upon the rejection of this Agreement by or on behalf of the bankrupt Party upon written request therefor by the other Party. The foregoing provisions of this Section 10.6 are without prejudice to any rights a Party may have arising under the Code.

11. REPRESENTATIONS AND WARRANTIES

11.1 Representations and Warranties by Each Party. Each Party represents and warrants to the other as of the Effective Date that:

11.1.1 Good Standing. It is a corporation duly organized, validly existing under the laws of the jurisdiction of its incorporation, and in good standing under the laws of its jurisdiction of formation.

11.1.2 Authority and Capabilities. It has: (a) full corporate power and authority to execute, deliver, and perform this Agreement; (b) taken all corporate action(s) required by Applicable Laws and its organizational documents to authorize the execution and delivery of this Agreement, and the consummation of the transactions and performance of its obligations

contemplated by this Agreement; and (c) sufficient facilities, experienced personnel and other capabilities to enable it to perform its obligations under this Agreement.

11.1.3 Valid and Binding. This Agreement constitutes a legal, valid and binding agreement enforceable against it in accordance with its terms (except as the enforceability thereof may be limited by bankruptcy, bank moratorium or similar laws affecting creditors' rights generally and laws restricting the availability of equitable remedies and may be subject to general principles of equity whether or not such enforceability is considered in a proceeding at law or in equity).

11.1.4 No Conflict. The execution and delivery of this Agreement and all other instruments and documents required to be executed pursuant to this Agreement, and the consummation of the transactions contemplated hereby do not and shall not: (a) conflict with or result in a breach of any provision of its organizational documents; (b) result in a breach of any agreement to which it is a party; or (c) violate any Applicable Laws.

11.1.5 Licensed Patent Rights. With respect to the Alnylam Licensed Patent Rights (in the case of Alnylam) and the Dicerna Licensed Patent Rights (in the case of Dicerna), it has sufficient right and authority to grant the licenses thereunder set forth in Section 2.

11.2 Representations, Warranties and Covenants of Dicerna. Dicerna represents, warrants and covenants to Alnylam as follows, in each case as of the Effective Date:

11.2.1 Field Limitation. Dicerna and its Affiliates will, and will cause its Sublicensees to, ensure that in no event will any Dicerna Product be (i) administered to or used in (or developed or designed for use or administration in) the CNS or Eye through any route of administration (including when administered intrathecally or intraocularly), or (ii) developed or commercialized as a prophylactic or therapeutic for a disease(s) of the CNS or Eye where the siRNA contained in such Product is conferring any therapeutic effect through interference in the CNS or Eye, as applicable, with the function of any messenger RNA encoded by the same target gene as such Dicerna Product. Dicerna and its Affiliates will not be liable for uses by any Third Party of the Product outside of the approved label use(s) for such Product if and only if Dicerna and its Affiliates comply with all of the undertakings set forth on Exhibit F.

11.3 Limitation. Neither Party makes any representation or warranty, either express or implied, that any of the Research, Development and/or Commercialization efforts with regard to any Product will be successful.

11.4 No Other Warranties. Except as otherwise expressly set forth in this Agreement, each Party expressly disclaims any and all representations or warranties of any kind with respect to the subject matter of this Agreement, whether express or implied, including any warranties of non-infringement, merchantability or fitness for a particular purpose.

12. INDEMNIFICATION AND LIABILITY

12.1 Indemnification by Alnylam. Alnylam shall indemnify, defend and hold Dicerna and its Affiliates, and their respective officers, directors, employees, contractors, agents and assigns (each, a "**Dicerna Indemnified Party**"), harmless from and against losses, damages and liability,

including reasonable legal expense and attorneys' fees, (collectively, "**Losses**") to which any Dicerna Indemnified Party may become subject as a result of any Third Party demands, claims or actions ("**Claims**") against any Dicerna Indemnified Party (including product liability claims) arising or resulting from: (a) the fraud, gross negligence or willful misconduct of Alnylam or its Affiliates pursuant to this Agreement, (b) the material breach of any term in or the covenants, warranties, representations made by Alnylam to Dicerna under this Agreement, or (c) the Development or Commercialization of Alnylam Products by Alnylam or its Affiliates or Sublicensees. Alnylam is only obliged to so indemnify and hold the Dicerna Indemnified Parties harmless to the extent that such Claims do not arise from the material breach of this Agreement by or the negligence or willful misconduct of Dicerna or a Dicerna Indemnified Party.

12.2 Indemnification by Dicerna. Dicerna shall indemnify, defend and hold Alnylam and its Affiliates, and their respective officers, directors, employees, contractors, agents and assigns (each, a "**Alnylam Indemnified Party**"), harmless from and against Losses incurred by any Alnylam Indemnified Party as a result of any Third Party Claims against any Alnylam Indemnified Party (including product liability claims) arising or resulting from: (a) the fraud, gross negligence or willful misconduct of Dicerna or its Affiliates pursuant to this Agreement; (b) the material breach of any term in or the covenants, warranties, representations made by Dicerna to Alnylam under this Agreement, or (c) the Development or Commercialization of Dicerna Products by Dicerna or its Affiliates or Sublicensees. Dicerna is only obliged to so indemnify and hold the Alnylam Indemnified Parties harmless to the extent that such Claims do not arise from the material breach of this Agreement or the negligence or willful misconduct of Alnylam or an Alnylam Indemnified Party.

12.3 Indemnification Procedure.

12.3.1 Any Dicerna Indemnified Party or Alnylam Indemnified Party seeking indemnification hereunder ("**Indemnified Party**") shall notify the Party against whom indemnification is sought ("**Indemnifying Party**") in writing reasonably promptly after the assertion against the Indemnified Party of any Claim in respect of which the Indemnified Party intends to base a claim for indemnification hereunder, but the failure or delay so to notify the Indemnifying Party shall not relieve the Indemnifying Party of any obligation or liability that it may have to the Indemnified Party except to the extent that the Indemnifying Party demonstrates that its ability to defend or resolve such Claim is adversely affected thereby.

12.3.2 Subject to the provisions of Section 12.3.3, the Indemnifying Party shall have the right, upon providing notice to the Indemnified Party of its intent to do so within [***] days after receipt of the notice from the Indemnified Party of any Claim, to assume the defense and handling of such Claim, at the Indemnifying Party's sole expense.

12.3.3 The Indemnifying Party shall select competent counsel in connection with conducting the defense and handling of such Claim, and the Indemnifying Party shall defend or handle the same in consultation with the Indemnified Party, and shall keep the Indemnified Party timely apprised of the status of such Claim. The Indemnifying Party shall not, without the prior written consent of the Indemnified Party, agree to a settlement of any Claim which could lead to liability or create any financial or other obligation on the part of the Indemnified Party for which the Indemnified Party is not entitled to indemnification hereunder, or would involve any admission

of wrongdoing on the part of the Indemnified Party. The Indemnified Party shall cooperate with the Indemnifying Party, at the request and expense of the Indemnifying Party, and shall be entitled to participate in the defense and handling of such Claim with its own counsel and at its own expense.

12.4 Special, Indirect and Other Losses. Neither Party nor any of its Affiliates shall be liable under this Agreement for special, indirect, incidental, punitive or consequential damages, including loss of profits suffered by the other Party, except for: (a) punitive or exemplary damages required to be paid to a Third Party pursuant to a non-appealable order of a court of competent jurisdiction in connection with a Third Party claim for which the Indemnified Party is entitled to indemnification hereunder; (b) such damages arising out of Article 8 of this Agreement by a Party, its Affiliates or Sublicensees; or (c) such damages arising out of the fraud, gross negligence or willful misconduct of the liable Party.

12.5 Insurance. Each Party, at its own expense, shall maintain liability insurance (which may include self-insurance) in an amount adequate to cover its obligations under this Agreement during the Term, and shall provide to the other Party a certificate of insurance (or evidence of self-insurance) evidencing such coverage upon request.

13. GENERAL PROVISIONS

13.1 Assignment. Except as provided in this Section 13.1, this Agreement may not be assigned or otherwise transferred, nor may any right or obligation hereunder be assigned or transferred, by either Party without the consent of the other Party; provided, however, that (and notwithstanding anything elsewhere in this Agreement to the contrary) (a) either Party may, without such consent, assign this Agreement and its rights and obligations hereunder in whole or in part: (i) to an Affiliate of such Party so long as such Party remains primarily liable for any acts or omissions of such Affiliate; (ii) to the Acquirer in connection with a Change of Control or to a Third Party in connection with a sale to such Third Party of all or substantially all of the business of such Party to which this Agreement relates. Any attempted assignment not in accordance with this Section 13.1 shall be void. The assigning Party shall promptly notify the other Party of any such permitted assignment, and any such permitted assignee shall assume in writing all assigned obligations of its assignor under this Agreement.

13.2 Severability. Should one or more of the provisions of this Agreement become void or unenforceable as a matter of Applicable Laws, then this Agreement shall be construed as if such provision were not contained herein and the remainder of this Agreement shall be in full force and effect, and the Parties will use their best efforts to substitute for the invalid or unenforceable provision a valid and enforceable provision which conforms as nearly as possible with the original intent of the Parties.

13.3 Governing Law; English Language. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts and the patent laws of the United States without giving effect to any law that would result in the application of a different body of law than as set forth in this Section 13.3. This Agreement was prepared in the English language, which language shall govern the interpretation of, and any Dispute regarding, the terms of this Agreement.

13.4 Dispute Resolution.

13.4.1 If any dispute, claim or controversy of any nature arising out of or relating to this Agreement, including any action or claim based on tort, contract or statute, or concerning the interpretation, effect, termination, validity, performance or breach of this Agreement (each, a “**Dispute**”), arises between the Parties, if and as applicable, within [***] days after a written request by either Party to the other Party (“**Notice of Dispute**”), either Party may refer the Dispute to the Executive Officer of each Party for resolution through good faith negotiation of such Executive Officers.

13.4.2 If, after an additional [***] days after the Notice of Dispute, the Executive Officers have not succeeded in negotiating a resolution of the Dispute [***].

13.4.3 Notwithstanding the dispute resolution procedures set forth in this Section 13.4, in the event of an actual or threatened breach hereunder, the aggrieved Party may seek equitable relief (including restraining orders, specific performance or other injunctive relief) without submitting to the applicable dispute resolution procedure if there is a reasonable likelihood of the occurrence of irreparable harm during the period of the applicable dispute resolution procedure.

13.5 Force Majeure. Neither Party shall be responsible to the other for any failure or delay in performing any of its obligations under this Agreement or for other nonperformance hereunder (excluding, in each case, the obligation to make payments when due) if such delay or nonperformance is caused by strike, fire, flood, earthquake, accident, war, act of terrorism, act of God or of the government of any country or of any local government, or by any other cause unavoidable or beyond the control of any Party hereto. In such event, the affected Party shall use Commercially Reasonable Efforts to resume performance of its obligations and will keep the other Party informed of actions related thereto.

13.6 Waivers and Amendments. The failure of any Party to assert a right hereunder or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other Party. No waiver shall be effective unless it has been given in writing and signed by the Party giving such waiver. No provision of this Agreement may be amended or modified other than by a written document signed by authorized representatives of each Party.

13.7 Relationship of the Parties. Nothing contained in this Agreement shall be deemed to constitute a partnership, joint venture, or legal entity of any type between Alnylam and Dicerna, or to constitute one as the agent of the other. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give any Party the power or authority to act for, bind, or commit the other.

13.8 Notices. All notices, consents or waivers under this Agreement shall be in writing and will be deemed to have been duly given when: (a) scanned and converted into a portable document format file (i.e., pdf file), and sent as an attachment to an e-mail message, where, when such message is received, a read receipt e-mail is received by the sender (and such read receipt e-mail is preserved by the Party sending the notice), provided, further that a copy is promptly sent by

an internationally recognized overnight delivery service (receipt requested) (although the sending of the e-mail message shall be when the notice is deemed to have been given); or (b) the earlier of when received by the addressee or [***] days after it was sent, if sent by registered letter or overnight courier by an internationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and e-mail addresses set forth below (or to such other addresses and e-mail addresses as a Party may designate by notice):

If to Alnylam: Alnylam Pharmaceuticals, Inc.
675 West Kendall Street, Henri A. Termeer Square
Cambridge, MA 02142
Attention Chief Operating Officer

and

Alnylam Pharmaceuticals, Inc.
675 West Kendall Street, Henri A. Termeer Square
Cambridge, MA 02142
Attention: Chief Legal Officer

If to Dicerna: Dicerna Pharmaceuticals, Inc.
33 Hayden Avenue
Lexington, MA 02421
Attention: President

and

Dicerna Pharmaceuticals, Inc.
33 Hayden Avenue
Lexington, MA 02421
Attention: General Counsel

13.9 Further Assurances. Dicerna and Alnylam hereby covenant and agree without the necessity of any further consideration, to execute, acknowledge and deliver any and all documents and take any action as may be reasonably necessary to carry out the intent and purposes of this Agreement.

13.10 No Third Party Beneficiary Rights. This Agreement is not intended to and shall not be construed to give any Third Party any interest or rights (including any third party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby, except as otherwise expressly provided for in this Agreement.

13.11 Entire Agreement. This Agreement sets forth the entire agreement and understanding of the Parties as to the subject matter hereof and supersedes all proposals, oral or written, and all other communications between the Parties with respect to such subject matter. The Parties acknowledge and agree that, as of the Effective Date, all Confidential Information disclosed pursuant to the Confidentiality Agreement by a Party or its Affiliates shall be included in the Confidential Information subject to this Agreement and the Confidentiality Agreement is hereby

superseded in its entirety; provided, that the foregoing shall not relieve any Person of any right or obligation accruing under the Confidentiality Agreement prior to the Effective Date. “**Confidentiality Agreement**” means the Mutual Confidential Disclosure Agreement between Alnylam and Dicerna dated September 27, 2019.

13.12 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13.13 Expenses. Each Party shall pay its own costs, charges and expenses incurred in connection with the negotiation, preparation and execution of this Agreement.

13.14 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective legal representatives, successors and permitted assigns.

13.15 Construction. The Parties hereto acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rule of construction to the effect that any ambiguities are resolved against the drafting Party shall not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement shall be construed fairly as to all Parties hereto and not in a favor of or against any Party, regardless of which Party was generally responsible for the preparation of this Agreement.

13.16 Interpretation. The captions and headings to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement. Unless specified to the contrary, references to Articles, Sections or Exhibits mean the particular Articles, Sections or Exhibits to this Agreement and references to this Agreement include all Exhibits hereto. In the event of any conflict between the main body of this Agreement and any Exhibit hereto, the main body of this Agreement shall prevail. Unless context otherwise clearly requires, whenever used in this Agreement: (a) the words “include” or “including” shall be construed as incorporating, also, “but not limited to” or “without limitation”; (b) the word “day” or “year” means a calendar day or year unless otherwise specified; (c) the word “notice” shall mean notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Agreement; (d) the words “hereof,” “herein,” “hereby” and derivative or similar words refer to this Agreement as a whole and not merely to the particular provision in which such words appear; (e) the words “shall” and “will” have interchangeable meanings for purposes of this Agreement; (f) provisions that require that a Party, the Parties or a committee hereunder “agree,” “consent” or “approve” or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise; (g) words of any gender include the other gender; (h) words using the singular or plural number also include the plural or singular number, respectively; (i) references to any specific law, rule or regulation, or article, section or other division thereof, shall be deemed to include the then-current amendments thereto or any replacement law, rule or regulation thereof; (j) the phrases “non-creditable” and “non-refundable” shall not prohibit, limit or restrict either Party’s right to obtain damages in connection with a breach of this Agreement; and (k) neither Party shall be deemed to be acting on behalf of the other Party.

13.17 Cumulative Remedies. No remedy referred to in this Agreement is intended to be exclusive unless explicitly stated to be so, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

[Remainder of page left blank intentionally; signature page follows.]

IN WITNESS WHEREOF, the Parties intending to be bound have caused this Agreement to be executed by their duly authorized representatives.

ALNYLAM PHARMACEUTICALS, INC.

By: /s/ Jeff Poulton

Name: Jeff Poulton

Title: Chief Financial Officer

DICERNA PHARMACEUTICALS, INC.

By: /s/ Douglas M. Fambrough

Name: Douglas M. Fambrough

Title: Chief Executive Officer

[Signature Page to the Patent Cross-License Agreement]

EXHIBIT A

CERTAIN ALNYLAM AGREEMENTS

[***]

EXHIBIT B
CERTAIN DICERNA AGREEMENTS

[***]

EXHIBIT C
[***]

EXHIBIT D

EXHIBIT E

MUTUAL PRESS RELEASE

Contacts:

Alnylam Pharmaceuticals, Inc.



Christine Regan Lindenboom

(Investors and Media)

+1-617-682-4340

Josh Brodsky

(Investors)

+1-617-551-8276

DicernaTM

Dicerna Pharmaceuticals, Inc.

Media:

Amy Trevvett, Dicerna Pharmaceuticals, Inc.

+1 617-612-6253

atrevvett@dicerna.com

Investors:

Lauren Stival, Stern Investor Relations, Inc.

+1 212-362-1200

lauren.stival@sternir.com

Alnylam and Dicerna Form RNAi Therapeutics Collaboration on Alpha-1 Antitrypsin Deficiency-Associated Liver Disease and Complete Cross-License Agreement for Primary Hyperoxaluria Programs

- *Dicerna to Lead Global Clinical Development and U.S. Commercialization of its DCR-A1AT and Alnylam's ALN-AAT02 Investigational Therapeutics for the Treatment of Alpha-1 Liver Disease; Alnylam Retains Post-Phase 3 Opt-in Right for Ex-U.S. Commercialization* -
- *Companies Complete Non-Exclusive Intellectual Property Cross-License Agreement for the Development and Commercialization of Alnylam's Lumasiran and Dicerna's Nedosiran Investigational Programs for Primary Hyperoxaluria* -

CAMBRIDGE, Mass. and LEXINGTON, Mass. --[BUSINESS WIRE]--April 6, 2020 - Alnylam Pharmaceuticals, Inc. (Nasdaq: ALNY), and Dicerna Pharmaceuticals, Inc. (Nasdaq: DRNA), both leaders in the field of ribonucleic acid interference (RNAi) therapeutics, announced today the formation of a development and commercialization collaboration on investigational RNAi therapeutics for the treatment of alpha-1 antitrypsin (A1AT) deficiency-associated liver disease (alpha-1 liver disease). In addition, the companies have completed a cross-license of their respective intellectual property for Alnylam's lumasiran and Dicerna's nedosiran investigational programs for the treatment of primary hyperoxaluria (PH). These agreements will enhance and accelerate Alnylam's and Dicerna's ability to bring these orphan product candidates to market.

"We are excited to bring our two leading RNAi therapeutics companies together in our efforts to advance potentially transformative medicines for the treatment of two rare diseases with significant unmet medical need. Specifically, the new agreements allow for Alnylam and Dicerna to join forces in areas of common interest, namely alpha-1 liver disease and primary hyperoxaluria," said John Maraganore, Ph.D., Chief Executive Officer of Alnylam. "We look forward to collaborating with Dicerna to advance treatments for patients living with alpha-1 liver disease, where Dicerna will lead development and U.S. commercialization while Alnylam retains an ex-U.S. commercialization option, where the company already has the resources and experience to hit the ground running. Moreover, our cross-license agreement for primary hyperoxaluria puts the needs of patients and the patient community first, and ensures freedom to operate for both companies for their respective RNAi therapeutic programs in this ultra-rare orphan disease."

"These agreements between Alnylam and Dicerna represent biopharma collaboration at its best, unifying the strengths of two leaders in RNAi innovation to rally behind the common goal of delivering much-needed new therapies to patients with rare diseases," said Douglas M. Fambrough, Ph.D., President and Chief Executive Officer of Dicerna. "By joining our efforts in alpha-1 liver disease, we believe we can be more strongly assured of bringing forward the therapy with the greatest potential to benefit patients. At the same time, our agreement related to lumasiran and nedosiran clears a path for each company to offer a new and differentiated treatment to patients with PH."

Under the development and commercialization agreement, Alnylam's ALN-AAT02 and Dicerna's DCR-A1AT, investigational RNAi therapeutics, each in Phase 1/2 development, will be explored for the treatment of alpha-1 liver disease. Under the agreement, Dicerna assumes responsibility for both ALN-AAT02 and DCR-A1AT at its cost, and may progress one or both of these investigational medicines through clinical development. Dicerna will select which product candidate(s) to advance in development for the treatment of patients with alpha-1 liver disease. At the completion of Phase 3, Alnylam has the no-cost opportunity to opt-in to commercialize the selected candidate in countries outside the U.S., where it already has a commercialization infrastructure in place. If Alnylam exercises its opt-in right, each party shall pay tiered royalties to the other party based on net product sales generated in its territory at rates dependent on which candidate is commercialized. In the event Alnylam waives its commercialization option, Dicerna

will retain worldwide rights to commercialize the selected candidate(s) in exchange for milestones and royalties payable to Alnylam, also at a rate dependent on which candidate is ultimately commercialized.

In a separate agreement, Alnylam and Dicerna granted each other a non-exclusive cross-license to their respective intellectual property related to their PH treatment investigational programs to ensure that each party has the freedom to develop and commercialize its respective product candidate: Alnylam's lumasiran targeting glycolate oxidase (GO) for the treatment of PH type 1 and Dicerna's nedosiran targeting lactate dehydrogenase A (*LDHA*) for the treatment of PH types 1, 2, and 3. Alnylam's lumasiran has achieved positive Phase 3 results in the ILLUMINATE-A study and is currently the subject of a rolling new drug application (NDA) with the U.S. Food and Drug Administration (FDA). Dicerna's nedosiran is currently being evaluated in the PHYOX™ clinical development program in patients with PH. The cross-license agreement provides for Alnylam to pay mid- to high-single-digit royalties to Dicerna based on global net sales of lumasiran and for Dicerna to pay low-single-digit royalties to Alnylam on global net sales of nedosiran.

The transaction related to alpha-1 liver disease is subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and other customary conditions.

About ALN-AAT02 and DCR-A1AT

ALN-AAT02 and DCR-A1AT are investigational, subcutaneously administered RNAi therapeutics targeting alpha-1 antitrypsin (A1AT) in development for the treatment of A1AT deficiency-associated liver disease (alpha-1 liver disease). ALN-AAT02 utilizes Alnylam's enhanced stabilization chemistry plus (ESC+)-GalNAc-conjugate technology, which enables subcutaneous dosing with increased selectivity and a wide therapeutic index. DCR-A1AT utilizes Dicerna's GalXC™ technology, which enables subcutaneous delivery and optimizes the activity of the RNAi pathway so that it operates in the most specific and potent fashion. The safety and efficacy of ALN-AAT02 and DCR-A1AT have not been evaluated by the FDA, EMA or any other health authority.

About Alpha-1 Antitrypsin Deficiency-Associated Liver Disease

Alpha-1 antitrypsin (A1AT) deficiency is an autosomal disorder that results in disease of the lungs and liver. A1AT is a liver-produced serine proteinase inhibitor with the primary function of protecting the lungs from neutrophil elastase and other irritants that cause inflammation. About 95 percent of people with A1AT deficiency are homozygous and carry two copies of the abnormal Z allele (PiZZ) which expresses the Z-AAT protein. In the liver, misfolding of the mutant Z-AAT protein hinders its normal release into the blood thereby causing it to aggregate in hepatocytes, leading to liver injury, fibrosis, cirrhosis, and hepatocellular carcinoma (HCC). There are estimated to be approximately 120,000 individuals with the PiZZ mutation in the U.S. and major European countries, and of these, 10 percent or more have an associated liver

pathology (alpha-1 liver disease) caused by the aggregates of the misfolded Z-AAT protein. The only treatment options presently available for alpha-1 liver disease patients are supportive care and, in the case of advanced cirrhosis, liver transplantation. RNAi-mediated inhibition of A1AT in people with alpha-1 liver disease may represent a promising new way to treat this rare disease.

About Lumasiran

Lumasiran is an investigational, subcutaneously administered RNAi therapeutic targeting glycolate oxidase (GO), in development for the treatment of primary hyperoxaluria type 1 (PH1), an ultra-rare life threatening disease. GO is encoded by the hydroxyacid oxidase 1 (HAO1) gene. Thus, by silencing *HAO1* and depleting the GO enzyme, lumasiran inhibits production of oxalate – the metabolite that directly contributes to the pathophysiology of PH1. Lumasiran utilizes Alnylam's Enhanced Stabilization Chemistry (ESC)-GalNAc-conjugate technology, which enables quarterly subcutaneous maintenance dosing with increased potency and durability and a wide therapeutic index. Lumasiran has received both U.S. and EU Orphan Drug Designations, a Breakthrough Therapy Designation and pediatric rare disease designation from the U.S. Food and Drug Administration (FDA), and a Priority Medicines (PRIME) designation from the European Medicines Agency (EMA). The safety and efficacy of lumasiran have not been evaluated by the FDA, EMA or any other health authority.

About Nedosiran

Nedosiran (formerly referred to as DCR-PHXC) is the only RNAi drug candidate in development for primary hyperoxaluria (PH) types 1, 2 and 3 and is Dicerna's most advanced product candidate utilizing the proprietary GalXC™ RNAi technology platform. Nedosiran is designed to inhibit the lactate dehydrogenase A (LDHA) enzyme – an enzyme that catalyzes the final step in a common pathway resulting in oxalate overproduction in patients with PH1, PH2 and PH3. Dicerna is evaluating the safety and efficacy of nedosiran in patients with all known forms of PH as part of its PHYOX clinical development program.

About Primary Hyperoxaluria (PH)

PH is an ultra-rare disease with three known types (PH1, PH2 and PH3), each resulting from a mutation in one of three different genes. In patients with PH, excessive oxalate production results in the deposition of calcium oxalate crystals in the kidneys and urinary tract and can lead to the formation of painful and recurrent kidney stones and nephrocalcinosis. Renal damage is caused by a combination of tubular toxicity from oxalate, calcium oxalate deposition in the kidneys, and urinary obstruction by calcium oxalate stones. Compromised kidney function exacerbates the disease as the excess oxalate can no longer be effectively excreted, resulting in subsequent accumulation and crystallization in bones, eyes, skin, and heart, especially in patients with PH1 and PH2, leading to severe illness and death. Current treatment options are very limited and include frequent renal dialysis or combined organ transplantation of liver and kidney, a procedure with high morbidity that is limited due to organ availability. Although a minority of patients are fully responsive to Vitamin B6 therapy, there are no approved pharmaceutical therapies for PH.

About RNAi

RNAi (RNA interference) is a natural cellular process of gene silencing that represents one of the most promising and rapidly advancing frontiers in biology and drug development today. Its discovery has been heralded as “a major scientific breakthrough that happens once every decade or so,” and was recognized with the award of the 2006 Nobel Prize for Physiology or Medicine. By harnessing the natural biological process of RNAi occurring in our cells, a new class of medicines, known as RNAi therapeutics, is now a reality. Small interfering RNA (siRNA), the molecules that mediate RNAi and comprise Alnylam’s and Dicerna’s RNAi therapeutic platforms, function upstream of today’s medicines by potently silencing messenger RNA (mRNA) – the genetic precursors – that encode for disease-causing proteins, thus preventing them from being made. This is a revolutionary approach with the potential to transform the care of patients with genetic and other diseases.

About Alnylam Pharmaceuticals

Alnylam (Nasdaq: ALNY) is leading the translation of RNA interference (RNAi) into a whole new class of innovative medicines with the potential to transform the lives of people afflicted with rare genetic, cardio-metabolic, hepatic infectious, and central nervous system (CNS)/ocular diseases. Based on Nobel Prize-winning science, RNAi therapeutics represent a powerful, clinically validated approach for the treatment of a wide range of severe and debilitating diseases. Founded in 2002, Alnylam is delivering on a bold vision to turn scientific possibility into reality, with a robust RNAi therapeutics platform. Alnylam’s commercial RNAi therapeutic products are ONPATTRO® (patisiran), approved in the U.S., EU, Canada, Japan, Brazil, and Switzerland, and GIVLAARI® (givosiran), approved in the U.S and the EU. Alnylam has a deep pipeline of investigational medicines, including six product candidates that are in late-stage development. Alnylam is executing on its “Alnylam 2020” strategy of building a multi-product, commercial-stage biopharmaceutical company with a sustainable pipeline of RNAi-based medicines to address the needs of patients who have limited or inadequate treatment options. Alnylam is headquartered in Cambridge, MA.

About Dicerna Pharmaceuticals, Inc.

Dicerna Pharmaceuticals, Inc. (Nasdaq: DRNA) is a biopharmaceutical company focused on discovering, developing and commercializing medicines that are designed to leverage ribonucleic acid interference (RNAi) to selectively silence genes that cause or contribute to disease. Using our proprietary RNAi technology platform, GalXC™, Dicerna is committed to developing RNAi-based therapies with the potential to treat both rare and more prevalent diseases. By reducing the level of disease-causing proteins in the hepatocytes of the liver, Dicerna’s GalXC platform has the potential to safely target conditions that are difficult to treat with other modalities. Continually innovating, Dicerna is also exploring new applications of RNAi technology beyond the liver, targeting additional tissues and enabling new therapeutic applications. In addition to our own pipeline of core discovery and clinical candidates, Dicerna has established collaborative relationships with some of the world’s leading pharmaceutical

companies, including Novo Nordisk A/S, Roche, Eli Lilly and Company, Alexion Pharmaceuticals, Inc. and Boehringer Ingelheim International GmbH. Between Dicerna and our collaborative partners, we currently have more than 20 active discovery, preclinical or clinical programs focused on rare, cardiometabolic, viral-infectious, chronic-liver and complement-mediated diseases, as well as neurodegeneration and pain. At Dicerna, our mission is to interfere – to silence genes, to fight disease, to restore health. For more information, please visit www.dicerna.com.

Alnylam Forward Looking Statements

Various statements in this release concerning Alnylam's future expectations, plans and prospects, including, without limitation, Alnylam's views and plans with respect to the potential for RNAi therapeutics, including ALN-AAT02, lumasiran, DCR-A1AT and nedosiran, the development and potential commercialization of ALN-AAT02 and/or DCR-A1AT and its potential to opt-in to such program(s) in the future to commercialize outside of the U.S., expectations regarding the rolling submission of an NDA for lumasiran and the potential benefit of lumasiran and nedosiran for patients with PH, and expectations regarding the continued execution on its “Alnylam 2020” guidance for the advancement and commercialization of RNAi therapeutics, constitute forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Actual results and future plans may differ materially from those indicated by these forward-looking statements as a result of various important risks, uncertainties and other factors, including, without limitation: potential risks to Alnylam's business, activities and prospects as a result of the COVID-19 pandemic, or delays or interruptions resulting therefrom; Alnylam's ability to discover and develop novel drug candidates; its ability to successfully demonstrate the efficacy and safety of its product candidates, including ALN-AAT02; the pre-clinical and clinical results for its product candidates, including ALN-AAT02, which may not be replicated or continue to occur in other subjects or in additional studies or otherwise support further development of product candidates for a specified indication or at all; actions or advice of regulatory agencies, which may affect the design, initiation, timing, continuation and/or progress of clinical trials or result in the need for additional pre-clinical and/or clinical testing; delays, interruptions or failures in the manufacture and supply of its product candidates or its marketed products, including ALN-AAT02 or lumasiran; obtaining, maintaining and protecting intellectual property; intellectual property matters including potential patent litigation relating to its platform, products or product candidates; obtaining regulatory approval for its product candidates, including lumasiran, and maintaining regulatory approval and obtaining pricing and reimbursement for its products, including ONPATPRO and GIVLAARI; progress in continuing to establish a commercial and ex-United States infrastructure; successfully launching, marketing and selling its approved products globally, including ONPATPRO and GIVLAARI, and achieve net product revenues for ONPATPRO within its expected range during 2020; Alnylam's ability to successfully expand the indication for ONPATPRO in the future; competition from others using technology similar to Alnylam's and others developing products for similar uses; Alnylam's ability to manage its growth and operating expenses within the ranges of its expected guidance and achieve a self-sustainable financial profile in the future, obtain additional funding to support its business activities, and establish and maintain strategic business alliances and new business initiatives; Alnylam's dependence on third parties, including Vir, for

development of candidates for the treatment of infectious diseases, including COVID-19, and commercialization of any infectious disease product resulting therefrom, Regeneron, for development, manufacture and distribution of certain products, including eye and CNS products, and Ironwood, for assistance with the education about and promotion of GIVLAARI in the U.S.; the outcome of litigation; the risk of government investigations; and unexpected expenditures, as well as those risks more fully discussed in the "Risk Factors" filed with Alnylam's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) and in other filings that Alnylam makes with the SEC. In addition, any forward-looking statements represent Alnylam's views only as of today and should not be relied upon as representing its views as of any subsequent date. Alnylam explicitly disclaims any obligation, except to the extent required by law, to update any forward-looking statements.

Dicerna Forward-Looking Statements

Various statements in this release concerning Dicerna's future expectations, plans and prospects, including, without limitation, Dicerna's views and plans with respect to the potential for RNAi therapeutics, including ALN-AAT02, DCR-A1AT and nedosiran, the development and potential commercialization of ALN-AAT02 and/or DCR-A1AT and the opportunity to accelerate development for patients, expectations regarding future royalties earned from sales of lumasiran or from commercialization of ALN-AAT02 and/or DCR-A1AT outside the United States, expectations regarding the rolling submission of an NDA for lumasiran and the potential benefit of lumasiran and nedosiran for patients with PH and the success of Dicerna's PHYOX clinical program and expectations regarding the success of the collaboration with Alnylam, constitute forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Actual results and future plans may differ materially from those indicated by these forward-looking statements as a result of various important risks, uncertainties and other factors, including, without limitation: potential risks to Dicerna's business, activities and prospects as a result of the COVID-19 pandemic, or delays or interruptions resulting therefrom; Dicerna's ability to discover and develop novel drug candidates; its ability to successfully demonstrate the efficacy and safety of its product candidates, including nedosiran, DCR-A1AT and/or ALN-AAT02; the preclinical and clinical results for its product candidates, including nedosiran, DCR-A1AT and/or ALN-AAT02, which may not be replicated or continue to occur in other subjects or in additional studies or otherwise support further development of product candidates for a specified indication or at all; actions or advice of regulatory agencies, which may affect the design, initiation, timing, continuation and/or progress of clinical trials or result in the need for additional preclinical and/or clinical testing; delays, interruptions or failures in the manufacture and supply of its product candidates, including nedosiran, DCR-A1AT or ALN-AAT02; obtaining, maintaining and protecting intellectual property, Dicerna's dependence on existing collaborators and success of future collaborations, as well as those risks more fully discussed in the "Risk Factors" filed with Dicerna's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) and in other filings that Dicerna makes with the SEC. In addition, any forward-looking statements represent Dicerna's views only as of today and should not be relied upon as representing its views as of any subsequent date. Dicerna explicitly disclaims any obligation, except to the extent required by law, to update any forward-looking statements.

GalXC™ and PHYOX™ are trademarks of Dicerna Pharmaceuticals, Inc.

EXHIBIT F

CERTAIN UNDERTAKINGS BY DICERNA

1. [***]

PURCHASE AND SALE AGREEMENT

dated as of April 10, 2020

between

ALNYLAM PHARMACEUTICALS, INC.

and

BX BODYGUARD ROYALTIES L.P.

CERTAIN CONFIDENTIAL PORTIONS OF THIS EXHIBIT HAVE BEEN OMITTED AND REPLACED WITH “[***]”. SUCH IDENTIFIED INFORMATION HAS BEEN EXCLUDED FROM THIS EXHIBIT BECAUSE IT IS (I) NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF DISCLOSED

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PURCHASE AND SALE AGREEMENT

This PURCHASE AND SALE AGREEMENT (this “Agreement”) dated as of April 10, 2020 is between Alnylam Pharmaceuticals, Inc., a Delaware corporation (the “Seller”), and BX Bodyguard Royalties L.P., a Delaware limited partnership (the “Purchaser”).

WITNESSETH:

WHEREAS, the Seller has the right to receive royalties based on Net Sales of the Royalty Product (as defined below) under the Medco License Agreement (as defined below); and

WHEREAS, the Seller desires to sell, contribute, assign, transfer, convey and grant to the Purchaser, and the Purchaser desires to purchase, acquire and accept from the Seller, the Purchased Assets (as defined below), upon and subject to the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the premises and the mutual agreements, representations and warranties set forth herein and of other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereto covenant and agree as follows:

ARTICLE I DEFINED TERMS AND RULES OF CONSTRUCTION

Section 1.1 Defined Terms. The following terms, as used herein, shall have the following respective meanings:

[***]

“Affiliate” means, with respect to any designated Person, any other Person that, directly or indirectly, controls, is controlled by or is under common control with such designated Person. For purposes of this definition, “control” of a Person means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise, and the terms “controlled” and “controlling” have meanings correlative to the foregoing.

“Agreement” has the meaning set forth in the preamble.

“Alnylam Commercialization Royalty” means, for each calendar year following termination of the Medco License Agreement and an election by the Seller, pursuant to Section 5.7(d), to Commercialize the Royalty Product itself in all or some portion of the Territory or under a [***] that consists of a profit share for Seller with respect to the Royalty Product in all or some portion of the Territory, an amount equal to (a) [***] of Net Sales up to [***] of the Royalty Product made by or on behalf of the Seller or any of its Affiliates or sublicensees or profit share partners in the Territory or such portion of the Territory, (b) [***] of Net Sales greater than [***] but less than [***] of the Royalty Product made by or on behalf of the Seller or any of its Affiliates or sublicensees or profit share partners in the Territory or such portion of the Territory, (c) [***] of

Net Sales greater than [***] but less than [***] of the Royalty Product made by or on behalf of the Seller or any of its Affiliates or sublicensees or profit share partners in the Territory or such portion of the Territory and (d) [***] of Net Sales greater than [***] of the Royalty Product made by or on behalf of the Seller or any of its Affiliates or sublicensees or profit share partners in the Territory or such portion of the Territory; provided that, in the event that the Purchaser has not received the Minimum ROI by December 31, 2029 (taking into account the [***] in making such determination and the true-up mechanism set forth in Section 2.5), then the percentages set forth in the foregoing clauses (a)-(d) shall be increased to [***], [***], [***] and [***], respectively, in respect of Net Sales of the Royalty Product made by the Seller on or after January 1, 2030. For purposes of this definition, (i) the definition of “Net Sales” is deemed to be amended to replace “MedCo” with “Seller” in each place that it appears (other than any references to (Sub)licensees) and (ii) the amount of Net Sales used in calculating the Alnylam Commercialization Royalty shall be net of one half of any royalty payable by the Seller to the Licensee on such Net Sales pursuant to Section 12.3(b) of the Medco License Agreement.

“Alnylam Technology” has the meaning set forth in Section 1.15 of the Medco License Agreement.

“Applicable Percentage” means, (a) with respect to the Royalty, fifty percent (50%) and (b) with respect to the Milestones, seventy-five (75%); provided that, with respect to the Applicable Percentage for the Royalty set forth in the foregoing clause (a), in the event that Purchaser has not received the Minimum ROI by December 31, 2029 (taking into account the [***] in making such determination and the true-up mechanism set forth in Section 2.5), then such Applicable Percentage for the Royalty pursuant to clause (a) hereunder shall be increased to fifty-five (55%) in respect of any Royalty payable on Net Sales made on or after January 1, 2030.

“Bankruptcy Code” means Title 11 of the United States Code.

“Bill of Sale” means that certain bill of sale, dated as of the Closing Date, executed by the Seller and the Purchaser, substantially in the form attached hereto as Exhibit A.

“Business Day” means any day that is not a Saturday, Sunday or other day on which commercial banks in New York City are authorized or required by applicable Law to remain closed. For the avoidance of doubt, solely with respect to any notice or other communication required to be given or delivered hereunder, limitations on the operations of commercial banks due to the outbreak of a contagious disease, epidemic or pandemic (including COVID-19), or any quarantine, shelter-in-place or similar or related directive, shall not prevent a day that would otherwise be a Business Day hereunder from so being a Business Day.

“Calendar Quarter” has the meaning set forth in Section 1.21 of the Medco License Agreement.

“Closing” has the meaning set forth in Section 6.1.

“Closing Date” has the meaning set forth in Section 6.1.

“Code” means the U.S. Internal Revenue Code of 1986, as amended, and the regulations thereunder.

“Commercialization” has the meaning set forth in Section 1.31 of the Medco License Agreement.

“Consent” means, with respect to Purchaser and any authorization or approval required to be given by Purchaser under Article V, the authorization or approval of a particular action or course of action, which “Consent” shall not be unreasonably withheld, conditioned or delayed; provided that, if a different standard is expressly provided for hereunder with respect to a particular authorization or approval, then such standard shall apply.

“Competitive Infringement” has the meaning set forth in Section 1.33 of the Medco License Agreement.

“Core Royalty Product Patent” means [***].

“Data Room” means, collectively, the virtual data room established by the Seller as of the date hereof and made available to the Purchaser via Box.

“Disputes” has the meaning set forth in Section 3.9(c).

“Excluded Assets” has the meaning set forth in Section 2.4.

“Excluded Liabilities and Obligations” has the meaning set forth in Section 2.3.

“Existing Confidentiality Agreement” has the meaning set forth in Section 8.3.

“Excluded Payments” means any amounts due or paid to the Seller pursuant to Sections 6.4.3.2, 6.4.3.4 and 7.2 of the Medco License Agreement, but solely to the extent not set-off against the Royalty or Milestones.

“FDA” means the U.S. Food and Drug Administration and any successor agency thereto.

“First Installment” means fifty percent (50%) of the Purchase Price, or \$500,000,000.

[***]

“Fundamental Representations and Warranties” has the meaning set forth in Section 7.6(a).

“GAAP” means generally accepted accounting principles in effect in the United States from time to time.

“Governmental Authority” means the government of the United States, any other nation or any political subdivision thereof, whether state or local, and any agency, authority (including supranational authority), commission, instrumentality, regulatory body, court, central bank or other Person exercising executive, legislative, judicial, taxing, regulatory or administrative powers or

functions of or pertaining to government, including each Patent Office, the FDA and any other government authority in any jurisdiction.

“Inclisiran” means that certain pharmaceutical product known by the non-proprietary name inclisiran, which, as of the date hereof, is being developed by Licensee under the Medco License Agreement, and has been submitted to the FDA for regulatory approval under NDA #214012.

“IRS Withholding Form” has the meaning set forth in Section 5.17(c)(i).

[***]

“Knowledge of the Purchaser” means, (a) for purposes of Article IV, the actual knowledge as of the date of this Agreement, of any of the officers of the Purchaser identified on Schedule 1.1(a), and (b) for all other purposes of this Agreement, the actual knowledge as of the applicable time, of any of the officers of the Purchaser identified on Schedule 1.1(a) or any successor to any such officer holding the same or substantially similar officer position at such time.

“Knowledge of the Seller” means, (a) for purposes of Article III, the actual knowledge as of the date of this Agreement, of any of the officers of the Seller identified on Schedule 1.1(b), and (b) for all other purposes of this Agreement, the actual knowledge as of the applicable time, of any of the officers of the Seller identified on Schedule 1.1(b) or any successor to any such officer holding the same or substantially similar officer position at such time. For clarity, “Knowledge of the Seller” for purposes of Section 3.10(k) and Section 3.16 shall be based on actual knowledge, following due inquiry internal to Seller.

“Law” means, with respect to any Person, all laws, statutes, rules, regulations and orders of Governmental Authorities applicable to such Person or any of its properties or assets.

“Licensee” means (a) The Medicines Company, a Delaware corporation, and its successors and permitted assigns (“Medco”) and (b) solely for purposes of Article V unless otherwise expressly specified, Novartis and Medco.

“Licensed Royalty Product Patents” means those Royalty Product Patents set forth on Exhibit G hereto that are controlled, but not owned, by Seller or its Affiliates pursuant to a license agreement with a third party.

“Licensee Instruction” means the direction letter to Licensee in the form attached hereto as Exhibit B.

“Lien” means any security interest, mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, lien (statutory or otherwise), charge against or interest in property or other priority or preferential arrangement of any kind or nature whatsoever, in each case to secure payment of a debt or performance of an obligation, including any conditional sale or any sale with recourse.

“Loss” means any loss, assessment, award, cause of action, claim, charge, cost, expense (including expenses of investigation and attorneys’ fees), fine, judgment, liability, obligation, or penalty.

“Material Adverse Effect” means (a) any material adverse change in, or material adverse effect, when considered individually or in the aggregate, on (i) the legality, validity or enforceability of any of the Transaction Documents or the Medco License Agreement, (ii) the rights of Seller under, or the right or ability of the Seller to perform its obligations under, (A) any of the Transaction Documents, (B) the Medco License Agreement, or (C) the Related Agreements, but only to the extent affecting the right of Seller to perform its obligations under the Medco License Agreement or otherwise pertaining to the Purchased Assets, (iii) the right or ability of Licensee to perform its obligations under the Medco License Agreement, (iv) the rights or remedies of the Purchaser under any of the Transaction Documents, including the right of the Purchaser to receive any of the Purchased Assets, or (v) the Royalty Product Patents, or (b) any change to the Purchased Assets (including the timing, value, amount or duration thereof).

“Medco” has the meaning set forth in the definition of “Licensee.”

“Medco Ancillary Agreements” means, collectively, that certain Quality Agreement on Material Supply, dated August 4, 2016, by and between the Seller and the Licensee, and that certain Pharmacovigilance Agreement, dated February 1, 2016, by and between the Seller and the Licensee, as may be amended from time to time.

“Medco License Agreement” means that certain License and Collaboration Agreement, dated February 3, 2013, by and between the Seller and Licensee, as amended on November 22, 2019 (the “First Amendment”), and as may be further amended in accordance with Section 5.7(a).

“Medco Supply Agreement” means that certain Supply and Technology Transfer Agreement, dated April 14, 2016, by and between the Seller and Licensee, as amended by that certain Amendment No. 1, dated October 10, 2019, by and between the Seller and Licensee, and as may be further amended in accordance with Section 5.4(a).

“Milestones” means, on a milestone payment-by-milestone payment basis, all amounts due, paid or payable under Section 7.3 of the Medco License Agreement.

“Minimum ROI” means an amount equal to at least \$1,000,000,000 paid to Purchaser under the Transaction Documents (and not required, as of the date of determination of whether the Minimum ROI has been met, to be refunded or reimbursed to Licensee or Seller) in respect of payments from the Royalty component under the Purchased Royalty Interest.

“Net Sales” has the meaning set forth in Section 1.89 of the Medco License Agreement.

[***]

“Non-Warranting Parties” has the meaning set forth in Section 10.5.

“Novartis” means Novartis AG, the indirect parent company of Medco.

“Patent Office” means the applicable patent office, including the United States Patent and Trademark Office and any comparable foreign patent office, for any Patent Rights included in the Alnylam Technology.

“Patent Rights” has the meaning set forth in Section 1.94 of the Medco License Agreement.

“Paying Agent” means Wilmington Trust, as paying agent.

“Paying Agent Agreement” means that certain paying agent agreement, executed by the Seller, the Purchaser and the Paying Agent promptly after the Closing Date, substantially in the form attached hereto as Exhibit C.

“Person” means any natural person, firm, corporation, limited liability company, partnership, joint venture, association, joint-stock company, trust, unincorporated organization, Governmental Authority or any other legal entity, including public bodies, whether acting in an individual, fiduciary or other capacity.

“Proceeds” means any amounts actually recovered or received by the Seller as a result of any settlement or resolution of any actions, suits, proceedings, claims or disputes related to the Royalty or the Milestones, except for any amounts that are permitted to be used by this Agreement or the Medco License Agreement and that are actually used to reimburse or indemnify Licensee for costs, expenses, legal fees or other fees relating to such actions, suits, proceedings, claims or disputes.

“Purchase Price” has the meaning set forth in Section 2.2.

“Purchased Assets” means (a) the Purchased Royalty Interest, (b) any Proceeds payable to Purchaser in accordance with this Agreement, (c) all proceeds (as defined under UCC) of any of the foregoing, (d) any interest on any amounts referred to in the immediately preceding clauses payable by the Licensee under Section 7.7 of the Medco License Agreement, (e) any portion payable to Purchaser, in accordance with Section 5.17(f), of any payment made pursuant to Section 7.9.2 of the Medco License Agreement with respect to the Royalty or Milestones, and (f) to the extent payable by the Seller in lieu of any portion of the Purchased Royalty Interest and to the extent the Seller Commercializes the Royalty Product in accordance with Section 5.7(d) following termination of the Medco License Agreement, the Alnylam Commercialization Royalty.

“Purchased Royalty Interest” means (a) the Royalty multiplied by the Applicable Percentage and (b) the Milestones multiplied by the Applicable Percentage.

“Purchaser” has the meaning set forth in the preamble.

“Purchaser Account” means the account set forth on Exhibit D or such other account as may be designated by the Purchaser in writing from time to time.

“Purchaser Indemnified Party” has the meaning set forth in Section 7.1.

“Regulatory Authority” has the meaning set forth in Section 1.112 of the Medco License Agreement.

“Related Parties” has the meaning set forth in Section 1.113 of the Medco License Agreement.

“Related Agreements” has the meaning set forth in the definition of “Relevant Obligations.”

“Relevant Obligations” means all obligations of the Seller or any of its Affiliates under (a) that certain Co-Exclusive License Agreement, by and between the Seller and Max Planck Innovation GmbH (f/k/a Garching Innovation GmbH), dated December 20, 2002, as amended, (b) that certain Agreement, by and between the Seller and The Board of Trustees of the Leland Stanford Junior University, dated September 17, 2003, (c) that certain Commercial License Agreement, by and between the Seller and Plant Bioscience Limited, dated May 14, 2012, (d) that certain Second Amended and Restated Strategic Collaboration and License Agreement, by and between the Seller and Ionis Pharmaceuticals, Inc. (f/k/a Isis Pharmaceuticals, Inc.), dated January 8, 2015, as amended, and (e) any other Alnylam In-Licenses (as defined in the Medco License Agreement) entered into by Seller after the effective date of the Medco License Agreement in accordance with Section 1.11 thereunder ((a) – (e), collectively, the “Related Agreements”).

“Remainder” means fifty percent (50%) of the Purchase Price, or \$500,000,000.

“Representatives” means, collectively, with respect to any Person, the trustees, directors, board members, members, partners, managers, officers, employees, agents, advisors or other representatives (including attorneys, accountants, consultants, scientists and financial advisors) of such Person.

“ROFN Notice” has the meaning set forth in Section 5.12.

“Royalty” means, on a country-by-country and Royalty Product-by-Royalty Product basis, all amounts due, paid or payable (i) in respect of Net Sales by Licensee and its Related Parties of any and all Royalty Products, including under Section 7.4.1 and Section 7.4.2 of the Medco License Agreement but excluding Milestones, after giving effect to all Royalty Reductions applicable thereto, (ii) [***]. For the avoidance of doubt, the Royalty shall exclude any and all Excluded Payments.

“Royalty Product” means any “Licensed Product,” as such term is defined in Section 1.72 of the Medco License Agreement. For the avoidance of doubt, Inclisiran is an example of a “Royalty Product.”

“Royalty Product Patents” has the meaning set forth in Section 3.9(a).

“Royalty Reduction” means any adjustments, modifications, credits, offsets, credits, reductions or deductions to Royalty payments made (a) under the Medco License Agreement pursuant to and expressly permitted by Section 7.4.3, Section 7.4.4 [***] or Section 7.4.5 of the Medco License Agreement with respect to the Royalty Product (and subject to the limitation imposed by Section 7.4.6 of the Medco License Agreement) or (b) [***].

“Royalty Reports” means, with respect to each Calendar Quarter, the report (including any certifications in respect thereof) required to be prepared and delivered to Seller pursuant to Section 7.4.7 of the Medco License Agreement.

“Royalty Term” has the meaning set forth in Section 1.114 of the Medco License Agreement.

“SEC” means the U.S. Securities and Exchange Commission.

“Seller” has the meaning set forth in the preamble.

“Seller Account” means the account set forth on Exhibit E hereto or such other account as may be designated by the Seller in writing from time to time.

“Seller Indemnified Party” has the meaning set forth in Section 7.2.

“Set-Off” means any right of set-off, counterclaim, credit, reduction or deduction by contract or otherwise, other than a Royalty Reduction.

“Seller SEC Documents” has the meaning set forth in Section 3.14.

“Solvent” means, with respect to any Person on any date of determination, that on such date (a) the fair value of the assets of such Person is greater than the total amount of liabilities, including contingent liabilities, of such Person, (b) the present fair saleable value of the assets of such Person is not less than the amount that will be required to pay the probable liability of such Person on its debts as they become absolute and matured, (c) such Person does not intend to, and does not believe that it will, incur debts or liabilities beyond such Person’s ability to pay such debts and liabilities as they mature, (d) such Person is not engaged in business or a transaction, and is not about to engage in business or a transaction, for which such Person’s property would constitute an unreasonably small capital and (e) such Person is able to pay its debts and liabilities, contingent obligations and other commitments as they mature in the ordinary course of business. The amount of contingent obligations or contingent liabilities, as applicable, at any time shall be computed as the amount that, in the light of all the facts and circumstances existing at such time, represents the amount that can reasonably be expected to become an actual or matured liability or obligation, as applicable.

“Territory” has the meaning set forth in Section 1.1.25 of the Medco License Agreement.

“Transaction Documents” means this Agreement, the Paying Agent Agreement, the Bill of Sale and the Licensee Instruction.

“UCC” means the Uniform Commercial Code as in effect from time to time in the State of New York; provided, that, if, with respect to any financing statement or by reason of any provisions of applicable Law, the perfection or the effect of perfection or non-perfection of the back-up security interest or any portion thereof granted pursuant to Section 2.1(b) is governed by the Uniform Commercial Code as in effect in a jurisdiction of the United States other than the State of Delaware, then “UCC” means the Uniform Commercial Code as in effect from time to time in such

other jurisdiction for purposes of the provisions of this Agreement and any financing statement relating to such perfection or effect of perfection or non-perfection.

“U.S.” or “United States” means the United States of America, each territory thereof and the District of Columbia.

Section 1.2 Rules of Construction. Unless the context otherwise requires, in this Agreement:

(a) a term has the meaning assigned to it and an accounting term not otherwise defined has the meaning assigned to it in accordance with GAAP;

(b) unless otherwise defined, all terms that are defined in the UCC shall have the meanings stated in the UCC;

(c) words of the masculine, feminine or neuter gender shall mean and include the correlative words of other genders;

(d) the definitions of terms shall apply equally to the singular and plural forms of the terms defined;

(e) references to the term “or” will be interpreted in the inclusive sense commonly associated with the term “and/or”;

(f) the terms “include”, “including” and similar terms shall be construed as if followed by the phrase “without limitation”;

(g) unless otherwise specified, references to an agreement or other document include references to such agreement or document as from time to time amended, restated, reformed, supplemented or otherwise modified in accordance with the terms thereof (subject to any restrictions on such amendments, restatements, reformations, supplements or modifications set forth herein) and include any annexes, exhibits and schedules attached thereto;

(h) references to any Law shall include such Law as from time to time in effect, including any amendment, modification, codification, replacement or reenactment thereof or any substitution therefor; provided that, for purposes of Article III and Article IV, reference to a Law shall mean such Law as in effect as of the date hereof;

(i) references to any Person shall be construed to include such Person’s successors and permitted assigns (subject to any restrictions on assignment, transfer or delegation set forth herein or in any of the other Transaction Documents), and any reference to a Person in a particular capacity excludes such Person in other capacities;

(j) the word “will” shall be construed to have the same meaning and effect as the word “shall”;

(k) the words “hereof”, “herein”, “hereunder” and similar terms when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision hereof,

and Article, Section and Exhibit references herein are references to Articles and Sections of, and Exhibits to, this Agreement unless otherwise specified;

(l) in the computation of a period of time from a specified date to a later specified date, the word “from” means “from and including” and each of the words “to” and “until” means “to but excluding”; and

(m) where any payment is to be made, any funds are to be applied or any calculation is to be made under this Agreement on a day that is not a Business Day, unless this Agreement otherwise provides, such payment shall be made, such funds shall be applied and such calculation shall be made on the succeeding Business Day, and payments shall be adjusted accordingly.

ARTICLE II PURCHASE AND SALE OF THE PURCHASED ASSETS

Section 2.1 Purchase and Sale.

(a) Upon the terms and subject to the conditions of this Agreement, upon the payment of the First Installment at the Closing, the Seller shall sell, contribute, assign, transfer and convey to the Purchaser, and the Purchaser shall purchase, acquire and accept from the Seller, all of the Seller’s right, title and interest in and to the Purchased Assets, free and clear of any and all Liens, other than those Liens created in favor of the Purchaser by the Transaction Documents. Without limiting the foregoing, it is understood and agreed that the Purchaser shall not, by purchase of the Purchased Assets, acquire any assets or rights of the Seller under, or relating to, the Medco License Agreement [***] other than the Purchased Assets and any rights specified in this Agreement.

(b) It is the intention of the parties hereto that the sale, transfer, assignment and conveyance contemplated by this Agreement be, and is, a true, complete, absolute and irrevocable sale, transfer, assignment and conveyance by the Seller to the Purchaser of all of the Seller’s right, title and interest in and to the Purchased Assets free and clear of all Liens, other than those created in favor of the Purchaser by the Transaction Documents. Neither the Seller nor the Purchaser intends the transactions contemplated by this Agreement to be, or for any purpose characterized as, a loan from the Purchaser to the Seller or a pledge, a security interest, a financing transaction or a borrowing. Each of the Seller and the Purchaser hereby waives, to the maximum extent permitted by applicable Law, any right to contest or otherwise assert that this Agreement does not constitute a true, complete, absolute and irrevocable sale, transfer, assignment and conveyance by the Seller to the Purchaser of all of the Seller’s right, title and interest in and to the Purchased Assets under applicable Law, which waiver shall, to the maximum extent permitted by applicable Law, be enforceable against the Seller in any bankruptcy or insolvency proceeding relating to the Seller. Not in derogation of the foregoing statement of the intent of the parties hereto in this regard, and for the purposes of providing additional assurance to the Purchaser in the event that, despite the intent of the parties hereto, the sale, transfer, assignment and conveyance contemplated hereby is hereafter held not to be a sale, the Seller does hereby grant to the Purchaser, as security for the payment of amounts to the Purchaser equal to the Purchased Assets as it becomes due and payable, a security interest in and to all right, title and interest of the Seller, in, to and under the Purchased Assets and

any “proceeds” (as such term is defined in the UCC) thereof, and the Seller does hereby authorize the Purchaser, from and after the Closing, to file such financing statements (and continuation statements with respect to such financing statements when applicable) in such manner and such jurisdictions as are necessary or appropriate to perfect such security interest.

Section 2.2 Purchase Price. The purchase price to be paid by the Purchaser in full consideration for the sale, contribution, assignment, transfer and conveyance of the Purchased Assets, without any deduction for withholding or other taxes is \$1,000,000,000 (the “Purchase Price”), of which:

(a) Initial Up-Front Purchase Price. The First Installment shall be paid to Seller in accordance with Section 6.2; and

(b) Secondary Up-Front Purchase Price. The Remainder shall be paid to Seller accordance with Section 6.2.

Section 2.3 No Assumed Obligations. Notwithstanding any provision in this Agreement or any other writing to the contrary, the Purchaser is purchasing, acquiring and accepting only the Purchased Assets and is not assuming any liability or obligation of the Seller or any of the Seller’s Affiliates of whatever nature, whether presently in existence or arising or asserted hereafter (including any liability or obligation of the Seller under the Medco License Agreement). All such liabilities and obligations shall be retained by and remain liabilities and obligations of the Seller or the Seller’s Affiliates, as the case may be (the “Excluded Liabilities and Obligations”).

Section 2.4 Excluded Assets. Except as expressly set forth in the Transaction Documents, the Purchaser does not, by purchase, acquisition or acceptance of the right, title or interest granted hereunder or otherwise pursuant to any of the Transaction Documents, purchase, acquire or accept any assets or contract rights of the Seller, including under the Medco License Agreement, other than the Purchased Assets, or any other assets of the Seller (collectively, the “Excluded Assets”).

Section 2.5 [***].

ARTICLE III REPRESENTATIONS AND WARRANTIES OF THE SELLER

Except as set forth on, or disclosed in, Exhibit F, the Seller hereby represents and warrants to the Purchaser as of the date hereof as follows:

Section 3.1 Existence; Organization. The Seller is a corporation duly organized, validly existing and in good standing under the Laws of Delaware.

Section 3.2 No Conflicts. The execution, delivery and performance by Seller of the Transaction Documents and the consummation of the transactions contemplated thereby do not (a) give rise to any right of termination, cancellation or acceleration of any right or obligation of Licensee or any sublicensee under the Medco License Agreement, or (b) constitute a breach or violation of or default under any provision of (i) the organizational documents of the Seller, (ii) any

Law or Judgment applicable to the Seller, (iii) the Medco License Agreement or (iv) any contract (other than the Medco License Agreement) to which the Seller is a party or by which the Seller is bound, including the Related Agreements, except, in the case of clauses (b)(ii) and (b)(iv), for such breaches, violations and defaults that, individually or in the aggregate, would not reasonably be expected to result in a Material Adverse Effect.

Section 3.3 Authorization; Enforceability. The Seller has all necessary corporate power and authority to (a) conduct its affairs as currently conducted, including to exercise its rights and perform its obligations under the Medco License Agreement and (b) execute, deliver and perform the Transaction Documents and to consummate the transactions contemplated thereby. The execution, delivery and performance of the Transaction Documents, and the consummation of the transactions contemplated thereby, have been duly authorized by the Seller. Each of the Transaction Documents has been duly executed and delivered by the Seller and constitutes the legal, valid and binding obligation of the Seller, enforceable against the Seller in accordance with its terms, except as may be limited by general principles of equity (regardless of whether considered in a proceeding at law or in equity) and by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' rights generally, general equitable principles and principles of public policy.

Section 3.4 Ownership. The Seller has good and valid title to the Purchased Assets, free and clear of all Liens (other than those created in favor of the Purchaser and expressly contemplated by this Agreement and the Paying Agent Agreement), and is the exclusive owner of the entire right, title (legal and equitable) and interest in the Purchased Assets. Upon payment of the First Installment by the Purchaser, the Purchaser will have acquired, subject to the terms and conditions set forth in this Agreement, good and valid title to the Purchased Assets, free and clear of all Liens (other than those created in favor of Purchaser and expressly contemplated by this Agreement and the Paying Agent Agreement).

Section 3.5 Governmental and Third Party Authorizations. The execution, delivery and performance by the Seller of the Transaction Documents and the consummation of any of the transactions contemplated thereby do not require any consent, approval, license, order, authorization or declaration from, notice to, action or registration by or filing with any Governmental Authority or any other Person, except for (a) a Current Report on Form 8-K by the Seller with the U.S. Securities and Exchange Commission, (b) the UCC financing statements contemplated by Section 2.1(b), (c) those previously obtained and (d) such consents, the failure of which to be obtained or made, would not reasonably be expected to have a Material Adverse Effect.

Section 3.6 No Litigation. There is no (a) action, suit, arbitration proceeding, claim, demand, citation, summons, subpoena, investigation or other proceeding (whether civil, criminal, administrative, regulatory or investigative) pending or, to the Knowledge of the Seller, threatened, by or against the Seller, or (b) pending inquiry or investigation (whether civil, criminal, administrative, regulatory or investigative) by or against the Seller that, in each case, individually or in the aggregate, (i) challenges or seeks to prevent or delay the consummation of any of the transactions contemplated by any of the Transaction Documents to which Seller is a Party or (ii) would reasonably be expected to result in a Material Adverse Effect.

Section 3.7 No Brokers' Fees. The Seller has not taken any action that would entitle any Person or entity other than Evercore Group L.L.C. to any commission or broker's fee in connection with the transactions contemplated by this Agreement. Other than the Paying Agent, there is no Person or entity retained by Seller entitled to any commission or broker's fee from Purchaser in connection with the transactions contemplated by this Agreement.

Section 3.8 Compliance with Laws. The Seller (a) has not violated, nor is it in violation of, has not been given notice of any violation of, and, to the Knowledge of the Seller, is not under investigation with respect to nor has it been threatened to be charged with, any violation of, any applicable Law or any judgment, order, writ, decree, injunction, stipulation, consent order, permit or license granted, issued or entered by any Governmental Authority, and (b) is not subject to any judgment, order, writ, decree, injunction, stipulation or consent order issued or entered by any Governmental Authority; in each case, that would reasonably be expected to have a Material Adverse Effect.

Section 3.9 Intellectual Property Matters.

(a) With respect to such patents and patent applications owned by the Seller, and to the Knowledge of the Seller with respect to all other such patents and patent applications, Exhibit G sets forth an accurate and complete list of all issued patents and patent applications in the Alnylam Technology and that cover or claim the Royalty Product or its use, manufacture, or sale (such Patent Rights listed or required to be listed on Exhibit G, the "Royalty Product Patents"). For each of such Royalty Product Patents, the Seller has indicated (i) the jurisdictions in which such Patent Right is pending, allowed, granted or issued, (ii) the patent number or patent serial number, (iii) the owner of such Patent Right (which shall be to the Knowledge of the Seller, in the case of owners other than Seller or its Affiliates), and (iv) the expiration date of such Patent Right.

(b) Seller has not committed any act, or failed to commit any required act, that would reasonably be expected to cause any Royalty Product Patents to expire prematurely, lapse or be declared invalid or unenforceable, or that estops the enforcement of such Royalty Product Patent against any third party. There are no unpaid maintenance or renewal fees or annuities payable by the Seller to any third party that currently are overdue for any of the Royalty Product Patents. No Royalty Product Patents have lapsed or been abandoned, cancelled, disclaimed or expired, and to the Knowledge of the Seller, there is no fact, circumstance or event that would constitute a basis for any such lapse, abandonment, cancellation or expiration. To the Knowledge of the Seller, each individual associated with the filing and prosecution of the Royalty Product Patents owned in whole or in part by Seller, including the named inventors of such Royalty Product Patents, has complied in all material respects with all applicable duties of candor and good faith in dealing with any Patent Office, including any duty to disclose to any Patent Office all information known by such inventors to be material to the patentability of each such Royalty Product Patents (including any relevant prior art), in each case, in those jurisdictions in the Territory where such duties exist.

(c) Seller has not received any written notice from Licensee or any other Person, and to the Knowledge of Seller, there is no pending or threatened litigation, opposition, interference, reexamination, reissue, inter partes review, post grant review, cancellation, notification, injunction, claim, suit, action, citation, summon, subpoena, hearing, inquiry, investigation (by the International Trade Commission or otherwise), complaint, arbitration,

mediation, demand, decree or other dispute, disagreement, proceeding or claim (collectively, “Disputes”) challenging the validity, enforceability, scope, inventorship or ownership of any of the Royalty Product Patents or that would reasonably be expected to give rise to any Set-Off against the payments due to the Seller under the Medco License Agreement. The Royalty Product Patents owned by Seller, and to the Knowledge of the Seller the Licensed Royalty Product Patents, are not subject to any outstanding injunction, judgment, order, decree, ruling, settlement or other final disposition of a Dispute.

(d) To the Knowledge of Seller, the Royalty Product Patents that have been issued or granted by the applicable Patent Office are valid and enforceable. Seller has not received any written legal opinion, whether preliminary in nature or qualified in any manner, which concludes that a challenge to the validity or enforceability of any of the issued Royalty Product Patents may succeed. Seller has not received any claim or notice challenging, or threatening to challenge, the ownership of, or rights of Licensee in and to, or the validity or enforceability of the Royalty Product Patents.

(e) Seller has not received any claim or notice disputing or threatening to dispute the inventorship of any of the Royalty Product Patents or otherwise alleging that any Person who is not named as an inventor on any of the Royalty Product Patents should be so named, and to the Knowledge of the Seller, there is no reasonable basis for such a claim with respect to any of the Royalty Product Patents owned by Seller.

(f) The Seller has not received any written notice under the Medco License Agreement or otherwise of Competitive Infringement of any Royalty Product Patent or of infringement of any Core Royalty Product Patent.

(g) Each of the Royalty Product Patents owned by Seller correctly names all of the inventors thereof, in accordance with applicable Law. Seller has not received any notice from Licensee or any other Person, and to the Knowledge of Seller, there is no Person who is or claims to be an inventor under any of the Royalty Product Patents who is not a named inventor thereof, or that any Person named as an inventor of any of the Royalty Product Patents is not an inventor thereof.

(h) To the Knowledge of the Seller, there is no pending or threatened action, suit or proceeding that claims that the manufacture, use, marketing, sale, offer for sale, importation or distribution of the Royalty Product does or will infringe on any patent or other intellectual property rights of any other Person or constitute misappropriation of any other Person’s trade secrets or other intellectual property rights. The Seller has not received any written notice asserting or claiming any such infringement or misappropriation in respect of the Royalty Product. To the Knowledge of the Seller, the manufacture, use, marketing, sale, offer for sale, importation or distribution of the Royalty Product by Licensee does not and will not constitute an infringement of any patent or other intellectual property rights of any other Person or constitute misappropriation of any other Person’s trade secrets or other intellectual property rights, except where such infringement or misappropriation would not reasonably be expected to result in a Material Adverse Effect.

(i) The Alnylam Technology licensed (or sublicensed or optioned, as the case may be) by Seller to Licensee under the Medco License Agreement constitute all the intellectual property owned by or licensed (with the right to sublicense) to the Seller or any of the Seller's Affiliates necessary for the sale of the Royalty Products in the Territory. Other than the Medco License Agreement, the Medco Supply Agreement and the Medco Ancillary Agreements, there are no other contracts between Seller or any of its Affiliates, on the one hand, and Licensee or its respective Affiliates, on the other hand, involving or related to a Royalty Product, the Royalty Product Patents or the Purchased Assets, or that would reasonably be expected to result in a Material Adverse Effect.

(j) Except as set forth on Exhibit G with respect to the Licensed Royalty Product Patents, Seller owns the entire right, title and interest, free and clear of any Liens, in and to the Royalty Product Patents. To the Knowledge of the Seller, there are no facts that would preclude Seller from having clear title in and to such Royalty Product Patents.

(k) There are no compulsory licenses granted or, to the Knowledge of the Seller, threatened to be granted under the Royalty Product Patents with respect to the Royalty Product or any other product that, if sold without a license, would constitute a Competitive Infringement of the Royalty Product Patents. To the Knowledge of the Seller, no event or condition exists that would permit or require Licensee to grant any such compulsory license to any Person. Seller has not received any written notice from or on behalf of Licensee expressing an intention by Licensee to grant any such compulsory license or otherwise Set-Off any amount from the Purchased Assets because of any amount owed or claimed to be owed from Seller to Licensee.

(l) Absent the Medco License Agreement, the manufacture, marketing, use, sale or distribution of Inclisiran in the applicable jurisdiction would infringe a Valid Claim (as defined in the Medco License Agreement) of each applicable Core Royalty Product Patent. Seller and its Affiliates own each Core Royalty Product Patent.

(m) Inclisiran is a Licensed Product, as such term is defined in the Medco License Agreement, and the Royalty Products, including Inclisiran, are Licensed Products under and as such term is defined in the Medco License Agreement.

Section 3.10 Medco License Agreement.

(a) Attached hereto as Exhibit H is a true, correct and complete copy of the Medco License Agreement. Seller has provided to Purchaser in the Data Room the material written notices and other material written correspondence delivered to the Licensee by Seller, or by the Licensee or Novartis to Seller, in each case since January 1, 2018 (i) pursuant to the Medco License Agreement or (ii) pertaining to development, manufacturing, supply and patent prosecution activities thereunder since January 1, 2018, as further described and with the exceptions set forth on Schedule 3.10(a) hereto, in each case relating to, affecting or involving the Purchased Assets or the Medco License Agreement or that could reasonably be expected to have an adverse effect on the value of the Purchased Assets in any material respect.

(b) Other than the Transaction Documents, the Medco License Agreement, the Medco Supply Agreement, the Medco Ancillary Agreements and the Related Agreements, there is

no contract, agreement or other arrangement (whether written or oral) to which the Seller is a party or by which any of their respective assets or properties is bound or committed (i) that creates a Lien on the Royalty, the Milestones, the Medco License Agreement or the Alnylam Technology; (ii) that materially relates to, affects or involves the Purchased Royalty Interest, the Royalty Products or the Royalty Product Patents or (iii) for which breach thereof, nonperformance thereof, cancellation thereof or failure to renew would reasonably be expected to have a Material Adverse Effect. Other than the Transaction Documents, there is no contract, agreement or other arrangement (whether written or oral) to which the Seller is a party or by which any of their respective assets or properties is bound or committed that creates a Lien on the Purchased Assets. The Seller has not received any notice from the Licensee or Novartis under Section 6.1.3(b) of the Medco License Agreement or provided any consent to the Licensee or Novartis under Section 6.1.3(a) of the Medco License Agreement and, to Knowledge of Seller, no sublicense has been granted.

(c)

(i) The Medco License Agreement is in full force and effect and is the legal, valid and binding obligation of the Seller and, to the Knowledge of the Seller, Licensee, enforceable against the Seller and, to the Knowledge of the Seller, Licensee in accordance with its terms, except as may be limited by general principles of equity (regardless of whether considered in a proceeding at law or in equity) and by applicable bankruptcy, insolvency, moratorium and other similar Laws of general application relating to or affecting creditors' rights generally.

(ii) The Seller has not received any written notice or, to the Knowledge of the Seller, any other communication, from or on behalf of the Licensee or Novartis challenging or threatening to challenge the validity or enforceability of the Medco License Agreement or any obligation of the Licensee thereunder, including any obligation to pay the Royalty, Milestones or any other payment thereunder.

(d) Except as would not reasonably be expected to have a Material Adverse Effect, (i) the Seller is not in breach or violation of or in default under the Medco License Agreement and (ii) to the Knowledge of the Seller, neither the Licensee nor Novartis has breached, and neither the Licensee nor Novartis is in violation or default under, any provision of the Medco License Agreement.

(e) The Seller has not granted or been granted any written waiver under the Medco License Agreement or released Licensee or Novartis, in whole or in part, from any of its obligations under the Medco License Agreement. To the Knowledge of the Seller, there are no waivers or modifications (or pending requests therefor) in respect of the Medco License Agreement. Since the date of the First Amendment, the Seller has not received from the Licensee or Novartis any written proposal [***] to amend or waive any provision of the Medco License Agreement.

(f) To the Knowledge of the Seller, no event has occurred that, upon notice or the passage of time or both, would reasonably be expected to give rise to a breach of the Medco License Agreement by Seller or Licensee or Novartis, which breach would reasonably be expected to result in a Material Adverse Effect, or that would otherwise give the Seller or Licensee the right

to terminate the Medco License Agreement or cease paying the Royalty or Milestones thereunder. The Seller has not received any written notice of an intention by Licensee or Novartis to terminate or breach the Medco License Agreement, in whole or in part, or challenging the validity or enforceability of the Medco License Agreement or the obligation to pay the Royalty or Milestones thereunder, or that the Seller or Licensee is in default of its obligations under the Medco License Agreement, in each case other than as would not reasonably be expected to result in a Material Adverse Effect. The Seller has no intention of terminating the Medco License Agreement and has not given Licensee or Novartis any notice of termination of the Medco License Agreement, in whole or in part.

(g) Neither Seller nor Licensee (nor Novartis) has assigned, sold or transferred the Medco License Agreement or any of its rights, interests or obligations thereunder (including with respect to the Royalty and the Milestones) to any Person, and the Seller has not consented to any such assignment by Licensee. Except as contemplated by the Transaction Documents, the Seller has not assigned, sold or transferred, in whole or in part, any of the Seller's right, title or interest in or to the Royalty, Milestones or Purchased Assets.

(h) Neither the Seller nor Licensee has exercised its rights to conduct an audit under Section 7.5 of the Medco License Agreement.

(i) To the Knowledge of the Seller, the Seller has received all amounts owed to it under the Medco License Agreement, to the extent such amounts have come due, including the Upfront Fee (as defined in the Medco License Agreement) and the milestones (i) and (ii) under Section 7.2(a) of the Medco License Agreement.

(j) Seller has not sent or received any written notice or, to the Knowledge of the Seller, any other communication of any dispute from the Licensee or Novartis for resolution pursuant to Section 13.12 of the Medco License Agreement.

(k) [***].

(l) There are no agreements between the Seller or, to the Knowledge of the Seller, Licensee or Novartis, with any third party or Person that would give rise to a right of Licensee to reduce the payment of any Royalty or Milestone owed to Seller pursuant to Section 7.4.5 of the Medco License Agreement, and Seller has no Knowledge of any ongoing discussions related to any such agreements.

(m) Neither the Seller nor Licensee has made any claim of indemnification under the Medco License Agreement.

Section 3.11 No Other Agreements. Seller has not entered into any agreement relating to the present or future assignment, transfer, or sale of any rights in or to any portion of the Royalty or Milestones.

Section 3.12 UCC Matters. The Seller's exact legal name is, and for the preceding ten (10) years has been, "Alnylam Pharmaceuticals, Inc.". The Seller's principal place of business is, and for the preceding ten (10) years has been, located in the Commonwealth of Massachusetts. The

Seller's jurisdiction of organization is, and for the preceding ten (10) years has been, the State of Delaware.

Section 3.13 Set-Off Against Royalty. To the Knowledge of the Seller, neither Licensee nor Novartis has any right of Set-Off under the Medco License Agreement against the Purchased Assets or any other amounts payable to the Seller under the Medco License Agreement. Licensee has not exercised, and, to the Knowledge of the Seller, has not had and does not have the right to exercise, and, to the Knowledge of the Seller, no event or condition exists that, upon notice or passage of time or both, would reasonably be expected to permit Licensee or Novartis to exercise, any Set-Off against the Purchased Assets or any other amounts payable to the Seller under the Medco License Agreement.

Section 3.14 SEC Filings. In the three (3) years prior to the Closing Date, Seller has timely filed all required reports, schedules, forms, statements and other documents (including exhibits and all other information incorporated therein), and any required amendments to any of the foregoing, with the SEC (the "Seller SEC Documents"). As of their respective filing dates, each of the Seller SEC Documents complied in all material respects with the requirements of the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, and the rules and regulations of the SEC promulgated thereunder applicable to such Seller SEC Documents, and no Seller SEC Documents when filed, declared effective or mailed, as applicable, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

Section 3.15 Related Agreements. Except as would not reasonably be expected to have a Material Adverse Effect, the Related Agreements are in full force and effect, and are the legal and valid binding obligation of the Seller and, to the Knowledge of the Seller, the counterparties thereunder, enforceable against the Seller and, to the Knowledge of the Seller, the counterparties thereunder, in accordance with their terms, except as may be limited by general principles of equity (regardless of whether considered in a proceeding at law or in equity) and by applicable bankruptcy, insolvency, moratorium and other similar Laws of general application relating to or affecting creditors' rights generally. Except as would not reasonably be expected to have a Material Adverse Effect, the Seller has not received any written notice or, to the Knowledge of the Seller, any other communication, from or on behalf of a counterparty to any Related Agreement challenging or threatening to challenge the validity or enforceability of any such Related Agreement or any obligation of the Seller thereunder. Except as would not reasonably be expected to have a Material Adverse Effect, the Seller is not in breach or violation of or in default under any of the Related Agreements, and, to the Knowledge of the Seller, the counterparty under each Related Agreement has not breached, and is not in violation or default under, any provision of any such Related Agreement. The Related Agreements include all agreements pursuant to which Seller has in-licensed Patent Rights that are directed to, cover or claim Inclisiran and are sublicensed to Medco under the Medco License Agreement.

Section 3.16 Medco Supply Agreement. The Medco Supply Agreement is in full force and effect, is the legal and valid binding obligation of the Seller and, to the Knowledge of the Seller, the Licensee, enforceable against the Seller and, to the Knowledge of the Seller, the

Licensee, in accordance with its terms, except as may be limited by general principles of equity (regardless of whether considered in a proceeding at law or in equity) and by applicable bankruptcy, insolvency, moratorium and other similar Laws of general application relating to or affecting creditors' rights generally. The Seller is not in breach or violation of or in default under the Medco Supply Agreement. There are no amounts due or payable under the Medco Supply Agreement by Seller, [***] nothing in the Medco Supply Agreement creates any right of offset by Licensee against the Purchased Assets. [***]

Section 3.17 Compliance. To the Knowledge of the Seller, all applications, submissions, information and data related to the Royalty Product submitted or utilized as the basis for any request to any Regulatory Authority by or on behalf of Licensee were true and correct in all material respects as of the date of such submission or request, and any material updates, changes, corrections or modifications to such applications, submissions, information or data required under applicable Laws have been submitted to the necessary Regulatory Authorities. To the Knowledge of Seller, Licensee has not committed any act, made any statement or failed to make any statement that would reasonably be expected to provide a basis for the FDA or any other Regulatory Authority to invoke its policy with respect to "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities," or similar policies set forth in any applicable Laws.

Section 3.18 Solvency. Seller is Solvent.

Section 3.19 Tax Matters. No deduction or withholding for or on account of any tax has been made or, to the Knowledge of the Seller, was required under applicable Law to be made from any payment to Seller under the Medco License Agreement, and, to the Knowledge of the Seller, provided that Purchaser provides an IRS Withholding Form establishing a zero percent (0%) withholding rate for each of "royalties," "other income" and "interest," no such deduction or withholding will be made or will be required under currently applicable Law to be made with respect to any payment to (or for the benefit of) the Purchaser hereunder. Seller has filed (or caused to be filed) all material tax returns and material tax reports required to be filed under applicable Law and has paid all material taxes required to be paid, except for any such taxes that are being contested in good faith by appropriate proceedings and for which adequate reserves have been provided in accordance with generally accepted accounting principles, as in effect from time to time.

ARTICLE IV REPRESENTATIONS AND WARRANTIES OF THE PURCHASER

The Purchaser hereby represents and warrants to the Seller as of the date hereof as follows:

Section 4.1 Organization. The Purchaser is a limited partnership duly organized, validly existing and in good standing under the Laws of the state of Delaware.

Section 4.2 No Conflicts. The execution, delivery and performance by the Purchaser of any of the Transaction Documents and the consummation of the transactions contemplated thereby do not constitute a breach or default under, or require prepayment under any provision of (a) any applicable Law or any judgment applicable to Purchaser that would reasonably be expected to have

a Material Adverse Effect, (b) any contract to which the Purchaser is a party or by which the Purchaser is bound, or (c) the organizational documents of the Purchaser.

Section 4.3 Authorization. The Purchaser has all powers and authority to conduct its affairs as currently conducted, and to execute and deliver, and perform its obligations under, the Transaction Documents to which it is party and to consummate the transactions contemplated hereby and thereby. The execution and delivery of each of the Transaction Documents to which the Purchaser is party and the performance by the Purchaser of its obligations hereunder and thereunder have been duly authorized by the Purchaser. Each of the Transaction Documents to which the Purchaser is party has been duly executed and delivered by the Purchaser. Each of the Transaction Documents to which the Purchaser is party constitutes the legal, valid and binding obligation of the Purchaser, enforceable against the Purchaser in accordance with its respective terms, subject to applicable bankruptcy, insolvency, reorganization, moratorium or similar applicable Laws affecting creditors' rights generally, general equitable principles and principles of public policy.

Section 4.4 Governmental and Third Party Authorizations. The execution, delivery and performance by the Purchaser of the Transaction Documents and the consummation of any of the transactions contemplated hereunder and thereunder do not require any consent, approval, license, order, authorization or declaration from, notice to, action or registration by or filing with any Governmental Authority or any other Person, except as described in Section 3.5.

Section 4.5 No Litigation. There is no (a) action, suit, arbitration proceeding, claim, demand, citation, summons, subpoena, investigation or other proceeding (whether civil, criminal, administrative, regulatory, investigative or informal) pending or, to the Knowledge of the Purchaser, threatened by or against the Purchaser, at law or in equity, or (b) inquiry or investigation (whether civil, criminal, administrative, regulatory, investigative or informal) by or before a Governmental Authority pending or, to the Knowledge of the Purchaser, threatened against the Purchaser, that, in each case, challenges or seeks to prevent or delay the consummation of any of the transactions contemplated by any of the Transaction Documents to which the Purchaser is party.

Section 4.6 Access to Information. The Purchaser acknowledges that it has reviewed the Medco License Agreement, the Medco Supply Agreement and such other documents and information relating to, and has had the opportunity to ask such questions of, and to receive answers from, representatives of the Seller concerning, the Royalty Product, the Alnylam Technology, the Medco License Agreement, the Medco Supply Agreement, the Royalty, the Purchased Assets, and any other matter relating thereto, in each case, as it deemed necessary to make an informed decision to purchase, acquire and accept the Royalty in accordance with the terms of this Agreement. Except as specifically set forth in Article III and the Disclosure Schedules, the Purchaser acknowledges and agrees that the Seller makes no representation nor extends any warranty, whether express or implied, with respect to the Royalty Product, the Alnylam Technology, the Medco License Agreement, the Medco Supply Agreement, the Royalty, the Purchased Assets, future Net Sales of the Royalty Product or any other matter relating thereto; provided that, the foregoing disclaimers shall not apply in the case of fraud on the part of Seller. The Purchaser has such knowledge, sophistication and experience in financial and business matters that it is capable of evaluating the risks and merits of purchasing, acquiring and accepting the Purchased Assets in accordance with the terms of this Agreement.

Section 4.7 Funds Available. The Purchaser has sufficient funds on hand or binding and enforceable commitments to provide it with sufficient funds to satisfy its obligations, in each case to pay the Purchase Price, and the Purchaser has no reason to believe, and has not been provided with oral or written notice that any of its investors are not required or do not intend, for any reason, to satisfy their obligations under such commitments. The Purchaser acknowledges and agrees that its obligations under this Agreement are not contingent on obtaining financing.

ARTICLE V COVENANTS

Section 5.1 Public Announcement. Except (a) for a press release previously approved in form and substance by the Seller and the Purchaser and attached hereto as Exhibit I, or any other public announcement using substantially the same text as such press release, and (b) subject to Section 5.15, any disclosure required by applicable Law, by the rules and regulations of any securities exchange or market on which any security of such Party may be listed or traded or by any Governmental Authority of competent jurisdiction, neither Party shall, and each Party shall cause its Affiliates not to, without the prior written consent of the other Party (which consent shall not be unreasonably withheld or delayed), issue any press release or make any other public disclosure with respect to this Agreement or any of the other Transaction Documents or any of the transactions contemplated hereby or thereby.

Section 5.2 Further Assurances. Subject to the terms and conditions of this Agreement, each Party shall execute and deliver such other documents, certificates, instruments, agreements and other writings, take such other actions and perform such additional acts under applicable Law as may be reasonably requested by the other Party and necessary to implement expeditiously the transactions contemplated by, and to carry out the purposes and intent of the provisions of, this Agreement and the other Transaction Documents, including to (i) perfect the sale, contribution, assignment, transfer, conveyance and granting of the Purchased Assets to the Purchaser pursuant to this Agreement, (ii) perfect, protect, more fully evidence, vest and maintain in the Purchaser good, valid and marketable rights and interests in and to the Purchased Assets free and clear of all Liens (other than those Liens created in favor of the Purchaser by the Transaction Documents), (iii) create, evidence and perfect the Purchaser's back-up security interest granted pursuant to Section 2.1(b) and (iv) enter into the Paying Agent Agreement in accordance with Section 6.4(b).

Section 5.3 Royalty Reports; Notices and Communications from Licensee. Promptly (and in any event no later than [***) following the receipt by the Seller from the Licensee of (a) a Royalty Report, (b) any written notice or written correspondence relating to, affecting or involving the Purchased Assets (including notification regarding the achievement of any of the Milestones by Licensee or a Related Party), the Medco License Agreement or that would reasonably be expected to result in a Material Adverse Effect, (c) any development reports provided by Licensee pursuant to Section 2.5.1 of the Medco License Agreement, or (d) the Medco Commercialization Plan (as defined in the Medco License Agreement), the Seller shall furnish a copy of the same to the Purchaser (provided that Seller shall not be required to furnish to Purchaser any notice or correspondence that, if disclosed, would result in the loss or waiver of any attorney client privilege [***)). Except for the Licensee Instruction and notices and correspondence required to be given or made by the Seller (i) under the Medco License Agreement or (ii) by applicable Law, the Seller

shall not send any notice or correspondence to the Licensee relating to, affecting or involving, the Royalty, the Milestones or the Purchased Assets, or that would reasonably be expected to result in a Material Adverse Effect, except in each case, with the Consent of Purchaser. Without limiting the foregoing, the Seller shall, promptly (and in any event no later than [***]) following the delivery thereof by the Seller to the Licensee, furnish a copy of any written notice or correspondence sent by the Seller to the Licensee relating to, affecting or involving the Purchased Assets or the Medco License Agreement, or that would reasonably be expected to result in a Material Adverse Effect.

Section 5.4 Supply Chain.

(a) [***].

(b) [***] Seller shall promptly to the extent provided by the Medco Supply Agreement provide [***] to Purchaser any and all information of which Seller becomes aware regarding any circumstances that have occurred, or are likely to occur, that have resulted in or are reasonably likely to result in, any failure or delay in the supply or delivery of Loaded GalNAc Support (as defined in the Medco Supply Agreement) to Licensee.

(c) [***].

Section 5.5 Payments on Account of Purchased Assets; Escrow. Promptly following the Closing, Seller shall instruct Licensee in the Licensee Instruction, and thereafter Seller shall act in accordance with Section 5.8 to cause Licensee to pay amounts owed in respect of the Purchased Assets into an escrow account in accordance with the Paying Agent Agreement.

Section 5.6 Misdirected Payments.

(a) Notwithstanding the terms of the Licensee Instruction and the Paying Agent Agreement, commencing on the Closing Date and at all times thereafter, if any portion of the Purchased Assets is paid to the Seller, then (i) the Seller shall hold such amount in trust for the benefit of the Purchaser in a segregated account, (ii) the Seller shall have no right, title or interest whatsoever in such amount and shall not create or suffer to exist any Lien thereon and (iii) the Seller promptly, and in any event no later than [***] following the receipt by the Seller of such amount, shall remit such amount to the Purchaser Account. The Seller shall notify the Purchaser of such wire transfer and provide reasonable details regarding the Purchased Assets payment so received by the Seller.

(b) Notwithstanding the terms of the Licensee Instruction and the Paying Agent Agreement, commencing on the Closing Date and at all times thereafter, if any amount due under the Medco License Agreement that does not constitute the Purchased Assets is paid to the Purchaser, then (i) the Purchaser shall hold such amount in trust for the benefit of the Seller in a segregated account, (ii) the Purchaser shall have no right, title or interest whatsoever in such amount and shall not create or suffer to exist any Lien thereon and (iii) the Purchaser promptly, and in any event no later than [***] following the receipt by the Purchaser of such amount, shall remit such amount to the Seller Account. The Purchaser shall notify the Seller of such wire transfer and provide reasonable details regarding the erroneous payment so received by the Purchaser.

(c) If the Licensee exercises any Set-Off against any payment of the Purchased Assets, then Seller shall promptly (and in any event no later than [***]) following payment of the Purchased Assets reduced by such Set-Off, make a true-up payment to the Purchaser such that the Purchaser receives the full amount of such Purchased Asset payment that would have been payable to the Purchaser had such Set-Off not been exercised. After the Seller makes the payment referred to in the first sentence of this Section 5.6(c), the Seller shall be entitled to, and the Purchaser shall not be entitled to, any amounts recovered from the Licensee in respect of such Set-Off.

(d) All remittances pursuant to this Section 5.6 shall be made (i) without set-off or deduction of any kind (except as required by applicable Law) and (ii) by wire transfer of immediately available funds to such account as the relevant payee may designate in writing (such designation to be made at least [***] prior to any such payment).

(e) A late fee of [***] shall accrue on all unpaid amounts on an annualized basis with respect to any sum payable under Section 5.6(a) or Section 5.6(b) beginning [***] after receipt of such payment received in error.

Section 5.7 Maintenance of License Agreement.

(a) The Seller (i) shall perform and comply with all of its obligations under the Medco License Agreement, except where such performance and compliance is being contested in good faith by appropriate proceedings (provided that, during the pendency of any such dispute, Seller shall continue to comply with all of its other obligations under the Medco License Agreement) or where non-performance or non-compliance would not reasonably be expected to result in a Material Adverse Effect, and (ii) shall not (A) forgive, release or compromise any portion of the Royalty, the Milestones or the Purchased Assets payable under the Medco License Agreement, (B) amend, modify, supplement, restate, waive, cancel or terminate (or consent to any cancellation or termination of), in whole or in part, any provision of or right under the Medco License Agreement (except with the prior written Consent of Purchaser, to be granted or withheld in Purchaser's sole discretion), or (C) assign, in whole or in part, the Medco License Agreement or any provision thereof or right thereunder.

(b) The Seller shall not, without the prior written Consent of the Purchaser, grant or withhold any consent, exercise or waive any right or option or fail to exercise any right or option in respect of, affecting or relating to the Purchased Assets, the Royalty Product or the Medco License Agreement in any manner that would (i) reasonably be expected to have a Material Adverse Effect or (ii) conflict with, or that would reasonably be expected to give rise to a breach, violation, termination or default under the Medco License Agreement.

(c) Within [***] after (i) becoming aware of, whether by written notice or otherwise, Licensee's (A) intent to terminate the Medco License Agreement (in whole or in part) or (B) allegation of a breach or violation of or default under the Medco License Agreement by Seller or (ii) gaining Knowledge of any fact, circumstance or event that would reasonably be expected to give rise to a breach or violation of or default under the Medco License Agreement by the Seller, the Seller shall give written notice thereof to the Purchaser. Such notice shall (x) describe in reasonable detail such breach, violation, default or termination event, (y) include a copy of any written notice received from Licensee with respect thereto, and (z) in the case of any breach,

violation or default or alleged breach or default by the Seller, describe in reasonable detail any corrective action the Seller proposes to take in respect of such breach, violation or default. In consultation with Purchaser, Seller shall use commercially reasonable efforts to cure any breach or default by it under the Medco License Agreement and, in any case, shall give written notice to the Purchaser upon curing such breach or default. In connection with any dispute regarding an alleged breach that is related to the Royalty or the Milestones or would reasonably be expected to have a Material Adverse Effect, the Seller shall employ such counsel, reasonably acceptable to the Seller, as the Purchaser may select. The Seller shall pay the costs and expenses of such counsel. In addition to the obligations set forth in Section 5.7(a), the Seller shall not, except with the prior written Consent of Purchaser (which consent may be withheld or granted in Purchaser's sole discretion with respect to the Royalty, the Milestones or the Purchased Assets), waive any obligation of, or grant any consent to, the Licensee under, involving, affecting, in respect of or related to the Royalty, the Milestones, the Royalty Product Patents or the Purchased Assets.

(d) Without limiting the provisions of Section 5.7(c), if Licensee terminates or provides written notice of termination of the Medco License Agreement (in whole or with respect to any Royalty Product, or any portion of the Territory, or a termination that would adversely affect the Purchased Assets), or the Medco License Agreement otherwise terminates (in whole or with respect to any Royalty Product, or any portion of the Territory, or a termination that could adversely affect the Purchased Assets), [***].

Section 5.8 Enforcement of License Agreement.

(a) Promptly after the Seller obtains Knowledge of a breach or violation of or default under, or an alleged breach or violation of or default under, the Medco License Agreement by Licensee or of the existence of any facts, circumstances or events that, alone or together with other facts, circumstances or events, would reasonably be expected (with or without the giving of notice or passage of time, or both) to give rise to a breach or violation of or default under the Medco License Agreement by Licensee or the right to terminate the Medco License Agreement (in whole or in part) by the Seller, in each case the Seller shall (i) promptly (but in any event within [***]) give written notice to the Purchaser describing in reasonable detail the relevant breach, default or termination event and (ii) proceed, in consultation with the Purchaser, and with Purchaser's prior written Consent, to take such permissible actions to enforce compliance by Licensee with the relevant provisions of the Medco License Agreement and to exercise any or all of the Seller's rights and remedies, whether under the Medco License Agreement or by operation of law, with respect thereto (in each case other than with respect to breaches, violations or defaults that would not reasonably be expected to have a Material Adverse Effect).

(b) In connection with any enforcement of Licensee's obligations under the Medco License Agreement with respect to any breach referred to in Section 5.8(a), the lead counsel selected by Seller shall be reasonably acceptable to Purchaser. The Applicable Percentage of all fees and expenses incurred in enforcing Licensee's obligations under the Medco License Agreement pursuant to Section 5.8(a) shall be borne by Purchaser (taking into account any variation in such interests over different time periods, if applicable), with the remainder to be borne by Seller, provided, however, that the out-of-pocket costs and expenses (including the fees and expenses of the Seller's counsel) shall be entirely borne by the Seller if such breach, violation,

default or termination event or alleged breach, violation, default or termination event directly results from a breach or violation of or default under the Medco License Agreement by the Seller.

(c) All Proceeds resulting from any enforcement of Licensee's obligations under the Medco License Agreement with respect to payment of the Royalty or the Milestones (regardless of whether such enforcement is initiated by Seller as a result of a written request from Purchaser or initiated by Seller in the absence of any such request), after deduction (and reimbursement to Seller and Purchaser) of all costs and expenses (including attorneys' fees and expenses) actually paid by each of Seller and Purchaser in connection with such enforcement pursuant to Section 5.8(b) above, shall be paid in accordance with the Paying Agent Agreement and allocated as follows: (i) the Applicable Percentage (taking into account whether the breach that led to such enforcement was related to the Royalty or to the Milestones and the time period in which such breach occurred) of such Proceeds to the Purchaser, and (ii) the remainder to the Seller. The Seller hereby assigns and, if not presently assignable, agrees to assign to the Purchaser the amount of Proceeds due to the Purchaser in accordance with this Section 5.8(c).

Section 5.9 Prosecution and Enforcement of Intellectual Property.

(a) In each case if and to the extent permitted under the Medco License Agreement, the Seller shall (i) take any and all actions, and prepare, execute, deliver and file any and all agreements, documents and instruments, that are reasonably necessary or desirable to diligently prosecute, preserve and maintain the applicable Royalty Product Patents, including payment of maintenance fees or annuities, at the sole cost and expense of the Seller, (ii) when available in respect of the Royalty Product Patents, obtain issued Patent Rights and any corrections, substitutions, reissues and reexaminations thereof and obtain patent term extensions and any other forms of patent term restoration in any country, (iii) not disclaim, allow to lapse, abandon, or terminally disclaim or fail to take any action necessary or desirable to prevent the disclaimer, lapse or abandonment of, any Royalty Product Patent, (iv) diligently defend (and enforce) the Royalty Product Patents against infringement or interference by any other Person, and against any claims of invalidity or unenforceability, in any jurisdiction (including by bringing any legal action for infringement or defending any counterclaim of invalidity or action of any other Person for declaratory judgment of non-infringement or non-interference), and (v) promptly provide to Purchaser (A) any and all information reasonably requested by Purchaser regarding ongoing prosecution, defense and enforcement matters for the Royalty Product Patents, and (B) any information of which Seller becomes aware that could reasonably be expected to have a Material Adverse Effect on the prosecution, maintenance, defense or enforcement of the Royalty Product Patents. To the extent that Seller receives any material correspondence regarding the prosecution, defense or enforcement of the Royalty Product Patents, Seller will provide such correspondence to Purchaser and provide Purchaser a reasonable opportunity to comment thereon. If and to the extent permitted under the Medco License Agreement, such comments will be considered by Seller in good faith.

(b) If the Seller has the right pursuant to Section 11.4 of the Medco License Agreement and applicable Law to institute a suit or other legal proceedings to enforce any of the Royalty Product Patents in respect of Competitive Infringement or to participate in a suit instituted by another, then promptly (and in any event within [***]) following the Seller becoming aware of

such right of the Seller, Seller shall provide written notice to Purchaser thereof [***]. In the event that Seller declines to exercise such right, Seller shall promptly give notice of such declination to Purchaser, and Purchaser shall have [***] to discuss Seller's reasons for declining to enforce the applicable Royalty Product Patents [***]. [***]. In no event shall Seller be required to perform any actions or omit to perform any actions that would violate applicable Law or otherwise subject Seller to a risk of sanctions or other penalties. Seller may employ any counsel, so long as such counsel is acceptable to Purchaser (such acceptance not to be unreasonably withheld or delayed).

(c) [***]

(d) To the extent in respect of any Competitive Infringement, the Proceeds of any enforcement of any of the Royalty Product Patents (i) by Seller pursuant to this Section 5.9 and Section 11.4 of the Medco License Agreement or (ii) by Licensee pursuant to Section 11.4 of the Medco License Agreement, in each case of the immediately foregoing clauses (i) and (ii), shall first be used to reimburse each of Seller and Purchaser for the costs and expenses (including attorneys' fees and expenses) it has actually paid in connection with such enforcement pursuant to Section 5.9(c) above, and the remainder (if any) shall be allocated to Purchaser in a proportion equal to the Applicable Percentage for the Royalty, with the remainder allocated to Seller (where the Applicable Percentage is applied taking into account any variation in such Applicable Percentage over different time periods, if applicable).

Section 5.10 No Assignment [***].

(a) [***].

(b) Promptly (and in any event within [***]) following receipt by Seller of a written request from the Licensee for consent to assign the Medco License Agreement (in whole or in part), including pursuant to Section 13.1 of the Medco License Agreement, Seller shall provide notice thereof to Purchaser. Seller and Purchaser shall consult with each other regarding whether to grant such consent, and Seller shall not grant or withhold such consent without the prior written Consent of Purchaser.

Section 5.11 Audits.

(a) Consultation. Following the Closing Date, the Seller and the Purchaser shall consult with each other regarding the timing, manner and conduct of any review or audit of the Licensee's books and records pursuant to Section 7.5.1 of the Medco License Agreement. For the avoidance of doubt, Seller shall not request an examination of the Licensee's records and books of account without the prior written Consent of Purchaser.

(b) Audits under Medco License Agreement. Following consultation in accordance with Section 5.11(a), if requested in writing by the Purchaser, Seller shall to the extent permitted by Section 7.5.1 of the Medco License Agreement, provide written notice to Licensee to cause an inspection or audit to determine the correctness of any Royalty or Milestone payments made under the Medco License Agreement. All of the expenses of any inspection or audit requested by the Purchaser that would otherwise be borne by Seller pursuant to the Medco License Agreement, including such fees and expenses of any public accounting firm engaged by Seller (and

reasonably acceptable to Purchaser and Licensee) in connection with such an inspection or audit shall be borne by the Purchaser in an amount equal to the Applicable Percentage then in effect for the Royalty, with Seller bearing the remainder (it being understood that, in accordance with Section 7.5.1 of the Medco License Agreement as in effect on the date hereof, in the event that any such audit reveals an underpayment during the applicable time period of greater than [***] then Licensee shall be responsible for such costs and expenses). Seller will promptly furnish to Purchaser a true, correct and complete copy of any inspection or audit report prepared in connection with such an inspection or audit. If, following the completion of such inspection or audit, Seller is required to reimburse Licensee for overpayment of the Royalty, then Purchaser shall promptly upon request reimburse Seller, or, at Seller's request, Licensee on behalf of Seller, for the portion of such overpaid amount that was actually paid to the Purchaser, and shall promptly (and in any event within [***]) after making such payment provide documentation satisfactory to Seller evidencing that such payment was made. If, following the completion of such inspection or audit, Licensee is required to pay amounts representing an underpayment of the Royalty during the applicable period of time, the Purchaser shall be paid from such amounts a portion equal to the amount by which the Purchased Royalty Interest was underpaid during the applicable period of time.

Section 5.12 [***].

Section 5.13 Related Agreements. Except as would not reasonably be expected to have a Material Adverse Effect, Seller shall maintain the Related Agreements in full force and effect and shall not breach, violate or otherwise default under or fail to perform any of its Relevant Obligations under any of the Related Agreements during the term of this Agreement, except where such performance is being contested in good faith by appropriate proceedings (provided that, during the pendency of any such dispute, Seller shall continue to comply with all of its other Relevant Obligations under the Related Agreements in accordance with this Section 5.13). Except as would not reasonably be expected to have a Material Adverse Effect, Seller shall not, without the prior written Consent of the Purchaser, (a) amend, modify, supplement, restate, waive, cancel or terminate (or consent to any cancellation or termination of), in whole or in part, any provision of or right under the Related Agreements, or (b) assign, in whole or in part, the Related Agreements or any provision thereof or right thereunder.

Section 5.14 Commercialization. If Purchaser shall so request (by written notice to Seller), Seller and Purchaser shall consult with each other once per calendar quarter regarding the status of the Licensee's, its Affiliates and its sublicensees' compliance with the development, commercialization, marketing and promoting obligations set forth in Sections 2.4 and 3.1 of the Medco License Agreement.

Section 5.15 SEC Filings. Prior to the submission by Seller to the SEC of any Seller SEC Documents that contain any Confidential Information, or that contain information related to the existence or subject matter of this Agreement or the identity of Purchaser, Seller shall provide drafts of such Seller SEC Documents to Purchaser within a reasonable period of time, but in any event no less than [***] prior to the planned date of such submission, to review any confidential treatment requests related thereto, and Seller shall redact any information therein as requested by Purchaser, unless such information is, in the Seller's view, required to be included by Law

(including any rules and regulations promulgated by the SEC) or stock exchange rule or regulation, and Seller shall consider in good faith any other comments by Purchaser thereto.

Section 5.16 Licensee Instruction. Prior to the termination of this Agreement pursuant to Section 9.1, Seller shall not, without Purchaser's prior written consent (which consent may be withheld or granted in Purchaser's sole discretion), deliver any further directions to Licensee regarding the payment of the Purchased Assets.

Section 5.17 Tax Matters.

(a) Tax Treatment. Notwithstanding the accounting treatment therefor and unless otherwise required by Applicable Law, for all U.S. federal and applicable state and local tax purposes, the Seller and the Purchaser shall treat (i) the transactions contemplated by the Transaction Documents as a sale and the Purchaser's payment of the Purchase Price (pursuant to Section 2.2 of this Agreement) as received by the Seller in a taxable transaction, (ii) Purchaser as the direct recipient of the payments made with respect to the Purchased Assets and (iii) the transactions contemplated under this Agreement as separate and independent from any transactions entered into by the Purchaser and the Seller or their Affiliates other than those contemplated by this Agreement. If there is an inquiry by any Governmental Authority of the Seller or the Purchaser related to this Section 5.17, the Parties shall cooperate with each other in responding to such inquiry in a commercially reasonable manner consistent with this Section 5.17.

(b) Amounts Received and Remitted under Section 5.6. Seller and Purchaser agree that for United States federal income tax purposes, (i) any and all amounts in respect of the Purchased Assets remitted by Seller to Purchaser pursuant to Section 5.6(a) or otherwise under this Agreement shall be treated as received by Seller as agent for Purchaser, and (ii) any and all amounts remitted by Seller to Purchaser pursuant to Section 5.6(a) of this Agreement shall be treated as remittances of amounts collected by Seller on behalf of Purchaser. Seller further agrees to use commercially reasonable efforts to disclose such custodian arrangement to its relevant counterparties (including Licensee and the Paying Agent), and where requested, promptly to deliver any U.S. tax forms provided by Purchaser.

(c) Withholding.

(i) On or prior to the Closing Date, the Purchaser shall deliver to the Seller a duly completed and valid (A) IRS Form W-9 certifying that the Purchaser is a United States person, as such term is defined in Section 7701(a)(30) of the Code, (B) applicable IRS Form W-8BEN-E claiming treaty benefits under a double taxation treaty with respect to each of "royalties," "interest" and "other income," (C) an IRS Form W-8IMY to which the forms set forth in the preceding (A) and (B) are attached, or (D) other applicable Form W-8 that indicates no withholding is required in respect of payments with respect to the Purchased Assets, (in each case ((A) through (D)), the "IRS Withholding Form"), and Purchaser shall provide an updated IRS Withholding Form to the Seller throughout the term of the Transaction Documents whenever required in order for the Seller to have on file a duly completed and valid IRS Withholding Form.

(ii) All payments to the Purchaser under the Transaction Documents shall be made without any deduction or withholding by the Seller for or on account of any tax, unless required by Applicable Law. If any Applicable Law (as reasonably determined by the Seller) requires the deduction or withholding of any tax by the Seller, then the Seller shall be entitled to make such deduction or withholding in accordance with Applicable Law. Any such withheld amounts shall be treated for all purposes of the Transaction Documents as having been paid to the Purchaser. Seller shall give or cause to be given to Purchaser such assistance as may reasonably be necessary to enable Purchaser to claim exemption from any such withholding, reduction thereof, or credit therefor, and in each case shall furnish Purchaser proper evidence of the taxes paid by Seller on its behalf.

(d) Reporting. The parties hereto agree not to take any position that is inconsistent with the provisions of this Section 5.17 and Section 10.4 on any tax return or in any audit or other judicial or administrative proceeding unless (i) the other party hereto has consented to the taking of such position, or (ii) the party hereto that contemplates taking such an inconsistent position has been advised by a nationally recognized tax counsel in writing that it is unable to conclude that the position specified in this Section 5.17 is more likely than not to prevail if challenged by the tax authority having jurisdiction of the relevant tax.

(e) Cooperation. The parties hereto shall reasonably cooperate in accordance with applicable Law to minimize taxes (including withholding taxes and indirect taxes such as value added tax, sales tax and other similar taxes) in connection with the transactions contemplated by the Transaction Documents, including with respect to any [***], and to comply with invoicing and reporting requirements related thereto.

(f) Gross-Up Under License. For the avoidance of doubt, in the event that Seller (i) is entitled to a payment by Licensee with respect to the Royalty or Milestones as a result of a gross-up adjustment pursuant to Section 7.9.2 of the Medco License Agreement to the extent that Purchaser would be entitled to a gross-up adjustment attributable to the Applicable Percentage pursuant to Section 7.9.2 of the Medco License Agreement, determined as if Purchaser (or its beneficial owners) were the “Payee” thereunder, as a result of the Purchaser’s (or its beneficial owners’) jurisdiction or otherwise, or (ii) is entitled to payment as a result of or benefits directly from beneficial tax treatment resulting from a [***] that consists of a profit share for Seller with respect to the Royalty Product in all or some portion of the Territory, then Purchaser shall be entitled to a proportion of any such payment or benefit equal to the Applicable Percentage.

Section 5.18 Change in Name or Organization. Seller shall provide Purchaser with written notice not less than [***] prior to any change in, or amendment or alteration of, Seller’s (a) legal name, (b) form or type of organization, or (c) jurisdiction of organization.

Section 5.19 Seller’s Commercially Reasonable Efforts and Judgment. It is understood and agreed that, in determining whether Seller’s efforts or judgments are “commercially reasonable” with respect to any covenant that specifically references such term in this Article V, Seller shall be deemed to be acting or making a judgment in a commercially reasonable manner if Seller would reasonably be expected to act in the same manner if Seller had the sole right, title and interest in and to the Purchased Assets.

ARTICLE VI
THE CLOSING

Section 6.1 Closing. The closing of the transactions contemplated hereby (the “Closing”) shall take place on the date hereof (the “Closing Date”) at the offices of Goodwin Procter LLP located at 100 Northern Avenue, Boston, MA 02210, or such other place as the parties hereto mutually agree.

Section 6.2 Payment of Purchase Price.

(a) Purchase Price. At the Closing, the Purchaser shall deliver to the Seller payment of the First Installment by wire transfer of immediately available funds to the Seller Account, without any deduction for withholding or other taxes (unless otherwise required by applicable Law) [***]. The Purchaser shall deliver the Remainder to the Seller on September 30, 2021 by wire transfer of immediately available funds to the Seller Account, without any deduction for withholding or other taxes (unless otherwise required by applicable Law) and, except as set forth in Section 6.2(b), without any other Set-Off.

(b) [***].

Section 6.3 Closing Deliverables.

(a) At the Closing, each of the Seller and the Purchaser shall deliver to the other party hereto a duly executed counterpart to the Bill of Sale, evidencing the sale and assignment to the Purchaser of the Purchased Assets.

(b) At the Closing, the Seller shall deliver to the Purchaser a certificate of an executive officer of the Seller, dated as of the Closing, certifying as to the (i) attached copies of the organizational documents of the Seller and resolutions of the governing body of the Seller authorizing and approving the execution, delivery and performance by the Seller of the Transaction Documents and the transactions contemplated thereby and (ii) the incumbency of the officer or officers of the Seller who have executed and delivered the Transaction Documents, including therein a signature specimen of each such officer or officers.

(c) At the Closing, the Purchaser shall deliver to the Seller a certificate of an executive officer or other authorized signatory of the Purchaser, dated as of the Closing, certifying as to the (i) attached copies of the organizational documents of the Purchaser and (ii) the incumbency of the officer or officers of the Purchaser who have executed and delivered the Transaction Documents, including therein a signature specimen of each such officer or officers.

(d) At the Closing, the Purchaser shall deliver to the Seller a duly completed and executed IRS Withholding Form pursuant to Section 5.17(c)(i).

(e) As soon as practicable (but in any event no later than one (1) Business Day after the Closing) Seller shall deliver to Purchaser a duly executed receipt for payment of the First Installment.

Section 6.4 Post-Closing Deliverables.

(a) Between [***] prior to September 30, 2021, Seller shall issue an invoice to Purchaser for the Remainder. As soon as practicable (but in any event no later than one (1) Business Day Seller's receipt of such payment) after the payment of the Remainder by Purchaser, Seller shall deliver to Purchaser a duly executed receipt for such payment.

(b) Promptly following the Closing, Purchaser and Seller shall use reasonable best efforts to deliver or cause to be delivered to the other party hereto a duly executed counterpart to the Paying Agent Agreement, with such changes and modifications as may be agreed in good faith between Purchaser, Seller and the Paying Agent.

(c) Promptly following execution of the Paying Agent Agreement, the Seller shall deliver to Licensee a duly executed copy of the Licensee Instruction. Within three (3) Business Days thereafter, the Seller shall deliver to Purchaser evidence reasonably satisfactory to Purchaser confirming the delivery to and receipt by Licensee of the Licensee Instruction.

ARTICLE VII INDEMNIFICATION

Section 7.1 Indemnification by the Seller. The Seller agrees to indemnify and hold harmless the Purchaser, its Affiliates and its and their respective partners, directors, officers, managers, members, consultants, contractors, employees, representatives or agents (each, a "Purchaser Indemnified Party") from and against, and will pay to each Purchaser Indemnified Party the amount of, any and all Losses awarded against or incurred or suffered by such Purchaser Indemnified Party, whether or not involving a Third Party Claim, arising out of (a) any breach of any representation or warranty made by the Seller in any of the Transaction Documents or certificates delivered by the Seller to the Purchaser in writing pursuant to this Agreement, (b) any breach of or default under any covenant or agreement of the Seller in any of the Transaction Documents, (c) any Excluded Assets or Excluded Liabilities and Obligations, and (d) any fees, expenses, costs, liabilities or other amounts incurred or owed by Seller or its Affiliates to any brokers, financial advisors or comparable other Persons retained or employed by it in connection with the transactions contemplated by this Agreement; provided, however, that the foregoing shall exclude any indemnification to any Purchaser Indemnified Party (i) that has the effect of imposing on Seller any recourse liability for the Purchased Assets because of the insolvency or other creditworthiness problems of the Licensee or the insufficiency of the Purchased Assets, whether as a result of the amount of cash flow resulting from sales or licensing of the Royalty Product or otherwise, in each case unless resulting from the breach or default by Seller of or under any of the Transaction Documents, (ii) that results from the gross negligence, willful misconduct or fraud of any Purchaser Indemnified Party, (iii) that results from the failure of Licensee to perform any of its obligations under the Medco License Agreement, unless directly resulting from the breach or default by the Seller of or under the Medco License Agreement or hereunder or (iv) to the extent resulting from acts or omissions of the Seller based upon the written instructions from any Purchaser Indemnified Party. Any amounts due to any Purchaser Indemnified Party hereunder shall be payable by the Seller to such Purchaser Indemnified Party upon demand.

Section 7.2 Indemnification by the Purchaser. The Purchaser agrees to indemnify and hold each of the Seller and its Affiliates and any or all of their respective partners, directors, officers, managers, members, employees, representatives or agents (each, a “Seller Indemnified Party”) harmless from and against, and will pay to each Seller Indemnified Party the amount of, any and all Losses awarded against or incurred or suffered by such Seller Indemnified Party, whether or not involving a Third Party Claim, arising out of (a) any breach of any representation or warranty made by the Purchaser in any of the Transaction Documents and (b) any breach of or default under any covenant or agreement of the Purchaser in any Transaction Document to which the Purchaser is party; provided, however, that the foregoing shall exclude any indemnification to any Seller Indemnified Party (i) that results from the gross negligence, willful misconduct or fraud of any Seller Indemnified Party, (ii) that results from the failure of Licensee to perform any of its obligations under the Medco License Agreement or (iii) to the extent resulting from acts or omissions of the Purchaser based upon the written instructions from any Seller Indemnified Party. Any amounts due to any Seller Indemnified Party hereunder shall be payable by the Purchaser to such Seller Indemnified Party upon demand.

Section 7.3 Materiality. For purposes of determining the amount of any Losses resulting from any breach by Seller of the representations and warranties contained in Section 3.1, Section 3.2, Section 3.3, Section 3.4, Section 3.9(a)-(h) and (j)-(m) (solely with respect to Core Royalty Product Patents), Section 3.9(i) (solely with respect to incisoran), Section 3.10(a) (solely with respect to the first sentence thereof and clause (i) of the second sentence thereof), Section 3.10(b)-(j) and (l)-(m) and Section 3.19, or any breach by Purchaser of the representations contained in Section 4.1, Section 4.2, Section 4.3, Section 4.4 and Section 4.7 pursuant to Section 7.1 or Section 7.2, as applicable (but not for determining the existence of any such breach (and therefore, whether any indemnification is owed)), and without limiting Section 7.7 or Section 7.8, all such representations and warranties that are qualified by materiality or by reference to a Material Adverse Effect shall be deemed to be not so qualified, as applicable.

Section 7.4 Procedures for Third Party Claims.

(a) If any claim or demand made by any Person other than the Purchaser or the Seller against a Purchaser Indemnified Party or a Seller Indemnified Party, as applicable (a “Third Party Claim”) shall be brought or alleged against an indemnified party in respect of which indemnity is to be sought against an indemnifying party pursuant to Section 7.1 or Section 7.2, the indemnified party shall, promptly after receipt of notice of the commencement of such Third Party Claim, notify the indemnifying party in writing of the commencement thereof, enclosing a copy of all papers served, if any; provided, that the failure to so notify such indemnifying party will not relieve the indemnifying party from any liability that it may have to any indemnified party under Section 7.1 or Section 7.2 unless, and only to the extent that, the indemnifying party is actually materially prejudiced by such failure.

(b) In the event that any Third Party Claim is brought against an indemnified party and it notifies the indemnifying party of the commencement thereof in accordance with this Section 7.4, the indemnifying party will be entitled, at the indemnifying party’s sole cost and expense, to participate therein and, to the extent that it may wish, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party, and, after notice from the

indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party will not be liable to such indemnified party under this Article VII for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof other than reasonable costs of investigation. Notwithstanding the foregoing, the indemnifying party may not assume the defense to a Third Party Claim (i) involving criminal liability of any indemnified party or in which equitable relief other than monetary damages is sought against any indemnified party, (ii) involving a purported class action or (iii) if the Third Party Claim relates to taxes.

(c) In any such Third Party Claim, an indemnified party shall have the right to retain its own counsel, but the reasonable fees and expenses of such counsel shall be at the sole cost and expense of such indemnified party unless (a) the indemnifying party and the indemnified party shall have mutually agreed to the retention of such counsel, (b) the indemnifying party has assumed the defense of such proceeding and has failed within a reasonable time to retain counsel reasonably satisfactory to such indemnified party or (c) the named parties to any such Third Party Claim (including any impleaded parties) include both the indemnifying party and the indemnified party and representation of both parties by the same counsel would be inappropriate due to actual or potential conflicts of interests between them based on the advice of counsel to the indemnifying party.

(d) The indemnifying party shall not be liable for any settlement of any Third Party Claim effected without its written consent, but, if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party from and against any Loss by reason of such settlement or judgment. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or discharge of any pending or threatened Third Party Claim in respect of which any indemnified party is or could have been a party and indemnity could be sought hereunder by such indemnified party, unless such settlement, compromise or discharge, as the case may be, (i) includes an unconditional written release of such indemnified party, in form and substance reasonably satisfactory to the indemnified party, from all liability on claims that are the subject matter of such claim or proceeding, (ii) does not include any statement as to an admission of fault, culpability or failure to act by or on behalf of any indemnified party, (iii) does not impose any continuing material obligation or restrictions on any indemnified party, and (iv) does not involve any injunctive relief binding on the indemnified party or its Affiliates.

Section 7.5 Other Claims. A claim by an indemnified party under this Article VII for any matter not involving a Third Party Claim and in respect of which such indemnified party would be entitled to indemnification hereunder may be made by delivering, in good faith, a written notice of demand to the indemnifying party, which notice shall contain (a) a description and the amount of any Losses incurred or suffered or a reasonable estimate of Losses reasonably expected to be incurred or suffered by the indemnified party, (b) a statement that the indemnified party is entitled to indemnification under this Article VII for such Losses and a reasonable explanation of the basis therefor, and (c) a demand for payment in the amount of such Losses or a reasonable estimate of such Losses. For all purposes of this Section 7.5, the Seller shall be entitled to deliver such notice of demand to the Purchaser on behalf of the Seller Indemnified Parties, and the Purchaser shall be

entitled to deliver such notice of demand to the Seller on behalf of the Purchaser Indemnified Parties.

Section 7.6 Time Limitations.

(a) The Seller shall have liability under Section 7.1 with respect to any breach of any representation or warranty made by the Seller in Article III of this Agreement only if, on or prior to the date that is [***] after the Closing, the Purchaser notifies the Seller of a claim in respect of such breach, specifying the factual basis of such claim in reasonable detail [***] or any breach of a representation or warranty resulting from fraud or willful misconduct on the part of Seller, as to which a claim may be made at any time until the date that is [***] after the termination of this Agreement.

(b) The Purchaser shall have liability under Section 7.2 with respect to any breach of any representation or warranty made by the Purchaser in Article IV of this Agreement only if, on or prior to the date that is [***] after the Closing Date, the Seller notifies the Purchaser of a claim in respect of such breach, specifying the factual basis of such claim in reasonable detail [***] or any breach of a representation or warrant resulting from fraud or willful misconduct on the part of Purchaser, as to which a claim may be made at any time until the date that is [***] after the termination of this Agreement.

Section 7.7 Limitations on Liability. No party hereto shall be liable for any consequential (including lost profits), punitive, special, indirect or incidental damages under this Article VII (and no claim for indemnification hereunder shall be asserted) as a result of any breach or violation of any covenant or agreement of such party (including under this Article VII) in or pursuant to this Agreement, except to the extent a court of competent jurisdiction awards such damages to a third party in connection with a Third Party Claim. Other than with respect to any fraud, willful misconduct, or intentional misrepresentation, in no event shall Seller's aggregate liability for Losses under Section 7.1(a) or Purchaser's aggregate liability for Losses under Section 7.2 (a) exceed the Purchase Price less (i) the Purchased Assets payments actually received by the Purchaser (and not required to be returned or reimbursed to Licensee or Seller, other than pursuant to any indemnification obligation of the Purchaser hereunder) as of the date any claim for Losses is made, and (ii) the amount of any Set-Off taken by the Purchaser (and not required to be returned or reimbursed to Seller) previously pursuant to Section 6.2(b) in respect of a breach of a representation or warranty set forth in Article III (but not a breach of a covenant set forth in Article V) underlying such Loss, and (b) Seller shall not have any liability for Losses under Section 7.1 and the Purchaser shall not have any liability for Losses under Section 7.2 unless and until the aggregate amount of all Losses incurred by the indemnified party equals or exceeds [***], in which event the indemnifying party shall be liable for Losses including such amount.

Section 7.8 Exclusive Remedy. Except in the case of fraud or intentional breach and except as set forth in Section 6.2(b) and Section 9.2 (pursuant to which each of Purchaser and Seller accordingly preserves all remedies available with respect to any such claim or matter based thereon under applicable Law), the indemnification afforded by this Article VII shall be the sole and exclusive remedy for any and all Losses awarded against or incurred or suffered by a Party in connection with the transactions contemplated by the Transaction Documents, including with respect to any breach of any representation or warranty made by a Party in any of the Transaction

Documents or any certificate delivered by a Party to the other Party in writing pursuant to this Agreement or any breach of or default under any covenant or agreement by a Party pursuant to any Transaction Document. Notwithstanding the foregoing, nothing in this Article VII nor any provision of this Agreement shall operate to limit the rights of a Party to seek equitable remedies (including specific performance or injunctive relief) or, in the case of fraud or intentional breach committed by or on behalf of the other Party, any remedies available to it under applicable Law.

ARTICLE VIII CONFIDENTIALITY

Section 8.1 Confidentiality. Except as provided in this Article VIII or otherwise agreed in writing by the parties, the parties hereto agree that, during the term of this Agreement and until the [***] anniversary of the date of termination of this Agreement, each party (the “Receiving Party”) shall keep confidential, and shall not publish or otherwise disclose to any Person (other than its Affiliates, its and its Affiliates’ Representatives, and any actual or potential assignees, financing sources or investors (including, in the case of the Seller, any party evaluating the acquisition of any portion of the Royalty that is not included in the Purchased Assets) and their respective Representatives, in each case who have agreed to be bound by the provisions of this Section 8.1 or are otherwise subject to restrictions of confidentiality substantially as restrictive as those contained in this Section 8.1) and shall not use or disclose for any purpose other than as provided for in the Transaction Documents (which includes the exercise of any rights or the performance of any obligations hereunder), any information (whether written or oral, or in electronic or other form) furnished to it by or on behalf of the other party (the “Disclosing Party”) pursuant to the Existing Confidentiality Agreement (as defined below) or this Agreement (such information, “Confidential Information” of the Disclosing Party), except for that portion of such information that:

(a) was already in the Receiving Party’s possession on a non-confidential basis prior to its disclosure to it by the Disclosing Party, as evidenced by written records (provided, if such information was disclosed to the Receiving Party on a non-confidential basis by a party that is not the Disclosing Party, such party had the right to disclose such information to the Receiving Party without any legal, contractual or fiduciary obligation to, any person with respect to such information);

(b) is or becomes generally available to the public other than as a result of an act or omission by the Receiving Party or its Affiliates in breach of this Agreement;

(c) was independently developed by the Receiving Party, as evidenced by written records, without use of or reference to the Confidential Information or in violation of the terms of this Agreement.

Section 8.2 Disclosures to Certain Affiliates. Notwithstanding anything to the contrary provided elsewhere herein, none of Purchaser’s Affiliates (including portfolio companies) or its Affiliates’ Representatives, or any actual or potential assignees, partners (including limited partners), financing sources or investors (and their Representatives), including, for the avoidance of doubt, The Blackstone Group Inc., shall have any obligations with respect to Confidential Information provided to Purchaser pursuant to this Agreement to the extent that such Confidential Information is not made available to such Affiliates (including portfolio companies), Affiliates’

Representatives, or any actual or potential assignees, partners (including limited partners), financing sources or investors (and their Representatives). In addition, the Confidential Information may be disclosed to any of the Persons listed in the foregoing sentence solely for the purpose of assessing or resolving conflicts or determining the proper allocation of investment opportunities, only if such individual shall agree to be bound by the confidentiality and use provisions of this Article VIII, and if such disclosure is made, Purchaser shall indemnify the Seller in accordance with Article VII for any breach by such individual of such confidentiality and use provisions; provided, however, that receipt of Confidential Information by such individual shall not be imputed to the individual's broader business unit (e.g., the broader Affiliate entity).

Section 8.3 Termination of Confidentiality Agreement. Effective upon the date hereof, the Confidentiality Agreement, dated November 14, 2019 (the "Existing Confidentiality Agreement"), between Seller and Purchaser shall terminate and be of no further force or effect, and shall be superseded by the provisions of this Article VIII.

Section 8.4 Permitted Disclosure. In the event that a Receiving Party or its Affiliates or any of its or its Affiliates' Representatives are requested by a governmental or regulatory authority or required by applicable Law, regulation or legal process (including the regulations of a stock exchange or governmental or regulatory authority or the order or ruling of a court, administrative agency or other government or regulatory body of competent jurisdiction) to disclose any Confidential Information, the Disclosing Party shall promptly, to the extent permitted by Law, notify the Disclosing Party in writing of such request or requirement so that the Disclosing Party may seek an appropriate protective order or other appropriate remedy (and if the Disclosing Party seeks such an order or other remedy, the Receiving Party will provide such cooperation, at the Disclosing Party's sole expense, as the Seller shall reasonably request). If no such protective order or other remedy is obtained and Receiving Party or its Affiliates or its or its Affiliates' Representatives are, in the view of their respective counsel (which may include their respective internal counsel), legally required to disclose Confidential Information, the Receiving Party or its Affiliates or its or its Affiliates' Representatives, as the case may be, shall only disclose that portion of the Confidential Information that their respective counsel advises that the Purchaser or its Affiliates or its or its Affiliates' Representatives, as the case may be, are required to disclose and will exercise commercially reasonable efforts, at the Disclosing Party's sole expense, to obtain reliable assurance that confidential treatment will be accorded to that portion of the Confidential Information that is being disclosed. In any event, the Receiving Party will not oppose action by the Disclosing Party to obtain an appropriate protective order or other reliable assurance that confidential treatment will be accorded the Confidential Information. Notwithstanding the foregoing, notice to the Disclosing Party shall not be required where disclosure is made (i) in response to a request by a governmental or regulatory authority having competent jurisdiction over the Receiving Party, its Affiliates or its or its Affiliates' Representatives, as the case may be, or (ii) in connection with a routine examination by a regulatory examiner, where in each case such request or examination does not expressly reference the Disclosing Party, its Affiliates, the Royalty, the Milestones, the Purchased Assets or this Agreement. Further, notwithstanding anything contained in this Article VIII to the contrary, the Seller may disclose Confidential Information to the extent such disclosure is reasonably necessary to comply with the Securities Act of 1933, as amended, with the Securities Exchange Act of 1934, as amended, or with any rule, regulation or legal process

promulgated by the SEC or a stock exchange, subject to Seller's obligations set forth in Section 5.15.

Section 8.5 Financial Statements. Notwithstanding anything herein to the contrary, nothing in this Article VIII shall be construed to restrict either party hereto from (a) providing copies of Royalty Reports to its independent accountants, provided such independent accountants have agreed to be bound by the provisions of Section 8.1 or are bound by restrictions of confidentiality no less restrictive by those contained in Section 8.1, or including disclosure of the Purchase Price and the amount and nature of the Purchased Assets in the footnotes to such party's audited annual financial statements, in each case to the extent so required by GAAP, or including comparable disclosure in such party's unaudited quarterly financial statements, (b) providing copies of such audited annual and unaudited quarterly financial statements to such party's existing or prospective lenders or direct or indirect beneficial owners, as long as such lenders or beneficial owners have agreed to be bound by the provisions of this Article VIII or are otherwise subject to reasonable restrictions of confidentiality, and (c) disclosing Confidential Information in connection with any assignment permitted under Section 10.3, and in accordance with the requirements of this Article VIII.

Section 8.6 Specific Enforcement. Each party hereto acknowledges and agrees that remedies at law may not be adequate to protect the Seller or the Purchaser against any actual or threatened breach of this Article VIII by the Purchaser or the Seller, either of its Affiliates or its or their Affiliates' Representatives, and that the Seller and the Purchaser (as applicable) shall be entitled to seek specific performance and temporary and permanent injunctive relief or other equitable relief as a remedy for any such actual or threatened breach. Such remedy shall not be deemed to be the exclusive remedy for breach of this Section 8.6 but shall be in addition to all other rights and remedies available at law or equity to the Seller or the Purchaser (as applicable).

Section 8.7 Other Relevant Obligations. In addition to, and without limiting, Purchaser's obligations under this Article VIII, Purchaser shall fully comply with any Relevant Obligations that are applicable to the Confidential Information.

Section 8.8 Use of Name. Except as required by Law (including any rule, regulation or legal process promulgated by the SEC or a stock exchange) in the disclosing Party's good faith view, neither party shall use the name, trademark, service mark, trade name, or symbol or any adaptation thereof of the other party, including, with respect to Purchaser, any reference to "Blackstone" or "The Blackstone Group", or of any of its Representatives, Affiliates, partners, managers, directors, board members, members, officers, funds, employees or agents for advertising, marketing, endorsement, promotional or sales literature, publicity, public announcement or disclosure in any document employed to obtain funds or financing without the specific prior written consent of an authorized representative of the other party or individual whose name is to be used as to each such use (which consent may be granted or withheld in such party's sole discretion). Notwithstanding the foregoing, Purchaser may use the name, logos, and other insignia of Seller in any "tombstone" or other advertisements, in its publications, marketing or promotional materials to existing and prospective investors and otherwise on the website or in other marketing materials of Purchaser, as applicable, without the Seller's prior approval.

ARTICLE IX
TERMINATION

Section 9.1 Termination of Agreement. This Agreement shall continue in full force and effect until the date on which Purchaser has received the last payment with respect to the Purchased Assets, at which time this Agreement shall automatically terminate.

Section 9.2 Effect of Termination. Upon the termination of this Agreement pursuant to Section 9.1, this Agreement shall become void and of no further force and effect, except for any rights, obligations or claims of either Party that have accrued prior to termination; provided, however, that (a) the provisions of Section 5.1, Section 5.6, Section 5.11 (only until the date that is three (3) months after the termination date), Article I, Article VII (but only if a claim under Article VII is pending on or is brought within [***] of the termination date, and only until the final resolution of such claim and the full satisfaction of all liabilities and obligations hereunder related to such claim), Article VIII, this Article IX and Article X shall survive such termination and shall remain in full force and effect and (b) nothing contained in this Section 9.2 shall relieve either party from liability for any breach of this Agreement that occurs prior to termination.

ARTICLE X
MISCELLANEOUS

Section 10.1 Specific Performance. Each of the parties hereto acknowledges that the other party hereto will have no adequate remedy at law if it fails to perform any of its obligations under any of the Transaction Documents. In such event, each of the parties hereto agrees that the other party hereto shall have the right, in addition to any other rights it may have (whether at law or in equity), to specific performance of this Agreement.

Section 10.2 Notices. All notices, consents, waivers and other communications hereunder shall be in writing and shall be effective (a) upon receipt when sent through the mails, registered or certified mail, return receipt requested, postage prepaid, with such receipt to be effective the date of delivery indicated on the return receipt, (b) upon receipt when sent by an overnight courier, (c) on the date personally delivered to an authorized officer of the party to which sent or (d) on the date transmitted by facsimile or other electronic transmission with a confirmation of receipt, in all cases, with a copy emailed to the recipient at the applicable address, addressed to the recipient as follows:

if to the Seller, to:

Alnylam Pharmaceuticals, Inc.
675 West Kendall Street, Henri A. Termeer Square
Cambridge, MA 02142
Attention: Jeff Poulton
[***]

with a copy, which shall not constitute notice, to:

Alnylam Pharmaceuticals, Inc.

675 West Kendall Street, Henri A. Termeer Square
Cambridge, MA 02142
Attention: Laurie Keating
[***]

and to:

Goodwin Procter LLP
100 Northern Avenue
Boston, MA 02210
Attention: Kingsley L. Taft
[***]

if to the Purchaser, to:

BX Bodyguard Royalties L.P.
c/o Blackstone Life Sciences
101 Main Street
Suite 1210
Cambridge, MA 02142
Attention: Craig Shepherd
[***]

With a copy, which shall not constitute notice, to:

Blackstone Life Sciences
101 Main Street
Suite 1210
Cambridge, MA 02142
Attention: Julie Constable
[***]

and to:

Ropes & Gray LLP
800 Boylston Street
Prudential Tower
Boston, MA 02199
Attention: Melissa Ronen
[***]

Each party hereto may, by notice given in accordance herewith to the other party hereto, designate any further or different address to which subsequent notices, consents, waivers and other communications shall be sent.

Section 10.3 Successors and Assigns. The provisions of this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns. The Seller shall not be entitled to assign, delegate or otherwise transfer this Agreement or any of its interests, obligations or rights hereunder without the prior written consent of the Purchaser, and any such purported assignment, delegation or transfer without such consent shall be void *ab initio* and of no effect (provided that Seller may assign this Agreement without the consent of the Purchaser to an Affiliate (provided that such assignment to an Affiliate shall be at no incremental cost, including Taxes, to Purchaser) or to any third party that acquires all or substantially all of Seller's business, whether by merger, sale of assets or otherwise, as long as such assignee agrees in a writing to be bound by all the provisions of this Agreement as if such assignee were the "Seller" under this Agreement). Seller shall give notice to Purchaser of any assignment for which consent was not required by Purchaser promptly after the occurrence thereof, and Seller shall remain liable to Purchaser for its obligations to Purchaser hereunder (and Purchaser shall be entitled to seek recovery for any breach or default of an obligation hereunder from Seller or from such Affiliate assignee). Prior to payment of the amounts set forth in Section 6.2(a) [***], the Purchaser shall not be entitled to assign, delegate or otherwise transfer this Agreement or any of its obligations or rights hereunder without the prior written consent of the Seller, and any such purported assignment, delegation or transfer without such consent shall be void *ab initio* and of no effect; provided, however, that Purchaser may assign this Agreement without the consent of Seller if (i) the Purchaser notifies the Seller at least [***] prior to any such assignment, (ii) any such assignee, as a condition precedent to such assignment, agrees (A) in writing with the Seller to be bound by the obligations of the Purchaser contained in this Agreement, and (B) in writing with the parties thereto to be bound by the obligations of the Purchaser contained in the document set forth on Schedule 10.3, (iii) any such assignee complies with Section 5.17(c) (replacing "Purchaser" wherever it appears with such assignee and replacing "Closing Date" with the date that such assignee acquires an interest in the Purchaser's rights hereunder), (iv) notwithstanding any such assignment, the Purchaser shall remain liable to the Seller for its obligations to the Seller hereunder (and Seller shall be entitled to seek recovery for any breach or default of an obligation hereunder from the Purchaser or from such assignee) and (v) in any event such assignment shall be of the Agreement in its entirety; provided further, however, that at all times during the term of this Agreement, Purchaser may assign any of its rights to receive the Purchased Assets hereunder, in whole or in part, without restriction and without consent of the Seller provided, in each case, that the Purchaser remains liable to the Seller for its obligations hereunder. Following payment of the amounts set forth in Section 6.2(a) (after giving effect to Section 6.2(b)), Purchaser may assign, delegate or otherwise transfer (in whole or in part) any or all of its obligations and rights hereunder, in whole or in part, without restriction and without the consent of the Seller (but subject to compliance with clauses (i), (ii)(A) and (iii) above (without giving effect to the words "with the Seller" in clause (ii)(A), and provided that clause (ii)(A) shall not apply to any such assignment that is solely of a right).

Section 10.4 Independent Nature of Relationship. The relationship between the Seller and the Purchaser is solely that of seller and purchaser, and neither the Seller nor the Purchaser has any fiduciary or other special relationship with the other party hereto or any of its Affiliates. Nothing contained herein or in any other Transaction Document shall be deemed (including for tax purposes) to constitute the Seller and the Purchaser as a partnership, an association, a joint venture or any other kind of entity or legal form.

Section 10.5 No Personal Liability. It is expressly understood and agreed by Seller and Purchaser that:

(a) each of the representations, warranties, covenants and agreements in the Transaction Documents made on the part of Seller is made by Seller and is not intended to be nor is a personal representation, warranty, covenant or agreement of any other Person, including those Persons named in the definition of “Knowledge of Seller” and any other Representative of Seller or Seller’s Affiliates (the “Non-Warranting Parties”);

(b) other than Seller, no Person, including the Non-Warranting Parties, shall have any liability whatsoever for breach of any representation, warranty, covenant or agreement made in the Transaction Documents on the part of Seller or in respect of any claim or matter arising out of, relating to or in connection with the Transaction Documents or the transactions contemplated thereby;

(c) the provisions of this Section 10.5 are intended to benefit each and every one of the Non-Warranting Parties and shall be enforceable by each and every one of them to the fullest extent permitted by Law; and

(d) the provisions of clauses (a) – (c) of this Section 10.5 shall apply to Purchaser, mutatis mutandis.

Section 10.6 Entire Agreement. This Agreement, together with the Exhibits and Schedules hereto, the other Transaction Documents and the Confidentiality Agreement constitute a complete and exclusive statement of the terms of agreement between the parties, and supersede all prior agreements, understandings and negotiations, both written and oral, between the parties, with respect to the subject matter of this Agreement. No representation, inducement, promise, understanding, condition or warranty not set forth herein (or in the Exhibits or Schedules hereto or the other Transaction Documents) has been made or relied upon by either party.

Section 10.7 Governing Law.

(a) THIS PURCHASE AND SALE AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE INTERNAL SUBSTANTIVE LAWS OF THE STATE OF NEW YORK WITHOUT REFERENCE TO THE RULES THEREOF RELATING TO CONFLICTS OF LAW OTHER THAN SECTION 5-1401 OF THE GENERAL OBLIGATIONS LAW OF THE STATE OF NEW YORK, AND THE OBLIGATIONS, RIGHTS AND REMEDIES OF THE PARTIES HEREUNDER SHALL BE DETERMINED IN ACCORDANCE WITH SUCH LAWS.

(b) Each of the parties hereto hereby irrevocably and unconditionally submits, for itself and its property, to the non-exclusive jurisdiction of the Supreme Court of the State of New York sitting in New York County and of the United States District Court of the Southern District of New York, and any appellate court from any thereof, in any action or proceeding arising out of, relating to or in connection with this Agreement, or for recognition or enforcement of any judgment, and each of the parties hereto hereby irrevocably and unconditionally agrees that all claims in respect of any such action or proceeding may be heard and determined in such New York

State court or, to the extent permitted by applicable Law, in such federal court. Each of the parties hereto agrees that a final judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by applicable Law.

(c) Each of the parties hereto hereby irrevocably and unconditionally waives, to the fullest extent it may legally and effectively do so, any objection that it may now or hereafter have to the laying of venue of any suit, action or proceeding arising out of or relating to this Agreement in any court referred to in Section 10.7(b). Each of the parties hereto hereby irrevocably waives, to the fullest extent permitted by applicable Law, the defense of an inconvenient forum to the maintenance of such action or proceeding in any such court.

(d) Each of the parties hereto irrevocably consents to service of process in the manner provided for notices in Section 10.2. Nothing in this Agreement will affect the right of any party hereto to serve process in any other manner permitted by applicable Law. Each of the parties hereto waives personal service of any summons, complaint or other process, which may be made by any other means permitted by New York law.

Section 10.8 Waiver of Jury Trial. EACH PARTY HERETO HEREBY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS PURCHASE AND SALE AGREEMENT, OR THE TRANSACTIONS CONTEMPLATED HEREBY (WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY). EACH PARTY HERETO (A) CERTIFIES THAT NO REPRESENTATIVE, AGENT OR ATTORNEY OF THE OTHER PARTY HERETO HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT THE OTHER PARTY HERETO WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER AND (B) ACKNOWLEDGES THAT IT AND THE OTHER PARTY HERETO HAVE BEEN INDUCED TO ENTER INTO THIS PURCHASE AND SALE AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS Section 10.8.

Section 10.9 Severability. If one or more provisions of this Agreement are held to be invalid, illegal or unenforceable by a court of competent jurisdiction, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement, which shall remain in full force and effect, and the parties hereto shall replace such invalid, illegal or unenforceable provision with a new provision permitted by applicable Law and having an economic effect as close as possible to the invalid, illegal or unenforceable provision. Any provision of this Agreement held invalid, illegal or unenforceable only in part or degree by a court of competent jurisdiction shall remain in full force and effect to the extent not held invalid, illegal or unenforceable.

Section 10.10 Counterparts. This Agreement may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. This Agreement shall become effective when each party hereto shall have received a counterpart hereof signed by the other party hereto. Any counterpart may be executed by facsimile or other electronic transmission, and such facsimile or other electronic transmission shall be deemed an original.

Section 10.11 Amendments; No Waivers. Neither this Agreement nor any term or provision hereof may be amended, supplemented, restated, waived, changed or modified except with the written consent of the parties hereto. No failure or delay by either party hereto in exercising any right, power or privilege hereunder shall operate as a waiver thereof nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right, power or privilege. No notice to or demand on either party hereto in any case shall entitle it to any notice or demand in similar or other circumstances. No waiver or approval hereunder shall, except as may otherwise be stated in such waiver or approval, be applicable to subsequent transactions. No waiver or approval hereunder shall require any similar or dissimilar waiver or approval thereafter to be granted hereunder. The rights and remedies herein provided shall be cumulative and not exclusive of any rights or remedies provided by applicable Law.

Section 10.12 Cumulative Remedies. The remedies herein provided are cumulative and not exclusive of any remedies provided by applicable Law. Without limiting the foregoing, the Seller hereby authorizes the Purchaser, at any time and from time to time, to the fullest extent permitted by applicable Law, to offset any amounts payable by the Purchaser to, or for the account of, the Seller against any obligations of the Seller to the Purchaser arising in connection with the Transaction Documents (including amounts payable pursuant to Article VII) that are then due and payable.

Section 10.13 Table of Contents and Headings. The Table of Contents and headings of the Articles and Sections of this Agreement have been inserted for convenience of reference only, are not to be considered a part hereof and shall in no way modify or restrict any of the terms or provisions hereof.

{SIGNATURE PAGE FOLLOWS}

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.
BX BODYGUARD ROYALTIES L.P.

By: Blackstone Life Sciences Advisors L.L.C. on
behalf of BX Bodyguard Royalties L.P.

By: /s/ Robert Liptak

Name: Robert Liptak
Title: Authorized Person

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.

ALNYLAM PHARMACEUTICALS, INC.

By: /s/ John M. Maraganore

Name: John M. Maraganore, Ph.D.

Title: Chief Executive Officer

EXHIBIT A
FORM OF BILL OF SALE

EXHIBIT B

FORM OF LICENSEE INSTRUCTION

EXHIBIT C
PAYING AGENT AGREEMENT

EXHIBIT D
PURCHASER ACCOUNT

[***]

EXHIBIT E
SELLER ACCOUNT

[***]

EXHIBIT F
DISCLOSURE SCHEDULE

EXHIBIT G

ROYALTY PRODUCT PATENTS

EXHIBIT H

MEDCO LICENSE AGREEMENT

EXHIBIT I
PRESS RELEASE

SCHEDULE 1.1
[***]

SCHEDULE 2.5(a)
True-Up Mechanism

[***]

SCHEDULE 3.10(A)

[***]

SCHEDULE 10.3

ASSIGNMENT

[***]

CREDIT AGREEMENT

dated as of April 10, 2020

among

**ALNYLAM PHARMACEUTICALS, INC.,
as the Borrower,**

**THE GUARANTORS FROM TIME TO TIME PARTY HERETO,
as the Guarantors,**

THE LENDERS FROM TIME TO TIME PARTY HERETO

and

**WILMINGTON TRUST, NATIONAL ASSOCIATION,
as Administrative Agent**

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- Exhibit I Forms of U.S. Tax Compliance Certificates
- Exhibit J Form of Notice of Loan Prepayment
- Exhibit K Form of Paying Agent Agreement
- Exhibit L Form of Direction Letter

CREDIT AGREEMENT

This **CREDIT AGREEMENT** is entered into as of April 10, 2020, among ALNYLAM PHARMACEUTICALS, INC., a Delaware corporation (the “Borrower”), the Guarantors (as defined herein) from time to time party hereto, the Lenders (as defined herein) from time to time party hereto and Wilmington Trust, National Association, as Administrative Agent (as defined herein).

PRELIMINARY STATEMENTS:

WHEREAS, the Borrower has requested that the Lenders extend a delayed draw term loan facility to the Borrower in an aggregate principal amount of up to \$700,000,000 for the purposes of progressing the Borrower’s clinical trials, developing certain manufacturing facilities, consummating buybacks of the Borrower’s Equity Interests (as defined herein) and for working capital and other general corporate purposes.

WHEREAS, the Lenders, have agreed to make such delayed draw term loan facility available to the Borrower in three separate drawings on the terms and subject to the conditions set forth herein.

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto covenant and agree as follows:

ARTICLE I

DEFINITIONS AND ACCOUNTING TERMS

1.01 Defined Terms.

As used in this Agreement, the following terms shall have the meanings set forth below:

“Accelerated Commitments” has the meaning specified in Section 2.04(a)(iii).

“Acquisition” means the purchase, inbound license or other acquisition, or option to purchase, license or otherwise acquire, whether through a single transaction or a series of related transactions, of (a) a majority of the Equity Interests, whether by purchase of such Equity Interests or upon the exercise of an option or warrant for, or conversion of securities into, such Equity Interests, (b) assets of another Person which constitute all or substantially all of the assets of such Person or of a division, line of business or other business unit of such Person, or (c) assets consisting of IP Rights, royalty rights or similar assets of such Person. The Person or division, line of business or other business unit or assets of the Person to be acquired in such Acquisition shall be referred to herein as the “Target”.

“Administrative Agent” means Wilmington Trust, National Association, solely in its capacity as administrative agent under any of the Loan Documents, or any successor administrative agent permitted by the terms hereof.

“Administrative Agent’s Office” means the Administrative Agent’s address and, as appropriate, account as set forth on Schedule 1.01(a), or such other address or account as the Administrative Agent may from time to time notify the Borrower and the Lenders in accordance with Section 11.02.

“Administrative Questionnaire” means an Administrative Questionnaire in substantially the form of Exhibit A or any other form approved by the Administrative Agent.

“Affected Financial Institution” means (a) any EEA Financial Institution or (b) any UK Financial Institution.

“Affiliate” means, with respect to a specified Person, another Person that directly, or indirectly through one or more intermediaries, Controls or is Controlled by or is under common Control with the Person specified.

“Agency Fee Letter” means that certain letter agreement, dated as of the date hereof, between the Borrower and the Administrative Agent.

“Aggregate Commitments” means, at any time, the sum of the Tranche 1 Commitments, Tranche 2 Commitments and Tranche 3 Commitments at such time.

“Agreement” means this Credit Agreement, including all schedules, exhibits and annexes hereto.

“Applicable Law” means, as to any Person, all applicable Laws binding upon such Person or to which such a Person is subject.

“Applicable Measurement Date” means, (a) with respect to any Loans or Aggregate Commitments terminated in connection with a Commitment Termination Event occurring on or after the Tranche 1 Funding Date, the Tranche 1 Funding Date and (b) with respect to Aggregate Commitments terminated in connection with a Commitment Termination Event occurring on or after the Closing Date but prior to the Tranche 1 Funding Date, the Closing Date.

“Applicable Percentage” means, with respect to any Lender at any time, the percentage of such Lender as set forth on Schedule 1.01(b) under the caption “Applicable Percentage” or opposite such caption in the Assignment and Assumption pursuant to which such Lender becomes a party hereto.

“Applicable Premium” means

(a) with respect to any Loan on any Prepayment Date, the greater of:

(1) 5.00%; and

(2) the fraction, expressed as a percentage, consisting of (A) (a) (i) the sum of the present values at such Prepayment Date of (I) the price at which such Loan could be voluntarily prepaid on the date that is twenty-four months after the Applicable Measurement Date in accordance with Section 2.03 (including any premium required pursuant to Section 2.03(c)), and (II) each scheduled payment of interest to be made on such Loan on or after such Prepayment Date through (and including) the date that is twenty-four months after the Applicable Measurement Date (assuming for purposes of this clause (II) that a PIK Election is made, in respect of any Interest Periods that begin at any time after such Prepayment Date and prior to the date that is twenty-four months after the Applicable Measurement Date, for proportionately the same number of Interest Periods and in the same pattern as the number and pattern of Interest Periods for which a PIK Election was made in respect of Interest Periods that begin any time on or after the Applicable Measurement Date and on or prior to such Prepayment Date), in each case, discounted to such Prepayment Date on a quarterly basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate as of such Prepayment Date plus 50 basis points, minus (ii) accrued but unpaid interest to, but excluding, such Prepayment Date, over (b) the principal amount of such Loan, divided by (B) the principal amount of such Loan.

(b) with respect to any Commitment terminated as a result of a Commitment Termination Event, the greater of:

(1) 5.00%; and

(2) the fraction, expressed as a percentage, consisting of (A) (a) the sum of the present values on the Applicable Measurement Date of (I) the price at which a Deemed Loan could have been voluntarily prepaid on the date that is twenty-four months after the Applicable Measurement Date in accordance with Section 2.03 (including any premium required pursuant to Section 2.03(c)), and (II) each scheduled payment of interest that would have been made on a Deemed Loan on or after the Applicable Measurement Date through (and including) the date that is twenty-four months after the Applicable Measurement Date (assuming for purposes of this clause (II) that no PIK Election is made), in each case, discounted to the Applicable Measurement Date on a quarterly basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate as of the Applicable Measurement Date plus 50 basis points, over (b) the principal amount of such Commitment, divided by (B) the principal amount of such Commitment.

Calculation of the Applicable Premium will be made in good faith by the Borrower (or on behalf of the Borrower by such Person as the Borrower shall designate) in consultation with the Lender Representative.

“Applicable Rate” means, for any day, (a) with respect to any Eurodollar Rate Loan, 7.00% per annum, and (b) with respect to any Base Rate Loan, 6.00% per annum.

“Approved Fund” means any Person (other than a natural Person) that is engaged in making, purchasing, holding or otherwise investing in commercial loans in the ordinary course of its activities and that is (a) a member of the GSO Group or (b) a Fund that is administered, managed or advised by (i) a Lender, (ii) an Affiliate of a Lender or (iii) an entity or an Affiliate of an entity that administers, manages or advises a Lender.

“Assignment and Assumption” means an assignment and assumption entered into by a Lender and an Eligible Assignee (with the written consent of any party whose consent is required by Section 11.06(b)), and accepted by the Administrative Agent, in substantially the form of Exhibit B or any other form (including an electronic documentation form generated by use of an electronic platform) approved by the Administrative Agent.

“Attributable Indebtedness” means, on any date, (a) in respect of any Finance Lease of any Person, the capitalized amount thereof that would appear on a balance sheet of such Person prepared as of such date in accordance with GAAP, and (b) in respect of any Synthetic Lease Obligation, the capitalized amount of the remaining lease or similar payments under the relevant lease or other applicable agreement or instrument that would appear on a balance sheet of such Person prepared as of such date in accordance with GAAP if such lease or other agreement or instrument were accounted for as a Finance Lease.

“Audited Financial Statements” means the audited Consolidated balance sheet of the Borrower and its Subsidiaries for the fiscal year ended December 31, 2019, and the related Consolidated statements of operations and comprehensive loss, shareholders' equity and cash flows for such fiscal year of the Borrower and its Restricted Subsidiaries, including the notes thereto.

“Bail-In Action” means the exercise of any Write-Down and Conversion Powers by the applicable EEA Resolution Authority in respect of any liability of an Affected Financial Institution.

“Bail-In Legislation” means, (a) with respect to any EEA Member Country implementing Article 55 of Directive 2014/59/EU of the European Parliament and of the Council of the European Union, the implementing law for such EEA Member Country from time to time which is described in the EU Bail-In Legislation Schedule and (b) with respect to the United Kingdom, Part I of the United Kingdom Banking Act 2009 (as amended from time to time) and any other law, regulation or rule applicable in the United Kingdom relating to the resolution of unsound or failing banks, investment firms or other financial institutions or their affiliates (other than through liquidation, administration or other insolvency proceedings).

“Base Rate” means for any day a fluctuating rate of interest per annum equal to the highest of (a) the Federal Funds Rate *plus* 0.50%, (b) the Prime Rate and (c) the Eurodollar Rate *plus* 1.00%, subject to the interest rate floors set forth therein; *provided* that if the Base Rate shall be less than 2.00%, such rate shall be deemed 2.00% for purposes of this Agreement. Any announced change in the Prime Rate shall take effect at the opening of business on the day specified in the public announcement of such change. If the Base Rate is being used as an alternate rate of interest pursuant to Section 3.03 hereof, then the Base Rate shall be the greater of clauses (a) and (b) above and shall be determined without reference to clause (c) above.

“Base Rate Loan” means a Loan that bears interest based on the Base Rate.

“Beneficial Ownership Certification” means a certification regarding beneficial ownership required by the Beneficial Ownership Regulation.

“Beneficial Ownership Regulation” means 31 C.F.R. § 1010.230.

“Bona Fide Debt Fund” means any debt fund that is an Affiliate of any Competitor or Competitor Controller that is primarily engaged in, or advises funds that are primarily engaged in, making, purchasing, or holding commercial loans, notes and similar extensions of credit or securities in the ordinary course of its business, but only to the extent that no personnel involved therewith (A) makes (or has the right to make or participate with others in making) investment decisions on behalf of, or otherwise cause the direction of the investment policies of, such Competitor or Competitor Controller or (B) has access to any information (other than information that is publicly available) relating to the Borrower or its Restricted Subsidiaries and/or any entity that forms part of any of their respective businesses (including any of their respective subsidiaries).

“Borrower” has the meaning specified in the introductory paragraph hereto.

“Borrower Investment Policy” means the investment policy of the Borrower and its Subsidiaries as in effect on the Closing Date and any amendments, modifications or supplements thereto following the Closing Date that are (1) approved and duly adopted by the board of directors (or other governing body) and (2) agreed to by the Lender Representative in its reasonable discretion.

“Borrower Materials” has the meaning specified in Section 6.02.

“Borrowing” means a borrowing consisting of simultaneous Loans of the same Type and, in the case of Eurodollar Rate Loans, having the same Interest Period made by each of the Lenders pursuant to Section 2.01.

“Business Day” means any day other than a Saturday, Sunday or other day on which commercial banks are authorized to close under the Laws of, or are in fact closed in, the state where the Administrative Agent’s Office is located.

“Cash Collateralize” means to pledge and deposit with or deliver to the Administrative Agent, for the benefit of the Secured Parties, as collateral for the Obligations, cash, Cash Equivalents or deposit account balances or, if the Lender Representative shall agree in its sole discretion, other credit support, in each case, pursuant to documentation in form and substance reasonably satisfactory to the Lender Representative. “Cash Collateral” shall have a meaning correlative to the foregoing and shall include the proceeds of such cash collateral and other credit support.

“Cash Equivalents” means any of the following types of Investments, to the extent owned by the Borrower or any of its Restricted Subsidiaries free and clear of all Liens (other than Permitted Liens):

(a) (i) readily marketable obligations issued or directly and fully guaranteed or insured by the United States or any agency or instrumentality thereof having maturities of not more than three hundred sixty-five (365) days from the date of acquisition thereof; *provided* that the full faith and credit of the United States is pledged in support thereof and (ii) readily marketable direct obligations issued by any state, commonwealth or territory of the United States of America or political subdivision or taxing authority thereof that is rated AAA by S&P and Aaa by Moody’s maturing within one year from the date of acquisition thereof;

(b) time deposits with, or insured certificates of deposit or bankers’ acceptances of, any commercial bank that (i) (A) is a Lender or (B) is organized under the laws of the United States, any state thereof or the District of Columbia or is the principal banking subsidiary of a bank holding company organized under the laws of the United States, any state thereof or the District of Columbia, and is a member of the Federal Reserve System, (ii) issues (or the parent of which issues) commercial paper rated as described in clause (c) of this definition and (iii) has combined capital and surplus of at least \$500,000,000, in each case with maturities of not more than three hundred sixty-five (365) days from the date of acquisition thereof;

(c) commercial paper issued by a corporation or other Person rated at least “A-2” or “P-2” or the equivalent thereof by Moody’s or S&P or Fitch (or, if at any time neither Moody’s nor S&P shall be rating such obligations, an equivalent rating from another nationally recognized statistical rating agency selected by the Lender Representative) and in each case maturing within three hundred sixty-five (365) days from the date of acquisition thereof;

(d) marketable short-term money market and similar highly liquid securities having a rating of at least P-2 or A-2 from either Moody’s or S&P, respectively (or, if at any time neither Moody’s nor S&P shall be rating such obligations, an equivalent rating from another nationally recognized statistical rating agency selected by the Lender Representative) and in each case maturing within three hundred sixty-five (365) days from the date of acquisition thereof;

(e) solely with respect to Foreign Subsidiaries that are Restricted Subsidiaries, investments of the type and maturities described in clauses (a) through (d) above, issued where relevant, by any commercial bank of recognized international standing chartered in the country where such Foreign Subsidiary is domiciled having unimpaired capital and surplus of at least \$1,000,000,000, *provided* such country is a member of the Organization for Economic Cooperation and Development, and such bank maintains a short-term commercial paper rating of at least P-1 or A-1 from either Moody’s or S&P, respectively (or, if at any time neither Moody’s nor S&P shall be rating such obligations, an equivalent rating from another nationally recognized statistical rating agency selected by the Lender Representative);

(f) (i) Dollars, Euros, Pounds Sterling, Swiss Francs, Canadian dollars or any national currency of any member state of the European Union or (ii) any other foreign currency held by the Borrower or any of its Subsidiaries in the ordinary course of business;

(g) Investments, classified in accordance with GAAP as current assets of the Borrower or any of its Restricted Subsidiaries, in money market investment programs registered under the Investment Company Act of 1940, which are administered by financial institutions that have the highest rating obtainable from either Moody's or S&P, and the portfolios of which are limited solely to Investments of the character, quality and maturity described in clauses (a) through (f) of this definition; and

(h) Investments made pursuant to the Borrower Investment Policy.

"Cash Interest" has the meaning specified in Section 2.06(a)(i).

"CERCLA" means the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

"Change in Law" means the occurrence, after the Closing Date, of any of the following: (a) the adoption or taking effect of any law, rule, regulation or treaty, (b) any change in any law, rule, regulation or treaty or in the administration, interpretation, implementation or application thereof by any Governmental Authority or (c) the making or issuance of any request, rule, guideline or directive (whether or not having the force of law) by any Governmental Authority; *provided* that notwithstanding anything herein to the contrary, (i) the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, guidelines or directives thereunder or issued in connection therewith or in the implementation thereof and (ii) all requests, rules, guidelines or directives promulgated by the Bank for International Settlements, the Basel Committee on Banking Supervision (or any successor or similar authority) or the United States or foreign regulatory authorities, in each case pursuant to Basel III, shall in each case be deemed to be a "Change in Law", regardless of the date enacted, adopted, issued or implemented.

"Change of Control" means an event or series of events by which any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, but excluding any employee benefit plan of such person or its subsidiaries, and any person or entity acting in its capacity as trustee, agent or other fiduciary or administrator of any such plan) becomes the "beneficial owner" (as defined in Rules 13d-3 and 13d-5 under the Securities Exchange Act of 1934), directly or indirectly, of 35% or more of the equity securities of the Borrower entitled to vote for members of the board of directors or equivalent governing body of the Borrower on a fully-diluted basis. Notwithstanding anything to the contrary in this definition or any provision of Section 13d-3 of the Securities Exchange Act of 1934, any person or group shall not be deemed to beneficially own Equity Interests to be acquired by such person or group pursuant to a stock or asset purchase agreement, merger agreement, option agreement, warrant agreement or similar agreement (or voting or option or similar agreement related thereto) until the consummation of the acquisition of the Equity Interests in connection with the transactions contemplated by such agreement.

"Closing Date" means the date hereof.

"Code" means the Internal Revenue Code of 1986.

"Collateral" means all of the "Collateral" and "Mortgaged Property" referred to in the Collateral Documents and all of the other property that is or is intended under the terms of the Collateral Documents to be subject to Liens in favor of the Administrative Agent for the benefit of the Secured Parties in order to

secure the Obligations. Notwithstanding anything to the contrary, the Collateral shall not include any Excluded Property.

“Collateral Documents” means, collectively, the Security Agreement, the Mortgages, any related Mortgaged Property Support Documents, the Qualifying Control Agreements, each Joinder Agreement, each of the collateral assignments, security agreements, pledge agreements, account control agreements or other similar agreements delivered to the Administrative Agent pursuant to Section 6.14, and each of the other agreements, instruments or documents that creates or purports to create a Lien in favor of the Administrative Agent for the benefit of the Secured Parties.

“Commitment” means, with respect to a Lender, such Lender’s Tranche 1 Commitment, Tranche 2 Commitment or Tranche 3 Commitment, as the context may require.

“Commitment Termination Event” means the occurrence of any of the following (i) the termination of the Aggregate Commitments pursuant to an Early Refinancing, (ii) the termination of the Aggregate Commitments pursuant to Article VIII or (iii) the termination of the Aggregate Commitments pursuant to Section 2.04(c).

“Commodity Exchange Act” means the Commodity Exchange Act (7 U.S.C. § 1 *et seq.*), as amended from time to time, and any successor statute.

“Competitor” means any Person that competes with the business of the Borrower and its Restricted Subsidiaries from time to time.

“Competitor Controller” means any Person (excluding any Bona Fide Debt Fund) that is a direct or indirect holding company of a Competitor or an Affiliate of a Competitor that is controlled by such Competitor.

“Compliance Certificate” means a certificate substantially in the form of Exhibit C.

“Connection Income Taxes” means Other Connection Taxes that are imposed on or measured by net income (however denominated) or that are franchise Taxes or branch profits Taxes.

“Consolidated” means, when used with reference to financial statements or financial statement items of the Borrower and its Restricted Subsidiaries or any other Person, such statements or items on a consolidated basis in accordance with the consolidation principles of GAAP.

“Consolidated EBITDA” means, at any date of determination, an amount equal to net income of the Borrower and its Restricted Subsidiaries on a Consolidated basis for the most recently completed Measurement Period plus (a) the following to the extent deducted in calculating such net income: (i) Consolidated interest charges, (ii) the provision for Federal, state, local and foreign income taxes, (iii) depreciation and amortization expense, (iv) compensation paid to employees in the form of common stock, (v) one-time nonrecurring transaction fees, costs and expenses, integration, reorganization and restructuring costs and facility consolidation and closing costs incurred in connection with reorganizations, restructurings and Investments (including, the incurrence of Indebtedness in connection therewith) and Dispositions not otherwise prohibited hereunder, *provided* that such fees, costs and expenses (A) are incurred within twelve (12) months of the occurrence of such applicable triggering event and (B) the aggregate amount of such fees, costs and expenses added back pursuant to this clause (v) shall not exceed 20% of Consolidated EBITDA for any Measurement Period (prior to giving effect to such adjustments), (vi) one-time non-recurring severance costs and expenses, payments to employees on account of their equity ownership and one-time compensation charges incurred in connection with reorganizations, restructurings and Investments

(including, the incurrence of Indebtedness in connection therewith) and Dispositions not otherwise prohibited hereunder, *provided* that such costs, expenses and payments (A) are incurred within eighteen (18) months of the occurrence of such applicable triggering event and (B) the aggregate amount of such costs, expenses and payments added back pursuant to this clause (vi) shall not exceed 10% of Consolidated EBITDA for any Measurement Period (prior to giving effect to such adjustments), (vii) fees, costs and other expenses incurred in connection with the Transactions, (viii) the effects of adjustments pursuant to GAAP resulting from purchase accounting in relation to Investments not prohibited by this Agreement, or the amortization or write-off of any amounts thereof, net of taxes, in each case, which do not represent a cash item in such period or any future period, (ix) gains or losses associated with the revaluation of earnouts, milestones or other similar contingent obligations incurred in connection with the Transaction or any other Investment not prohibited by this Agreement (including upfront, earnout or milestone payments), (x) one-time non-recurring up-front and milestone payments payable under research and development licensing agreements, collaboration agreements or development agreements relating to uncommercialized product candidates, (xi) other non-recurring expenses reducing such Consolidated Net Income which do not represent a cash item in such period or any future period (in each case of or by the Borrower and its Restricted Subsidiaries for such Measurement Period), and (xii) such other costs, expenses and adjustments related to the Transaction or other Investments not prohibited by this Agreement as the Lender Representative shall approve, in its reasonable discretion, and minus (b) the following to the extent included in calculating such Consolidated Net Income (i) all non-cash gains increasing Consolidated Net Income (in each case of or by the Borrower and its Restricted Subsidiaries for such Measurement Period), (ii) all interest income for such period, (iii) all Tax benefits for such period to the extent not netted in determining the amount for clause (a)(ii) above, (iii) one-time, nonrecurring gains for such period, (iv) non-cash purchase accounting adjustments and (v) amounts received in respect of upfront, earnout or milestone payments or other similar contingent amounts in connection with any Disposition.

“Consolidated Net Income” means, with respect to any Person for any period, the aggregate of the net income of such Person and its Restricted Subsidiaries calculated in accordance with GAAP for such period, on a Consolidated basis.

“Consolidated Total Assets” means, at any date, total assets of the Borrower and its Restricted Subsidiaries calculated in accordance with GAAP on a Consolidated basis as of such date, determined on a Pro Forma Basis.

“Contractual Obligation” means, as to any Person, any provision of any security issued by such Person or of any enforceable agreement, instrument or other undertaking to which such Person is a party or by which it or any of its property is bound.

“Control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a Person, whether through the ability to exercise voting power, by contract or otherwise. “Controlling” and “Controlled” have meanings correlative thereto.

“Covered Entity” means any of the following: (a) a “covered entity” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b); (b) a “covered bank” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or (c) a “covered FSI” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).

“Cumulative Credit” means:

- (a) The sum of (without duplication):

(i) the greater of (A) \$0 and (B) 50% of the Consolidated Net Income of the Borrower for the period (taken as one accounting period) from the Closing Date to the end of the most recently ended Measurement Period prior to any time of determination (or, in the case such Consolidated Net Income for such period is a deficit, minus 100% of such deficit), *plus*

(ii) 100% of the aggregate net cash proceeds received by the Borrower from capital contributions or the issuance of Equity Interests after the Closing Date (other than Disqualified Equity Interests and to the extent not otherwise applied), *plus*

(iii) 100% of the principal amount of any Indebtedness which has been converted into or exchanged for Equity Interests in the Borrower (other than Disqualified Equity Interests), *plus*

(iv) 100% of the aggregate amount received by the Borrower or any Restricted Subsidiary in cash from (i) the sale (other than to the Borrower or a Restricted Subsidiary) of the Equity Interests of an Unrestricted Subsidiary or (ii) a distribution or dividend from an Unrestricted Subsidiary, *plus*

(v) in the event any Unrestricted Subsidiary has been redesignated as a Restricted Subsidiary or has been merged, consolidated or amalgamated with or into, or transfers or conveys its assets to, or is liquidated into, the Borrower or a Restricted Subsidiary, the fair market value (as determined in good faith by the Borrower) of the Investment of the Borrower or the Restricted Subsidiaries in such Unrestricted Subsidiary at the time of such redesignation, combination or transfer (or of the assets transferred or conveyed, as applicable); *minus*

(b) the amount of any usage of such Cumulative Credit pursuant to Section 7.03(aa), Section 7.06(l) and Section 7.14(c), in each case, prior to such date.

“Cumulative Credit Conditions” means, prior to and after giving effect to any usage of the Cumulative Credit, (a) no Event of Default shall have occurred and be continuing, (b) the Borrower shall be in compliance with the financial covenant set forth in Section 7.11 on a Pro Forma Basis and (c) solely with respect to Restricted Payments made pursuant to Section 7.06(f) and prepayments of Subordinated Debt or Permitted Convertible Debt made pursuant to Section 7.14(c), the Total Leverage Ratio, as of the end of the most recently completed Measurement Period, shall be less than or equal to 3.50 to 1.0 on a Pro Forma Basis.

“Debt Issuance” means the issuance by the Borrower or any Restricted Subsidiary of any Indebtedness other than Indebtedness permitted hereunder.

“Debtor Relief Laws” means the Bankruptcy Code of the United States, and all other liquidation, conservatorship, bankruptcy, assignment for the benefit of creditors, moratorium, rearrangement, receivership, insolvency, reorganization, or similar debtor relief Laws of the United States or other applicable jurisdictions from time to time in effect.

“Deemed Loan” means, with respect to any Commitment terminated as a result of a Commitment Termination Event, a Loan in a principal amount equal to the principal amount of such Commitment (immediately prior to being terminated) and deemed to be funded on the Applicable Measurement Date.

“Default” means any event or condition that constitutes an Event of Default or that, with the giving of any notice, the passage of time, or both, would be an Event of Default.

“Default Rate” means (a) with respect to any Obligation for which a rate is specified, a rate per annum equal to two percent (2%) in excess of the rate otherwise applicable thereto and (b) with respect to any Obligation for which a rate is not specified or available, a rate per annum equal to the Base Rate *plus* the Applicable Rate for Base Rate Loans *plus* two percent (2%), in each case, to the fullest extent permitted by Applicable Law.

“Defaulting Lender” means, subject to Section 2.12(b), any Lender that (a) has failed to (i) fund all or any portion of its Loans within two (2) Business Days of the date such Loans were required to be funded hereunder unless such Lender notifies the Administrative Agent and the Borrower in writing that such failure is the result of such Lender’s determination that one or more conditions precedent to funding (each of which conditions precedent, together with any applicable default, shall be specifically identified in such writing) has not been satisfied, or (ii) pay to the Administrative Agent or any other Lender any other amount required to be paid by it hereunder within two (2) Business Days of the date when due, (b) has notified the Borrower or the Administrative Agent in writing that it does not intend to comply with its funding obligations hereunder, or has made a public statement to that effect (unless such writing or public statement relates to such Lender’s obligation to fund a Loan hereunder and states that such position is based on such Lender’s determination that a condition precedent to funding (which condition precedent, together with any applicable default, shall be specifically identified in such writing or public statement) cannot be satisfied), (c) has failed, within three (3) Business Days after written request by the Administrative Agent, the Lender Representative or the Borrower, to confirm in writing to the Administrative Agent, the Lender Representative and the Borrower that it will comply with its prospective funding obligations hereunder (*provided* that such Lender shall cease to be a Defaulting Lender pursuant to this clause (c) upon receipt of such written confirmation by the Administrative Agent, the Lender Representative and the Borrower), or (d) has, or has a direct or indirect parent company that has, (i) become the subject of a proceeding under any Debtor Relief Law, (ii) had appointed for it a receiver, custodian, conservator, trustee, administrator, assignee for the benefit of creditors or similar Person charged with reorganization or liquidation of its business or assets, including the Federal Deposit Insurance Corporation or any other state or federal regulatory authority acting in such a capacity or (iii) become the subject of a Bail-In Action; *provided* that a Lender shall not be a Defaulting Lender solely by virtue of the ownership or acquisition of any Equity Interest in that Lender or any direct or indirect parent company thereof by a Governmental Authority so long as such ownership interest does not result in or provide such Lender with immunity from the jurisdiction of courts within the United States or from the enforcement of judgments or writs of attachment on its assets or permit such Lender (or such Governmental Authority) to reject, repudiate, disavow or disaffirm any contracts or agreements made with such Lender. Any determination by the Administrative Agent or the Lender Representative that a Lender is a Defaulting Lender under any one or more of clauses (a) through (d) above, and the effective date of such status, shall be conclusive and binding absent manifest error, and such Lender shall be deemed to be a Defaulting Lender (subject to Section 2.12(b)) as of the date established therefor by the Administrative Agent or the Lender Representative in a written notice of such determination, which shall be delivered by the Administrative Agent, the Lender Representative to the Borrower and each other Lender promptly following such determination.

“Designated Jurisdiction” means any country or territory to the extent that such country or territory is the subject of any Sanction.

“Designated Non-Cash Consideration” means the fair market value (as determined by the Borrower in good faith) of non-cash consideration received by the Loan Parties and their Subsidiaries in connection with a Disposition pursuant to Section 7.05(j) that is designated as Designated Non-Cash Consideration pursuant to a certificate of a Responsible Officer, setting forth the basis of such valuation

(which amount will be reduced by the amount of cash or Cash Equivalents received in connection with a subsequent sale or conversion of such Designated Non-Cash Consideration to cash or Cash Equivalents).

“Disposition” or “Dispose” means the sale, transfer, license, lease or other disposition (including any Sale/Leaseback Transaction) of any property by any Loan Party that constitutes Collateral, including any sale, assignment, transfer or other disposal, with or without recourse, of any notes, accounts receivable, royalties, milestones, other payments or any rights and claims associated therewith (whether in connection with a Permitted Financing Transaction, any Disposition consummated in connection with Permitted Licenses or otherwise).

“Disputes” has the meaning specified in Section 5.23(d).

“Disqualified Equity Interests” means any Equity Interest that, by its terms (or by the terms of any security or other Equity Interest(s) into which it is convertible or for which it is exchangeable), or upon the happening of any event or condition, (a) matures or is mandatorily redeemable, pursuant to a sinking fund obligation or otherwise (except (i) as a result of a change of control, fundamental change, asset sale or (ii) upon the prior repayment of the Loans and all other Obligations that are accrued and payable and the termination of the Aggregate Commitments), (b) is or becomes redeemable at the option of the holder thereof, in whole or in part (except (i) as a result of a change of control, fundamental change, asset sale or (ii) upon the prior repayment of the Loans and all other Obligations that are accrued and payable and the termination of the Aggregate Commitments), (c) is or becomes convertible into or exchangeable for (i) Indebtedness or (ii) any other Equity Interests that would constitute Disqualified Equity Interests or (d) provides for the scheduled payments of dividends in cash, in each case of clauses (a) through (d), in each case, prior to the date that is 91 days after the Maturity Date; *provided* that, if such Equity Interests is issued pursuant to any plan for the benefit of any employee, director, manager or consultant of the Borrower or its Restricted Subsidiaries or by any such plan to such employee, director, manager or consultant, such Equity Interests shall not constitute Disqualified Equity Interests because it may be required to be repurchased by the Borrower or its Restricted Subsidiaries in order to satisfy applicable statutory or regulatory obligations or as a result of the termination, death or disability of such employee, director, manager or consultant.

“Disqualified Institution” means (a) those banks, financial institutions and other persons that have been specified to the Administrative Agent and the Lender Representative by the Borrower in writing at any time prior to the Closing Date, which list described in this clause (a) may be updated from time to time with the prior written consent of the Lender Representative after the Closing Date (such list, the “Disqualified Lender List”), (b) any Competitor or Competitor Controller that has been identified to the Administrative Agent and the Lender Representative by the Borrower in writing at any time prior to the Closing Date (which list may be provided to the Lenders upon their request), which list described in this clause (b) may be updated from time to time by written notice to the Administrative Agent and the Lender Representative after the Closing Date (such list, the “Competitors List” and together with the Disqualified Lender List, the “Disqualified Institutions List”); *provided* that no addition to the Disqualified Institutions List shall apply retroactively to disqualify any party (i) that has previously acquired an assignment or participation interest or (ii) is party to a permitted pending trade as of the date of identification, and which in any event, such addition shall not become effective until two Business Days after such date identified by name in writing by the Borrower to the Administrative Agent and the Lender Representative and (c) any Person that is an Affiliate of the Persons described in clauses (a) and (b) (excluding Bona Fide Debt Fund) that is (i) identified in writing to the Administrative Agent and the Lender Representative from time to time (which addition shall not apply retroactively to disqualify any party (1) that has previously acquired an assignment or participation interest or (2) is party to a permitted pending trade as of the date of such identification, and which in any event, such addition shall not become effective until two Business Days after such date identified by name in writing by the Borrower to the Administrative Agent and the Lender Representative) or (ii) readily identifiable as an Affiliate of such Persons solely on the basis of such Person’s name. For the

avoidance of doubt, no Affiliate of The Blackstone Group L.P. that operates as a fund or account (or manager or adviser to a fund or account) within the credit division of The Blackstone Group L.P. shall be considered a Disqualified Institution.

“Dollar” and “\$” mean lawful money of the United States.

“Domestic Subsidiary” means any Subsidiary that is organized under the laws of the United States, any state thereof or the District of Columbia.

“Early Refinancing” means, on any date prior to the Maturity Date, the optional repayment, repurchase or other discharge in full of all Loans outstanding hereunder on such date, the payment in full of all other Obligations outstanding on such date (other than contingent indemnification obligations for which no claim has been made) and the termination of the Aggregate Commitments.

“EEA Financial Institution” means (a) any credit institution or investment firm established in any EEA Member Country which is subject to the supervision of an EEA Resolution Authority, (b) any entity established in an EEA Member Country which is a parent of an institution described in clause (a) of this definition, or (c) any financial institution established in an EEA Member Country which is a Subsidiary of an institution described in clauses (a) or (b) of this definition and is subject to consolidated supervision with its parent.

“EEA Member Country” means any of the member states of the European Union, Iceland, Liechtenstein, and Norway.

“EEA Resolution Authority” means any public administrative authority or any Person entrusted with public administrative authority of any EEA Member Country (including any delegee) having responsibility for the resolution of any EEA Financial Institution.

“Eligible Assignee” means any Person that meets the requirements to be an assignee under Section 11.06 (subject to such consents, if any, as may be required under Section 11.06(b)(iii)).

“Environment” means ambient air, indoor air, vapor, surface water, groundwater, drinking water, soil, surface and subsurface strata, and natural resources such as wetland, flora and fauna.

“Environmental Claim” means any written notice, claim, demand, litigation, request for information, complaint, citation, summons, investigation, notice of non-compliance or violation, cause of action, consent order, consent decree, or other proceeding by any Governmental Authority or any other Person, arising out of, based on or pursuant to any Environmental Law or related in any way to any actual, alleged or threatened Environmental Liability.

“Environmental Laws” means any and all federal, state, local, and foreign statutes, laws (including common law), regulations, standards, ordinances, rules, judgments, orders, decrees, permits, agreements or governmental restrictions relating to pollution or the protection of the Environment or human health (to the extent related to exposure to hazardous materials), including those relating to the handling, use, manufacture, registration, distribution, formulation, packaging, labeling, generation transport, storage, disposal, treatment, Release or threat of Release of or exposure to any Hazardous Materials.

“Environmental Liability” means any liability, contingent or otherwise (including any liability for damages, costs of environmental remediation, fines, penalties or indemnities), obligation, responsibility or cost whether based in contract, tort, implied or express warranty, strict liability, criminal or civil statute or common law relating to (a) any violation of, or liability under, Environmental Law, (b) the presence,

generation, use, handling, transportation, storage, treatment, packaging, labelling or disposal of any Hazardous Materials, (c) exposure to any Hazardous Materials, (d) Release of any Hazardous Materials, (e) natural resource damage, or (f) any contract, agreement or other consensual arrangement pursuant to which liability is assumed or imposed with respect to any of the foregoing.

“Environmental Permit” means any permit, certification, registration, approval, identification number, license or other authorization required under any Environmental Law.

“Equity Interests” means, with respect to any Person, all of the shares of capital stock of (or other ownership or profit interests in) such Person, all of the warrants, options or other rights for the purchase or acquisition from such Person of shares of capital stock of (or other ownership or profit interests in) such Person, all of the securities convertible into or exchangeable for shares of capital stock of (or other ownership or profit interests in) such Person or warrants, rights or options for the purchase or acquisition from such Person of such shares (or such other interests), and all of the other ownership or profit interests in such Person (including partnership, member or trust interests therein), whether voting or nonvoting, and whether or not such shares, warrants, options, rights or other interests are outstanding on any date of determination; *provided that* Permitted Convertible Debt shall not be considered an “Equity Interest”.

“ERISA” means the Employee Retirement Income Security Act of 1974, as amended, and the rules and regulations promulgated thereunder.

“ERISA Affiliate” means any trade or business (whether or not incorporated) under common control with the Borrower within the meaning of Sections 414(b) or (c) of the Code (and Sections 414(m) and (o) of the Code for purposes of provisions relating to Section 412 of the Code).

“ERISA Event” means (a) a Reportable Event with respect to a Pension Plan; (b) the withdrawal of the Borrower or any ERISA Affiliate from a Pension Plan subject to Section 4063 of ERISA during a plan year in which such entity was a “substantial employer” as defined in Section 4001(a)(2) of ERISA or a cessation of operations that is treated as such a withdrawal under Section 4062(e) of ERISA; (c) a complete or partial withdrawal by the Borrower or any ERISA Affiliate from a Multiemployer Plan; (d) the filing of a notice of intent to terminate, the treatment of a Pension Plan amendment as a termination under Section 4041 or 4041A of ERISA; (e) the institution by the PBGC of proceedings to terminate a Pension Plan; (f) any event or condition which constitutes grounds under Section 4042 of ERISA for the termination of, or the appointment of a trustee to administer, any Pension Plan; (g) the determination that any Pension Plan is considered an at-risk plan or a plan in endangered or critical status within the meaning of Sections 430, 431 and 432 of the Code or Sections 303, 304 and 305 of ERISA; (h) the imposition of any liability under Title IV of ERISA, other than for PBGC premiums due but not delinquent under Section 4007 of ERISA, upon the Borrower or any ERISA Affiliate or (i) a failure by the Borrower or any ERISA Affiliate to meet all applicable requirements under the Pension Funding Rules in respect of a Pension Plan, whether or not waived, or the failure by the Borrower or any ERISA Affiliate to make any required contribution to a Multiemployer Plan.

“EU Bail-In Legislation Schedule” means the EU Bail-In Legislation Schedule published by the Loan Market Association (or any successor person), as in effect from time to time.

“Eurodollar Rate” means:

(a) for any Interest Period with respect to a Eurodollar Rate Loan, the rate per annum equal to the London Interbank Offered Rate as administered by ICE Benchmark Administration (or any other Person that takes over the administration of such rate for U.S. Dollars for a period equal in length to such Interest Period) (“LIBOR”), as published on the applicable Bloomberg screen page

(or such other commercially available source providing such quotations as may be designated by the Administrative Agent from time to time) (in such case, the “LIBOR Rate”) at or about 11:00 a.m., London time, two (2) London Banking Days prior to the commencement of such Interest Period, for Dollar deposits (for delivery on the first day of such Interest Period) with a term equivalent to such Interest Period; and

(b) for any interest calculation with respect to a Base Rate Loan on any date, the rate per annum equal to the LIBOR Rate, at or about 11:00 a.m., London time, two (2) London Banking Days prior to such date for Dollar deposits with a term of one (1) month commencing that day.

Notwithstanding the foregoing, for purposes of this Agreement, the Eurodollar Rate shall in no event be less than 1.00% at any time.

“Eurodollar Rate Loan” means a Loan that bears interest at a rate based on clause (a) of the definition of “Eurodollar Rate”.

“Event of Default” has the meaning specified in Section 8.01.

“Excluded Account” means any of the following: (a) accounts exclusively used for payroll, payroll Taxes and other employee wage and benefit payments to or for the benefit of any Loan Party’s employees, (b) zero balance accounts, (c) accounts (including trust accounts) used exclusively for third party escrow, customs, insurance, deposits or fiduciary purposes, (d) merchant accounts for which the obligations were incurred in the ordinary course of business, (e) accounts used exclusively for compliance with any (i) Applicable Law to the extent such Applicable Law prohibits the granting of a Lien thereon or (ii) Contractual Obligation (including any Permitted Receivables Financing or Permitted Royalty Financing) to the extent such Contractual Obligation prohibits the granting of a Lien thereon (other than Liens in favor of a counterparty to such Contractual Obligation), (f) accounts which constitute cash collateral in respect of a Permitted Lien, and (g) other accounts, the average cash balance of which such accounts over the most recently ended 30 day period does not exceed \$15,000,000 in the aggregate at any time.

“Excluded Property” means, with respect to any Loan Party (a) any leased or subleased real property and the last day of any term of any lease of real property, (b) any owned real property which is not Material Real Property, (c) all IP Rights other than the IP Collateral, (d) motor vehicles and other assets subject to certificates of title, (e) all RPA Assets, (f) any commercial tort claim, (g) assets for which a pledge thereof or a security interest therein is prohibited by Applicable Laws after giving effect to the applicable anti-assignment provisions of the UCC and other Applicable law (including any requirement to obtain the consent of any Governmental Authority or third person, unless such consent has been obtained) other than to the extent that any such prohibition would be rendered ineffective pursuant to the UCC or any other Applicable Law, (h) any lease, license or other agreements, or any goods or other property subject to a purchase money security interest, Finance Lease or similar arrangements, in each case to the extent permitted under the Loan Documents, to the extent that a pledge thereof or a security interest therein would violate or invalidate such lease, license or agreement, purchase money, Finance Lease or similar arrangement, or create a right of termination in favor of any other party thereto (other than the Borrower and its Restricted Subsidiaries) after giving effect to the applicable anti-assignment clauses of the UCC, Applicable Laws or principles of equity, other than the proceeds thereof the assignment of which is expressly deemed effective under Applicable Laws notwithstanding such prohibition, (i) any intent-to-use United States trademark application for which neither (i) an amendment to allege use to bring the application into conformity with 15 U.S.C. §1051(c) has been filed with and accepted by the USPTO nor (ii) a verified statement of use under 15 U.S.C. §1051(d) has been filed with and accepted by the USPTO, (j) letter of credit rights, (k) receivables and related documentation (or interests therein), including those pledged, factored, transferred or sold under any Permitted Receivables Financing, (l) assets, for which a

pledge thereof or a security interest therein is prohibited by any contract binding on such assets, or would result in material adverse financial, tax, regulatory or accounting consequences, as reasonably determined in good faith by the Borrower; *provided*, that (i) any such limitation described in this clause (l) shall only apply to the extent that any such prohibition could not be rendered ineffective pursuant to the UCC or any other Applicable Law or principles of equity and shall not apply to any proceeds or receivables thereof, the assignment of which is expressly deemed effective under the UCC notwithstanding such prohibition and (ii) in the event of the termination or elimination of any such prohibition contained in the UCC or any Applicable Law, a security interest in such assets shall be automatically and simultaneously granted under the applicable Collateral Documents and shall be included as Collateral, (m) any governmental licenses (but not the proceeds thereof) or state or local franchises, charters and authorizations, to the extent security interests in favor of the Administrative Agent in such licenses, franchises, charters or authorizations are prohibited or restricted thereby; *provided* that (i) any such limitation described in this clause (m) on the security interests granted shall only apply to the extent that any such prohibition or restriction could not be rendered ineffective pursuant to the UCC of any applicable jurisdiction or any other Applicable Law or principles of equity and shall not apply to any proceeds or receivables thereof, the assignment of which is expressly deemed effective under the UCC notwithstanding such prohibition and (ii) in the event of the termination or elimination of any such prohibition or restriction contained in any applicable license, franchise, charter or authorization, a security interest in such licenses, franchises, charters or authorizations shall be automatically and simultaneously granted under the applicable Collateral Documents and such licenses, franchises, charters or authorizations shall be included as Collateral, (n) Equity Interests in (A) any Person (other than the Borrower and wholly owned Restricted Subsidiaries of the Borrower) to the extent and for so long as the pledge thereof in favor of the Administrative Agent is not permitted by the terms of such Person's joint venture agreement or other applicable Organization Documents; *provided*, that such prohibition exists on the Closing Date or at the time such Equity Interests are acquired (so long as such prohibition did not arise in contemplation of the Closing Date or such acquisition), (B) any not-for-profit Subsidiary, (C) any captive insurance Subsidiary, (D) any special purpose securitization vehicle (or similar entity) and any special purpose vehicle with respect to a Permitted Financing Transaction and (E) any Unrestricted Subsidiary, (o) margin stock within the meaning of Section 5.13, (p) Excluded Accounts, (q) Inventory, (r) Accounts, (s) General Intangibles, (t) those assets as to which the Lender Representative and the Borrower reasonably agree that the cost of obtaining such a security interest or perfection thereof are excessive in relation to the benefit to the Lenders of the security to be afforded thereby, (u) assets secured by a Lien permitted pursuant to Section 7.01(o), and (v) the Equity Interests of any Foreign Subsidiary or Foreign Subsidiary Holdco of any Loan Party to the extent a pledge of such Equity Interests would cause actual or anticipated material adverse tax consequences to any Loan Party (in the Borrower's reasonable determination from time to time); *provided* that the Collateral shall at all times include (and "Excluded Property" shall not include) (i) all proceeds arising from the sale or transfer of any of the foregoing Excluded Property to the extent such proceeds do not otherwise constitute Excluded Property and (ii) except with respect to clauses (a), (c), (e), (g), (h), (i), (k), (m), (n), (p), (t), and (v) above, any of the following items solely to the extent such items pertain to, arise from, are collected on, are distributed on account of or are given in exchange for or in settlement of any Collateral: (1) Accounts, (2) Chattel Paper (including Electronic Chattel Paper and Tangible Chattel Paper), (3) Commercial Tort Claims, (4) Documents, (5) General Intangibles, (6) Instruments, (7) Letter-of-Credit Rights and (8) insurance and insurance claim (it being understood that the foregoing items (1) through (7) shall have the meanings set forth in the UCC).

"Excluded Subsidiary" means any of the following, (a) each Immaterial Subsidiary, (b) each Subsidiary that is not a wholly-owned Subsidiary (for so long as such Subsidiary is not a wholly-owned Subsidiary), (c) each Subsidiary that is prohibited from Guaranteeing or granting Liens to secure the applicable Obligations by any Applicable Law or that would require consent, approval, license or authorization of a Governmental Authority to Guarantee or grant Liens to secure the Obligations (unless (x) such consent, approval, license or authorization has been received or (y) such prohibition or restriction is

terminated or rendered unenforceable or otherwise deemed ineffective by any other applicable Law), (d) each Subsidiary that is prohibited by any Contractual Obligation (i) in effect on the Closing Date and set forth on Schedule 1.01(e) from Guaranteeing or granting Liens to secure the Obligations on the Closing Date or (ii) at the time such Subsidiary becomes a Subsidiary (in each case, for so long (x) as such restriction or any replacement or renewal thereof is in effect or (y) such prohibition or restriction is not terminated or rendered unenforceable or otherwise deemed ineffective by any applicable Law), (e) each Foreign Subsidiary and Foreign Subsidiary Holdco (and any direct or indirect Subsidiary thereof), (f) any “Security Corporation” as defined in 830 Code of Mass. Regulations 63.38B.1, including Alnylam Securities Corporation so long as it continues to qualify as such, (g) each Unrestricted Subsidiary, (h) not-for-profit subsidiaries, (i) Subsidiaries that are special purpose entities, (j) any subsidiary formed for the purposes of consummating, or party to, a Permitted Financing Transaction, (k) captive insurance subsidiaries and (l) any other Subsidiary with respect to which the Lender Representative and the Borrower reasonably agree that the cost or other consequences (including adverse tax consequences and adverse regulatory consequences) of providing a Guarantee of or granting Liens to secure the Obligations are likely to be excessive in relation to the value to be afforded thereby; *provided* that, notwithstanding the above, the Borrower may, with the consent of the Lender Representative (such consent not to be unreasonably withheld, conditioned or delayed), designate as a “Guarantor” any Foreign Subsidiary that is a wholly-owned Restricted Subsidiary (an “Additional Foreign Guarantor”) and cause such Additional Foreign Guarantor to guarantee the Obligations and to grant a perfected lien on substantially all of its assets in favor of the Administrative Agent for the benefit of the Secured Parties pursuant to arrangements and documentation in form and substance reasonably satisfactory to the Lender Representative and subject to customary limitations in such jurisdiction to be reasonably agreed to between the Lender Representative and the Borrower (it being understood that (1) notwithstanding anything to the contrary herein, such arrangements and documentation may be governed by, and require perfection steps to be taken in, jurisdictions outside of the United States and (2) the jurisdiction of such Additional Foreign Guarantor shall be reasonably acceptable to the Lender Representative, taking into account the availability and enforceability of guarantees and collateral pledges in such jurisdictions); *provided, further*, that from and after the execution of such guarantee and collateral documents, such Additional Foreign Guarantor shall no longer constitute an “Excluded Subsidiary” unless released from its obligations under the applicable guarantee agreement as a “Guarantor” in accordance with the terms hereof and thereof and that no Additional Foreign Guarantor shall be released solely on the basis that it was not required to become a Guarantor pursuant to clause (e) of the definition of Excluded Subsidiary.

“Excluded Swap Obligation” means, with respect to any Guarantor, any Swap Obligation if, and to the extent that, all or a portion of the Guarantee of such Guarantor of, or the grant by such Guarantor of a security interest to secure, such Swap Obligation (or any Guarantee thereof) is or becomes illegal under the Commodity Exchange Act or any rule, regulation or order of the Commodity Futures Trading Commission (or the application or official interpretation of any thereof) by virtue of such Guarantor’s failure for any reason to constitute an “eligible contract participant” as defined in the Commodity Exchange Act and the regulations thereunder (determined after giving effect to Section 2.07) at the time the Guarantee of such Guarantor, or a grant by such Guarantor of a security interest, becomes effective with respect to such Swap Obligation. If a Swap Obligation arises under a master agreement governing more than one swap, such exclusion shall apply only to the portion of such Swap Obligation that is attributable to swaps for which the Guarantee or security interest is or becomes excluded in accordance with the first sentence of this definition.

“Excluded Taxes” means any of the following Taxes imposed on or with respect to any Recipient or required to be withheld or deducted from a payment to a Recipient, (a) Taxes imposed on or measured by net income (however denominated), franchise Taxes, and branch profits Taxes, in each case, (i) imposed as a result of such Recipient being organized under the laws of, or having its principal office or, in the case of any Lender, its Lending Office located in, the jurisdiction imposing such Tax (or any political subdivision

thereof) or (ii) that are Other Connection Taxes, (b) in the case of a Lender, U.S. federal withholding Taxes imposed on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Commitment pursuant to a law in effect on the date on which (i) such Lender acquires such interest in the Loan or Commitment (other than pursuant to an assignment request by the Borrower under Section 11.13) or (ii) such Lender changes its Lending Office, except in each case to the extent that, pursuant to Section 3.01, amounts with respect to such Taxes were payable either to such Lender's assignor immediately before such Lender became a party hereto or to such Lender immediately before it changed its Lending Office, (c) Taxes attributable to such Recipient's failure to comply with Section 3.01(f) and (d) any U.S. federal withholding Taxes imposed pursuant to FATCA.

"Facility Termination Date" means the date as of which all of the following shall have occurred: (a) the Aggregate Commitments have terminated and (b) all Obligations have been paid in full (other than contingent indemnification obligations).

"FASB ASC" means the Accounting Standards Codification of the Financial Accounting Standards Board.

"FATCA" means Sections 1471 through 1474 of the Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not materially more onerous to comply with), any current or future regulations or official interpretations thereof and any agreements entered into pursuant to Section 1471(b)(1) of the Code.

"FDA" means the U.S. Food and Drug Administration, or any successor agency thereto having substantially the same functions and jurisdiction.

"Federal Funds Rate" means, for any day, the rate per annum calculated by the Federal Reserve Bank of New York based on such day's federal funds transactions by depository institutions (as determined in such manner as the Federal Reserve Bank of New York shall set forth on its public website from time to time) and published on the next succeeding Business Day by the Federal Reserve Bank of New York as the federal funds effective rate; *provided* that if the Federal Funds Rate as so determined would be less than zero, such rate shall be deemed to be zero for the purposes of this Agreement.

"Fee Letter" means that certain Fee Letter, dated as of the date hereof, between the Borrower, the Lender Representative and the other parties party thereto.

"Finance Lease" means any lease that has been or is required to be, in accordance with GAAP, recorded, classified and accounted for as a financing lease. For the avoidance of doubt, an operating lease shall not be considered a Finance Lease.

"First Commercial Sale" means the first sale of Inclisiran in the United States by MedCo or its Related Parties (as defined in the MedCo License Agreement) for end use or consumption after Regulatory Approval for Inclisiran has been granted by the FDA.

"Foreign Lender" means a Lender that is not a U.S. Person. For purposes of this definition, the United States, each State thereof and the District of Columbia shall be deemed to constitute a single jurisdiction.

"Foreign Prepayment Event" has the meaning set forth in Section 2.03(b)(v).

"Foreign Subsidiary" means any Subsidiary that is not a Domestic Subsidiary.

“Foreign Subsidiary Holdco” means any Domestic Subsidiary that has no material assets other than Equity Interests or Equity Interests and Indebtedness of one or more Foreign Subsidiaries.

“FRB” means the Board of Governors of the Federal Reserve System of the United States.

“Fund” means any Person (other than a natural Person) that is (or will be) engaged in making, purchasing, holding or otherwise investing in commercial loans and similar extensions of credit in the ordinary course of its activities.

“GAAP” means generally accepted accounting principles in the United States set forth from time to time in the opinions and pronouncements of the Accounting Principles Board and the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board (or agencies with similar functions of comparable stature and authority within the accounting profession) including, without limitation, the FASB Accounting Standards Codification, that are applicable to the circumstances as of the date of determination, consistently applied and subject to Section 1.03.

“Givlaari” means that certain pharmaceutical product known by the non-proprietary name givosiran, which, as of the Closing Date, is being commercialized by Borrower in the United States under the brand name Givlaari® under NDA #212194.

“Governmental Authority” means the government of the United States or any other nation or jurisdiction, or of any political subdivision thereof, whether state or local, and any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to government (including, without limitation, any supra-national bodies such as the European Union or the European Central Bank).

“GSO” shall mean GSO Capital Partners LP.

“GSO Group” shall mean GSO, Blackstone Holdings Finance Co. L.L.C., Blackstone Alternative Solutions L.L.C., their respective Affiliates and funds and accounts administered, managed, underwritten, agented or advised by any of them.

“Guarantee” means, as to any Person, (a) any obligation, contingent or otherwise, of such Person guaranteeing or having the economic effect of guaranteeing any Indebtedness of the kind described in clauses (a) through (g) of the definition thereof or other obligation payable or performable by another Person (the “primary obligor”) in any manner, whether directly or indirectly, and including any obligation of such Person, direct or indirect, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or other obligation, (ii) to purchase or lease property, securities or services for the purpose of assuring the obligee in respect of such Indebtedness or other obligation of the payment or performance of such Indebtedness or other obligation, (iii) to maintain working capital, equity capital or any other financial statement condition or liquidity or level of income or cash flow of the primary obligor so as to enable the primary obligor to pay such Indebtedness or other obligation, or (iv) entered into for the purpose of assuring in any other manner the obligee in respect of such Indebtedness or other obligation of the payment or performance thereof or to protect such obligee against loss in respect thereof (in whole or in part), or (b) any Lien on any assets of such Person securing any Indebtedness of the kind described in clauses (a) through (g) of the definition thereof or other obligation of any other Person, whether or not such Indebtedness or other obligation is assumed or expressly undertaken by such Person (or any right, contingent or otherwise, of any holder of such Indebtedness to obtain any such Lien); *provided* that the term “Guarantee” shall not include endorsements for collection or deposit, in either case, in the ordinary course of business, or customary or reasonable indemnity obligations in effect on the Closing Date, or entered into in connection with any acquisition or Disposition of assets permitted under this Agreement (other than such

obligations with respect to Indebtedness). The amount of any Guarantee shall be deemed to be an amount equal to the stated or determinable amount of the related primary obligation, or portion thereof, in respect of which such Guarantee is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by the guaranteeing Person in good faith. The term “Guarantee” as a verb has a corresponding meaning.

“Guaranteed Obligations” has the meaning set forth in Section 10.01.

“Guarantors” means, collectively, the Domestic Subsidiaries of the Borrower as are or may from time to time become parties to this Agreement pursuant to Section 6.13 and any Additional Foreign Guarantors.

“Guaranty” means, collectively, the Guarantee made by the Guarantors under Article X in favor of the Secured Parties, together with each other guaranty delivered pursuant to Section 6.13.

“Hazardous Materials” means all explosive or radioactive substances or wastes and all hazardous or toxic substances, wastes or other pollutants, including petroleum or petroleum distillates, natural gas, natural gas liquids, asbestos or asbestos-containing materials, polychlorinated biphenyls, per- and polyfluoroalkyl substances, radon gas, toxic mold, infectious or medical wastes and all other substances, wastes, chemicals, pollutants, contaminants or compounds of any nature in any form regulated pursuant to any Environmental Law.

“Health Care Activities” means research, development, manufacture, packaging, labeling, storage, testing, transportation, commercialization, import, export, distribution, promotion, marketing or sale activities.

“Health Care Laws” means all health care Laws applicable to Borrower or by which any of its properties, operations, products or other assets is bound or affected, including the Federal Food, Drug, and Cosmetic Act (21 U.S.C. §§ 301 et seq.), the federal Anti-kickback Statute (42 U.S.C. § 1320a-7b(b)), the Anti-Inducement Law (42 U.S.C. § 1320a-7a(a)(5)), the civil False Claims Act (31 U.S.C. §§ 3729 et. seq.), the administrative False Claims Law (42 U.S.C. § 1320a-7b(a)), the exclusion Laws (42 U.S.C. § 1320a-7), the Medicare Program (Title XVIII of the Social Security Act), the Medicaid Program (Title XIX of the Social Security Act), the so-called federal “sunshine” law or Open Payments (42 U.S.C. § 1320a-7h), the Health Insurance Portability and Accountability Act of 1996, the Health Information Technology for Economic and Clinical Health Act, any federal, state and local Laws regulating the privacy and/or security of individually identifiable information including the EU General Data Protection Regulation (2016/679), state Laws regulating or requiring reporting of interactions between pharmaceutical manufacturers and members of the healthcare industry, Laws regulating the collection, reporting and processing of any applicable rebate, chargeback or adjustment under the Medicaid Drug Rebate Program (42 U.S.C. § 1396r-8) and any state supplemental rebate program, Medicare average sales price reporting (42 U.S.C. § 1395w-3a), the Public Health Service Act (42 U.S.C. § 256b), the VA Federal Supply Schedule (38 U.S.C. § 8126) or any state pharmaceutical assistance program or U.S. Department of Veterans Affairs agreement, and any successor government programs, including in each case any Laws promulgated pursuant to the foregoing and any other similar Laws.

“Hedge Bank” means any person that at any time enters into a Secured Swap Agreement.

“Immaterial Subsidiary” means any Subsidiary that is not a Material Subsidiary.

“Impacted Loans” has the meaning assigned to such term in Section 3.03(a).

“Inclisiran” means that certain pharmaceutical product known by the non-proprietary name inclisiran, which, as of the Closing Date, is being developed by Licensee under the MedCo License Agreement, and has been submitted to the FDA for regulatory approval under the Inclisiran NDA.

“Inclisiran NDA” means the new drug application submitted to FDA by MedCo under NDA #214012.

“Incremental Commitments” has the meaning assigned to such term in Section 2.13.

“Indebtedness” means, as to any Person at a particular time, without duplication, all of the following:

(a) all obligations of such Person for borrowed money and all obligations of such Person evidenced by bonds, debentures, notes, loan agreements or other similar instruments;

(b) all reimbursement obligations of such Person arising under letters of credit (including standby and commercial), bankers’ acceptances, bank guaranties, surety bonds and similar instruments (the amount of such obligations being equal at any time to the aggregate then undrawn and unexpired amount of such letters of credit or other instruments plus the aggregate amount of drawings thereunder that have not been reimbursed);

(c) net obligations of such Person under any Swap Contract;

(d) all obligations (including, without limitation, earnout obligations) of such Person to pay the deferred purchase price of property or services (other than trade accounts payable or similar obligations, including accrued expenses owed to a trade creditor incurred in the ordinary course of business), in each case, to the extent such obligations have become due and payable;

(e) all indebtedness (excluding prepaid interest thereon) secured by a Lien on property owned or being purchased by such Person (including indebtedness arising under conditional sales or other title retention agreements), whether or not such indebtedness shall have been assumed by such Person or is limited in recourse, but limited to the lesser of the fair market value of such property (as determined in good faith by the Borrower at the date of determination) and the principal amount of such Indebtedness if recourse is solely to such property;

(f) all Attributable Indebtedness in respect of Finance Leases and Synthetic Lease Obligations of such Person and all Synthetic Debt of such Person;

(g) all obligations of such Person in respect of Disqualified Equity Interests or Permitted Convertible Debt; and

(h) all Guarantees of such Person in respect of any of the foregoing.

For all purposes hereof, the Indebtedness of any Person shall include the Indebtedness of any partnership or joint venture (other than a joint venture that is itself a corporation or limited liability company) in which such Person is a general partner or a joint venturer, unless such Indebtedness is expressly made non-recourse to such Person. The amount of any net obligation under any Swap Contract on any date shall be deemed to be the Swap Termination Value thereof as of such date.

Notwithstanding anything herein to the contrary, Indebtedness shall not include (i) prepaid or deferred revenue arising in the ordinary course of business, (ii) endorsements of checks or drafts arising in

the ordinary course of business, (iii) Equity Interests to the extent not constituting Disqualified Equity Interests, (iv) any obligations in respect of any Permitted Bond Hedge Transaction and any Permitted Warrant Transaction, (v) deferred compensation and severance, pension, health and welfare retirement and equivalent benefits or any deferred obligations incurred under ERISA until such obligations become a liability on the balance sheet of such Person in accordance with GAAP, (vi) purchase price adjustments, earn out, contingent or other deferred payment payments of a similar nature (including any non-compete payments and consulting payments) made in connection with any Investment or other acquisitions, in each case, to the extent such obligations have not become due and payable, (vii) non-compete or consulting obligations incurred in connection with Investments or other acquisitions until such obligations become a liability on the balance sheet of such Person in accordance with GAAP, (viii) deemed Indebtedness pursuant to Accounting Standards Codification 825 or 480 (formerly SFAS Nos. 133 or 150, respectively), (ix) installment payments or the deferred purchase price of property or services to the extent payable solely in Equity Interests (other than Disqualified Equity Interests) of such Person, (x) purchase price holdbacks arising in the ordinary course of business in respect of a portion of the purchase price of an asset to satisfy unperformed obligations of the seller of such asset, (xi) notes or loans if (and so long as) proceeds are held in escrow pursuant to customary escrow arrangements pending the release thereof to repay, defease, redeem or satisfy and discharge such notes or loans, and (xii) notes that have been discharged or legally defeased under any indenture or similar agreement pursuant to customary discharge or defeasance provisions and such notes would not be a liability on the balance sheet of such Person in accordance with GAAP.

The amount of Indebtedness of any Person at any date shall be the outstanding balance at such date of all obligations as described above; *provided* that in the case of Indebtedness issued with original issue discount, the amount of such Indebtedness at any time will be the accreted value thereof at such time.

“Indemnified Taxes” means all (a) Taxes, other than Excluded Taxes, imposed on or with respect to any payment made by or on account of any obligation of any Loan Party under any Loan Document and (b) to the extent not otherwise described in clause (a), Other Taxes.

“Indemnatee” has the meaning specified in Section 11.04(b).

“Information” has the meaning specified in Section 11.07(a).

“Intellectual Property” has the meaning set forth in the Security Agreement.

“Intercompany Debt” has the meaning specified in Section 7.02(d).

“Interest Election Notice” has the meaning specified in Section 2.06(a)(iii).

“Interest Payment Date” means, (a) as to any Eurodollar Rate Loan, the last day of each Interest Period applicable to such Loan and the Maturity Date; *provided, however*, that if any Interest Period for a Eurodollar Rate Loan exceeds three (3) months, the respective dates that fall every three (3) months after the beginning of such Interest Period shall also be Interest Payment Dates; and (b) as to any Base Rate Loan, the last Business Day of each March, June, September and December and the Maturity Date.

“Interest Period” means, (1) as to each Eurodollar Rate Loan, the period commencing on the date such Eurodollar Rate Loan is disbursed or converted to or continued as a Eurodollar Rate Loan and ending on the date one (1), two (2), three (3) or six (6) months thereafter and (2) as to each Base Rate Loan in respect of which a PIK Election is made, the period commencing on the date of the Borrowing of such Base Rate Loan and ending on the first date thereafter on which interest is payable pursuant to Section 2.06; *provided* that:

(a) any Interest Period that would otherwise end on a day that is not a Business Day shall be extended to the next succeeding Business Day unless such Business Day falls in another calendar month, in which case such Interest Period shall end on the next preceding Business Day;

(b) any Interest Period that begins on the last Business Day of a calendar month (or on a day for which there is no numerically corresponding day in the calendar month at the end of such Interest Period) shall end on the last Business Day of the calendar month at the end of such Interest Period; and

(c) no Interest Period shall extend beyond the Maturity Date.

“Investment” means, as to any Person, any direct or indirect acquisition or investment by such Person, whether by means of (a) the purchase or other acquisition of Equity Interests of another Person, (b) a loan, advance or capital contribution to, Guarantee or assumption of debt of, or purchase or other acquisition of any other debt or interest in, another Person (including any partnership or joint venture interest in such other Person and any arrangement pursuant to which the investor guaranties Indebtedness of such other Person); *provided, however* that endorsements of negotiable instruments and documents in the ordinary course of business or consistent with past practice will not be deemed to be an Investment, or (c) the purchase or other acquisition (in one transaction or a series of transactions) of assets of another Person which constitute all or substantially all of the assets of such Person or of a division, line of business or other business unit of such Person. For purposes of covenant compliance, the amount of any Investment shall be (i) the amount actually invested, without adjustment for subsequent increases or decreases in the value of such Investment, minus (ii) (x) the amount of dividends or distributions actually received in connection with such Investment and any return of capital and any payment of principal received in respect of such Investment that in each case is received in cash or Cash Equivalents (not in excess of the amount of Investments originally made) and (y) any cancellation of any Investment in the form of a Guarantee (not in excess of the amount of Investment originally made). If the Borrower or any Restricted Subsidiary issues, sells or otherwise Disposes of Equity Interests of a Person that is a Restricted Subsidiary, such that after giving effect thereto such Person is no longer a Restricted Subsidiary, any Investment by the Borrower or any Restricted Subsidiary in such Person remaining after giving effect thereto will be deemed to be a new Investment at such time.

“Involuntary Disposition” means any loss of, damage to or destruction of, or any condemnation or other taking for public use of, any property of any Loan Party that constitutes Collateral.

“IP Collateral” the (i) Specified Product IP (other than Specified Product IP consisting of RPA Assets) that is owned by the Loan Parties and that does not constitute Shared IP and (ii) any Replacement Collateral that constitutes IP Rights and that does not include Shared IP.

“IP Rights” has the meaning specified in Section 5.23(a).

“IRS” means the United States Internal Revenue Service.

“Joinder Agreement” means a joinder agreement substantially in the form of Exhibit D executed and delivered in accordance with the provisions of Section 6.13.

“Joint Ventures” means (a) any Person which would constitute an “equity method investee” of the Borrower or any of the Restricted Subsidiaries and (b) any Person in whom the Borrower or any of the Subsidiaries beneficially owns any Equity Interest that is not a Restricted Subsidiary.

“Laws” means, collectively, all supranational, foreign, federal, state, local, provincial, municipal or other constitution, treaties, rules, legally binding regulatory policy statement, statute, law (including common law), ordinance, regulation, rule, code or similar requirement of law enacted, adopted, issued or promulgated by any Governmental Authority charged with the enforcement, interpretation or administration thereof, and all applicable administrative orders, directed duties, requests, licenses, authorizations and permits of, and agreements with, any Governmental Authority, in each case whether or not having the force of law.

“Lender” means each of the Persons identified as a “Lender” on the signature pages hereto, each other Person that becomes a “Lender” in accordance with this Agreement and, their permitted successors and assigns in accordance with this Agreement.

“Lender Representative” means, initially and as of the Closing Date and until the earlier of such time as the GSO Group ceases to constitute the Required Lenders or GSO has resigned by written notice to the Required Lenders and the Borrower, GSO; it being agreed that, upon and following such time, any determination to be made by the Lender Representative hereunder shall be made by the Required Lenders.

“Lending Office” means, as to the Administrative Agent or any Lender, the office or offices of such Person described as such in such Person’s Administrative Questionnaire, or such other office or offices as such Person may from time to time notify the Borrower and the Administrative Agent; which office may include any Affiliate of such Person or any domestic or foreign branch of such Person or such Affiliate.

“LIBOR” has the meaning specified in the definition of Eurodollar Rate.

“LIBOR Screen Rate” means the LIBOR quote on the applicable screen page the Administrative Agent designates to determine LIBOR (or such other commercially available source providing such quotations as may be designated by the Administrative Agent from time to time).

“LIBOR Successor Rate” has the meaning specified in Section 3.03(c).

“LIBOR Successor Rate Conforming Changes” has the meaning specified in Section 3.03(f).

“Lien” means any mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, lien (statutory or otherwise), charge, or preference, priority or other security interest or preferential arrangement in the nature of a security interest of any kind or nature whatsoever (including any conditional sale or other title retention agreement, any easement, right of way or other encumbrance on title to real property and any financing lease having substantially the same economic effect as any of the foregoing).

“Limited Condition Transaction” means any Acquisition, Permitted License or similar Investment of or in any assets, business or Person permitted by this Agreement that the Borrower or one or more of its Restricted Subsidiaries is contractually committed to consummate (it being understood that such commitment may be subject to conditions precedent, which conditions precedent may be amended, satisfied or waived in accordance with the terms of the applicable agreement) and the consummation of which is not conditioned on the availability of, or on obtaining, third party financing.

“Liquidity” means, at any time, the aggregate amount of unrestricted cash and Cash Equivalents of the Loan Parties at such time maintained in accounts in the United States that are not subject to any Liens other than Liens permitted pursuant to Section 7.01(a).

“Loan” means an extension of credit by a Lender to the Borrower under Article II.

“Loan Documents” means, collectively, (a) this Agreement, (b) the Notes, (c) the Guaranty, (d) the Collateral Documents, (e) each Joinder Agreement, (f) the Fee Letter, (g) the Agency Fee Letter, (h) the Paying Agent Agreement, (i) the Nondisturbance Agreement, (j) the Side Letter and (k) all other certificates, agreements, documents and instruments executed and delivered, in each case, by or on behalf of any Loan Party pursuant to the foregoing and any amendments, modifications or supplements thereto or to any other Loan Document or waivers hereof or to any other Loan Document; *provided, however*, that for purposes of Section 11.01, “Loan Documents” shall mean this Agreement, the Guaranty and the Collateral Documents.

“Loan Notice” means a notice of (a) a Borrowing, (b) a conversion of Loans from one Type to the other, or (c) a continuation of Eurodollar Rate Loans, pursuant to Section 2.02(a), which shall be substantially in the form of Exhibit E or such other form as may be approved by the Administrative Agent (including any form on an electronic platform or electronic transmission system as shall be approved by the Administrative Agent), appropriately completed and signed by a Responsible Officer of the Borrower.

“Loan Parties” means, collectively, the Borrower and each Guarantor.

“London Banking Day” means any day on which dealings in Dollar deposits are conducted by and between banks in the London interbank eurodollar market.

“Manufacturing Facility” means the property located at 20 Commerce Way, Norton, Massachusetts.

“Master Agreement” has the meaning set forth in the definition of “Swap Contract.”

“Material Adverse Effect” means a material adverse effect on (a) the operations, business, assets, or financial condition of the Borrower and its Restricted Subsidiaries taken as a whole; or (b) (i) the ability of the Loan Parties, taken as a whole, to perform their payment Obligations under the Loan Documents to which they are a party, (ii) the legality, validity, binding effect or enforceability against the Loan Parties of this Agreement or of the other Loan Documents to which they are a party, taken as whole or (iii) the rights and remedies of the Administrative Agent and the Lenders under any Loan Documents (other than the Nondisturbance Agreement or due to the action or inaction of the Administrative Agent, the Lenders or any other Secured Party).

“Material Impact” means any of the following: (a) a Material Adverse Effect, (b) an adverse and material impact on the ability of the Borrower to repay the Loans, or (c) a material adverse effect on the value of any Specified Product, the Collateral, or the Specified Product IP, in each case, taken as a whole.

“Material Product Agreement” means, other than the MedCo Agreements, (a) any agreement pursuant to which any of the Loan Parties are granted rights under any Specified Product IP that any other Person owns, but excluding any agreements pursuant to which any of the Loan Parties are not granted a license or other rights that are necessary for, or material to, the research, development, manufacture or commercialization of any Specified Product; and (b) any agreement pursuant to which any of the Loan Parties out-licenses (or sublicenses) any Specified Product IP with respect to any Specified Product in return for royalties or other payments and as to which breach, non-performance, cancellation or failure to renew would reasonably be expected to have a Material Impact.

“Material Real Property” means any fee-owned real property located in the United States that is owned by any Loan Party with a fair market value in excess of \$10,000,000 (at the Closing Date or, with respect to fee-owned real property acquired after the Closing Date, at the time of acquisition, in each case, as reasonably estimated by the Borrower in good faith).

“Material Subsidiary” means, on any date of determination, any Restricted Subsidiary that, together with its Restricted Subsidiaries, after eliminating intercompany obligations, as of the last day of the most recently ended Measurement Period, (a) generated more than 3.50% of Consolidated revenue of the Borrower and its Restricted Subsidiaries or (b) had total assets of equal to or greater than 3.50% of Consolidated Total Assets, after eliminating intercompany obligations; *provided, however*, that if at any time there are Restricted Subsidiaries which are not classified as “Material Subsidiaries” but which collectively, as of the last day of the most recently ended Measurement Period, (i) generated more than 7.00% of Consolidated revenue of the Borrower and its Restricted Subsidiaries, after eliminating intercompany obligations, or (ii) had total assets of equal to or greater than 7.00% of Consolidated Total Assets, after eliminating intercompany obligations, then the Borrower shall promptly designate one or more of such Restricted Subsidiaries as Material Subsidiaries such that, after such designation hereunder, the Restricted Subsidiaries that are not designated as Material Subsidiaries did not, as of the last day of the most recently ended Measurement Period, (A) generate more than 7.00% of Consolidated revenue of the Borrower and its Restricted Subsidiaries and (B) have total assets of more than 7.00% of Consolidated Total Assets.

“Maturity Date” means the date that is seven years from the Tranche 1 Funding Date; *provided, however*, that if such date is not a Business Day, the Maturity Date shall be the next preceding Business Day.

“Maximum Modification Amount” means, as of any date, (x) \$100,000,000 less (y) the sum of the aggregate amount of Accelerated Commitments and the Reduced Commitments as of such date.

“Measurement Period” means, at any date of determination, the most recently completed four (4) fiscal quarters of the Borrower for which financial statements have been delivered, or were required to have been delivered, pursuant Section 6.01.

“MedCo” means The Medicines Company, a corporation organized and existing under the laws of Delaware.

“MedCo Agreements” means, collectively, (a) the MedCo License Agreement and (b) the MedCo Supply Agreement.

“MedCo Instruction” means the direction letter to MedCo in the form attached hereto as Exhibit L.

“MedCo License Agreement” means that certain License and Collaboration Agreement, dated February 3, 2013, by and between the Borrower and MedCo, as amended on November 22, 2019, and any replacement license or licenses in the Territory and Field (as such terms are defined in the MedCo License Agreement) following termination of the MedCo License Agreement.

“MedCo Supply Agreement” means that certain Supply and Technology Transfer Agreement, dated April 14, 2016, executed by the Borrower and MedCo, as amended on October 10, 2019.

“Moody’s” means Moody’s Investors Service, Inc. and any successor thereto.

“Mortgage” or “Mortgages” means, individually and collectively, as the context requires, each of the fee mortgages, deeds of trust and deeds executed by a Loan Party that purport to grant a Lien to the Administrative Agent (or a trustee for the benefit of the Administrative Agent) for the benefit of the Secured Parties in any Mortgaged Properties, in form and substance reasonably satisfactory to the Administrative Agent and the Lender Representative.

“Mortgaged Property” means any Material Real Property of a Loan Party listed on Schedule 1.01(f) and, thereafter, shall include each other Material Real Property with respect to which a Mortgage is granted pursuant to Section 6.14(b).

“Mortgaged Property Support Documents” means, with respect to any real property subject to a Mortgage, the deliveries and documents described in Section 6.14(b) and Section 6.18(b).

“Multiemployer Plan” means any employee benefit plan of the type described in Section 4001(a)(3) of ERISA, to which the Borrower or any ERISA Affiliate makes or is obligated to make contributions, or during the preceding five (5) plan years, has made or been obligated to make contributions.

“Multiple Employer Plan” means a Plan which has two or more contributing sponsors (including the Borrower or any ERISA Affiliate) at least two of whom are not under common control, as such a plan is described in Section 4064 of ERISA.

“Net Cash Proceeds” means the aggregate cash or Cash Equivalents proceeds received by the Borrower or any Restricted Subsidiary in respect of any Disposition, Debt Issuance or Involuntary Disposition (excluding, for the avoidance of doubt, any such amounts held in escrow), net of (a) fees, costs and expenses incurred in connection therewith (including, without limitation, legal, accounting, recording, consultant, and investment banking fees and sales commissions), (b) taxes paid or reasonably estimated to be payable in connection therewith and any repatriation costs associated with receipt or distribution by the applicable taxpayer of such proceeds, (c) in the case of any Disposition or any Involuntary Disposition, the amount necessary to retire any Indebtedness secured by a Lien on the assets subject to such Disposition or Involuntary Disposition other than any Indebtedness with a Lien ranking *pari passu* with or junior to the Lien securing the Obligations, together with any applicable premiums, penalties, interest or breakage costs, (d) any reserve for adjustment in respect of (x) the sale price of the property that is the subject of such Disposition established in accordance with GAAP and (y) any liabilities associated with such property and retained by any Loan Party after such Disposition, including pension and other post-employment benefit liabilities and liabilities related to environmental matters or against any indemnification obligations associated with such transaction and (e) in the case of any Disposition or Involuntary Disposition by a Restricted Subsidiary that is a joint venture or other Restricted Subsidiary that is not a wholly owned Restricted Subsidiary, the pro rata portion of the Net Cash Proceeds thereof (calculated without regard to this clause (e)) attributable to the minority interests and not available for distribution to or for the account of Borrower or a wholly owned Restricted Subsidiary as a result thereof, and it being understood that “Net Cash Proceeds” shall include, without limitation, (i) any cash or Cash Equivalents received upon the Disposition of any non-cash consideration received by the Borrower or any Restricted Subsidiary in any such Disposition or Involuntary Disposition and (ii) upon the reversal (without the satisfaction of any applicable liabilities in cash in a corresponding amount) of any reserve described in clause (d).

“New Arrangement” has the meaning specified in Section 6.21.

“Non-Consenting Lender” means any Lender that does not approve any consent, waiver or amendment that (a) requires the approval of all Lenders or all affected Lenders in accordance with the terms of Section 11.01 and (b) has been approved by the Required Lenders.

“Non-Defaulting Lender” means, at any time, each Lender that is not a Defaulting Lender at such time.

“Nondisturbance Agreement” means that certain Acknowledgment and Nondisturbance Agreement, dated as of the Closing Date, executed by the Administrative Agent, the Lenders and BX Bodyguard Royalties L.P.

“Note” means a promissory note made by the Borrower in favor of a Lender evidencing Loans made by such Lender, substantially in the form of Exhibit G.

“Notice of Loan Prepayment” means a notice of prepayment with respect to a Loan, which shall be substantially in the form of Exhibit J or such other form as may be approved by the Administrative Agent (including any form on an electronic platform or electronic transmission system as shall be approved by the Administrative Agent), appropriately completed and signed by a Responsible Officer.

“NPL” means the National Priorities List under CERCLA.

“Obligations” means (a) all advances to, and debts, liabilities, obligations, covenants and duties of, any Loan Party arising under any Loan Document with respect to any Loan or any Secured Swap Agreement owing to any Hedge Bank and (b) all reasonable and documented out-of-pocket costs and expenses incurred in connection with enforcement and collection of the foregoing, including the fees, charges and disbursements of counsel, in each case whether direct or indirect (including those acquired by assumption), absolute or contingent, due or to become due, now existing or hereafter arising and including interest, expenses and fees that accrue after the commencement by or against any Loan Party or any Affiliate thereof pursuant to any proceeding under any Debtor Relief Laws naming such Person as the debtor in such proceeding, regardless of whether such interest, expenses and fees are allowed claims in such proceeding.

“OFAC” means the Office of Foreign Assets Control of the United States Department of the Treasury.

“Officer’s Certificate” means a certificate substantially the form of Exhibit H or any other form approved by the Lender Representative.

“Onpattro” means that certain pharmaceutical product known by the non-proprietary name patisiran, which, as of the Closing Date, is being commercialized in the United States under the brand name Onpattro® under NDA #210922.

“Orange Book Patents” means the Patents listed for any Specified Product in the FDA’s Orange Book pursuant to 21 U.S.C. Section 355(b)(1), as such patent listing may be amended from time to time, together with all foreign counterpart patents.

“Organization Documents” means, (a) with respect to any corporation, the charter or certificate or articles of incorporation and the bylaws (or equivalent or comparable constitutive documents with respect to any non-U.S. jurisdiction); (b) with respect to any limited liability company, the certificate or articles of formation or organization and operating agreement or limited liability company agreement (or equivalent or comparable documents with respect to any non-U.S. jurisdiction); (c) with respect to any partnership, joint venture, trust or other form of business entity, the partnership, joint venture or other applicable agreement of formation or organization (or equivalent or comparable documents with respect to any non-U.S. jurisdiction) and (d) with respect to all entities, any agreement, instrument, filing or notice with respect thereto filed in connection with its formation or organization with the applicable Governmental Authority in the jurisdiction of its formation or organization (or equivalent or comparable documents with respect to any non-U.S. jurisdiction).

“Other Connection Taxes” means, with respect to any Recipient, Taxes imposed as a result of a present or former connection between such Recipient and the jurisdiction imposing such Tax (other than connections arising from such Recipient having executed, delivered, become a party to, performed its obligations under, received payments under, received or perfected a security interest under, engaged in any

other transaction pursuant to or enforced any Loan Document, or sold or assigned an interest in any Loan or Loan Document).

“Other Taxes” means all present or future stamp, court or documentary, intangible, recording, filing or similar Taxes that arise from any payment made under, from the execution, delivery, performance, enforcement or registration of, from the receipt or perfection of a security interest under, or otherwise with respect to, any Loan Document, except any such Taxes that are Other Connection Taxes imposed with respect to an assignment (other than an assignment made pursuant to Section 3.06).

“Outside Date” means December 31, 2022 or such later date as may be agreed by the Lender Representative in its sole discretion.

“Outstanding Amount” means, on any date, the aggregate outstanding principal amount of Loans after giving effect to any Borrowings and prepayments or repayments of Loans occurring on such date.

“Participant” has the meaning specified in Section 11.06(d).

“Participant Register” has the meaning specified in Section 11.06(d).

“Patents” has the meaning set forth in the Security Agreement.

“Patriot Act” has the meaning specified in Section 11.19.

“Paying Agent” means Wilmington Trust, National Association, as paying agent.

“Paying Agent Agreement” means that certain paying agent agreement, to be executed by the Borrower, the Administrative Agent, BX Bodyguard Royalties L.P. and the Paying Agent, delivered pursuant to Section 6.18.

“PBGC” means the Pension Benefit Guaranty Corporation.

“Pension Funding Rules” means the rules of the Code and ERISA regarding minimum funding standards with respect to Pension Plans and set forth in Sections 412, 430, 431, 432 and 436 of the Code and Sections 302, 303, 304 and 305 of ERISA.

“Pension Plan” means any employee pension benefit plan (including a Multiple Employer Plan or a Multiemployer Plan) that is maintained or is contributed to by the Borrower and any ERISA Affiliate or with respect to which the Borrower or any ERISA Affiliate has any liability and is either covered by Title IV of ERISA or is subject to the minimum funding standards under Section 412 of the Code.

“Permits” means any permit, approval, clearance, authorization, license, certificate, certification, concession, grant, franchise, variance, submission, notification, registration, amendment, supplement, exemption or permission obtained from or submitted to any Governmental Authority, including any Regulatory Approval, in respect of any of the Specified Products.

“Permitted Acquisition” means an Acquisition so long as immediately before and after giving effect to the Acquisition:

(a) no Event of Default shall then exist or would exist after giving effect thereto; provided, that, in the case of an Acquisition that constitutes a Limited Condition Transaction, such condition shall be deemed satisfied so long as (i) no Event of Default is continuing as of the date the

applicable definitive agreement in respect of such Limited Condition Transaction is entered into and (ii) no Specified Event of Default is continuing as of the date such Limited Condition Transaction is consummated; and

(b) the Loan Parties are in compliance with the financial covenant set forth in Section 7.11.

“Permitted Bond Hedge Transaction” means any call or capped call option (or substantively equivalent derivative transaction) on the Borrower’s Equity Interests purchased by the Borrower in connection with the issuance of any Permitted Convertible Debt; *provided* that the premium paid by the Borrower or any of its Restricted Subsidiaries for such Permitted Bond Hedge Transaction, less the proceeds received by the Borrower from the sale of any related Permitted Warrant Transaction, does not exceed the net proceeds received by the Borrower from the sale of such Permitted Convertible Debt issued in connection with the Permitted Bond Hedge Transaction.

“Permitted Convertible Debt” means Indebtedness of the Borrower that (a) is convertible into Equity Interests of Borrower (and cash in lieu of fractional shares) and/or cash (in an amount determined by reference to the price of such Equity Interest), (b) shall not mature prior to the Maturity Date, (c) is unsecured, (d) does not provide for or otherwise require any amortization prior to scheduled maturity other than customary payments upon a change of control or fundamental change (it being understood that (i) the conversion or redemptions of any such Indebtedness in accordance with clause (a) above and (ii) the payment to holders thereof in Equity Interests of the Borrower (other than Disqualified Equity Interests), in either case, shall not be considered required amortization) or cash in lieu of fractional shares, (f) is not guaranteed by any Restricted Subsidiary of the Borrower that is not a Guarantor and (g) is evidenced and governed by an indenture, note purchase agreement or similar instrument, and may include related documentation, containing terms and conditions, including without limitation, covenants and defaults that are, taken as a whole, not materially more restrictive on Borrower than the covenants and defaults that are, taken as a whole, contained herein (as reasonably determined by Borrower in its good faith judgment).

“Permitted Financing Transaction” means a Permitted Receivables Financing or a Permitted Royalty Financing, as applicable.

“Permitted Licenses” means any of the following, now or in the future: (a) any licensing, partnering, collaboration, research, development, manufacturing, and/or commercial transactions to advance one or more Specified Products, such as, without limitation, contract manufacturing, contract research, co-promotion, marketing and distribution arrangements; (b) any transactions (including assignments, other transfers and Dispositions) that do not involve any Specified Product (even if they involve Intellectual Property applicable to Specified Products and/or inbound licenses so long as (i) such Intellectual Property or each of such inbound license is only included in such transactions with respect to products or programs other than Specified Products and (ii) no such Intellectual Property and/or inbound licenses are assigned, transferred or otherwise subject to any Disposition with respect to the Specified Products); (c) intercompany licenses or grants of rights of distribution, co-promotion or similar commercial rights between or among the Loan Parties; (d) inbound licenses of all or any portion of (x) IP Rights or (y) other rights in respect of one or more Products (or assets that will become Products) and (e) and any combination of clauses (a)-(d) above.

“Permitted Liens” has the meaning set forth in Section 7.01.

“Permitted Receivables Financing” means receivables securitizations or other receivables financings (including any factoring program) with Persons that are not Affiliates of the Loan Parties for accounts receivable of the Loan Parties and their Restricted Subsidiaries, subject to the following requirements:

(a) all sales, conveyances, assignments and/or contributions of receivables by the Borrower or any Restricted Subsidiary to any Receivables Subsidiary are made at fair market value (as determined in good faith by the Borrower), and

(b) the financing terms, covenants, termination events and other provisions thereof are market terms at the time such Permitted Receivables Financing is first entered into (as determined in good faith by a Responsible Officer of the Borrower) and may include Standard Securitization Undertakings.

“Permitted Royalty Financing” means one or more financing transactions in respect of royalties, milestones, other payments and/or other rights of Borrower or its Restricted Subsidiaries with Persons that are not Affiliates of the Loan Parties, so long as the board of directors of the Borrower has determined in good faith that such Permitted Royalty Financing (including financing terms, covenants, termination events and other provisions) is, in the aggregate, economically fair and reasonable to the Borrower and the Restricted Subsidiaries.

“Permitted Transfers” means (a) Dispositions of inventory in the ordinary course of business; (b) Dispositions of property to the Borrower or any Restricted Subsidiary; provided, that if the transferor of such property is a Loan Party then the transferee thereof must be a Loan Party; (c) Dispositions of accounts receivable in connection with the collection or compromise thereof; (d) other than with respect to IP Collateral, non-exclusive licenses, sublicenses, leases or subleases granted to others not interfering in any material respect with the business of the Borrower and its Restricted Subsidiaries; (e) the sale or disposition of Cash Equivalents for fair market value and (f) Permitted Licenses of the type described in clauses (b) or (c) of the definition thereof.

“Permitted Warrant Transaction” means any call option, warrant or contractual right to purchase (or substantively equivalent derivative transaction) Borrower’s Equity Interests sold by the Borrower substantially concurrently with any purchase by the Borrower of a related Permitted Bond Hedge Transaction.

“Person” means any natural person, corporation, limited liability company, trust, joint venture, association, company, partnership, fund, account, Governmental Authority or other entity.

“PIK Election” shall mean an election by the Borrower to pay PIK Interest in accordance with Section 2.06(a)(i) or Section 2.06(a)(ii).

“PIK Interest” has the meaning specified in Section 2.06(a)(i).

“PIK Interest Termination Date” shall mean the earliest of (i) the date that is three (3) years after the Tranche 1 Funding Date, (ii) the date on which the Loans are accelerated pursuant to Article 8 and (iii) the date on which all outstanding Loans are repaid in full

“PIK Rate” means, for any day, (a) with respect to any Eurodollar Rate Loan, 8.00% per annum, and (b) with respect to any Base Rate Loan, 7.00% per annum

“Plan” means any employee benefit plan within the meaning of Section 3(3) of ERISA (including a Pension Plan), maintained for employees of the Borrower or any ERISA Affiliate or any such Plan to which the Borrower or any ERISA Affiliate is required to contribute on behalf of any of its employees.

“Platform” has the meaning specified in Section 6.02.

“Pledged Equity” has the meaning specified in the Security Agreement.

“Prepayment Date” shall mean the date that any prepayment occurs pursuant to the terms of this Agreement.

“Prime Rate” means, for any day, a rate per annum equal to the rate last quoted by The Wall Street Journal as the “base rate on corporate loans posted by at least 70% of the nation’s largest banks” in the United States or, if The Wall Street Journal ceases to quote such rate, the highest per annum interest rate published by the Federal Reserve Board in Federal Reserve Statistical Release H.15 (519) (Selected Interest Rates) as the “bank prime loan” rate or, if such rate is no longer quoted therein, any similar rate quoted therein (as reasonably determined by the Administrative Agent (which determination shall be conclusive absent manifest error)) or any similar release by the Federal Reserve Board (as determined by the Administrative Agent (which determination shall be conclusive absent manifest error)).

“Pro Forma Basis” means, with respect to the calculation of the Total Leverage Ratio, the amount of Consolidated EBITDA or Consolidated Total Assets or any other financial test or ratio hereunder and for any other specified purpose hereunder, and for purposes of determining compliance with the covenant set forth in Section 7.11, in each case as of any date, that such calculation shall give pro forma effect to all Specified Transactions (with any such incurrence of Indebtedness being deemed to be amortized over the applicable testing period in accordance with its terms) (and the application of the proceeds from any such event, asset sale or debt incurrence) that have occurred during the Measurement Period ended on the applicable date of determination and during the period immediately following the applicable date of determination and prior to or simultaneously with the event for which the calculation of any such ratio on such date of determination is made, including pro forma adjustments arising out of events which are attributable to proposed Specified Transaction, using, for purposes of determining such compliance with a financial test or ratio (including any incurrence test), the historical financial statements of all entities, divisions or lines or assets so acquired or sold and the consolidated financial statements of the Borrower and its Restricted Subsidiaries, calculated as if such Specified Transaction, and all other Specified Transactions that have been consummated during the relevant period, and any Indebtedness incurred or repaid in connection therewith, had been consummated (and the change in Consolidated EBITDA resulting therefrom) and incurred or repaid at the beginning of such period and Consolidated Total Assets shall be calculated after giving effect thereto; *provided* that when calculating any financial test or ratio for purposes of determining compliance with the covenant set forth in Section 7.11, the events described in this definition that occurred subsequent to the end of the applicable Measurement Period shall not be given pro forma effect. Whenever pro forma effect is to be given to any Specified Transaction, the pro forma calculations shall be made in good faith by a Responsible Officer. If any Indebtedness bears a floating rate of interest and is being given pro forma effect, the interest on such Indebtedness shall be calculated as if the rate in effect on the date of the event for which the calculation is made had been the applicable rate for the entire test period (taking into account any interest hedging arrangements applicable to such Indebtedness). Interest on Indebtedness that may optionally be determined at an interest rate based upon a factor of a prime or similar rate, a eurocurrency interbank offered rate, or other rate, shall be determined to have been based upon the rate actually chosen, or if none, then based upon such optional rate chosen as the Borrower may designate.

“Products” means any drug, biologic, or medical device that is researched, developed, manufactured, packaged, labeled, stored, tested, transported, commercialized, imported, exported, distributed, promoted, marketed or sold by or on behalf of the Borrower, including, without limitation, marketed products and products under development.

“Public Lender” has the meaning specified in Section 6.02.

“Qualified ECP Guarantor” means, in respect of any Swap Obligation, each Loan Party that has assets exceeding \$10,000,000 at the time the relevant Guarantee or grant of the relevant security interest becomes effective with respect to such Swap Obligation or such other person as constitutes an “eligible contract participant” under the Commodity Exchange Act or any regulations promulgated thereunder and can cause another person to qualify as an “eligible contract participant” at such time by entering into a keepwell under §1a(18)(A)(v)(II) of the Commodity Exchange Act.

“Qualifying Control Agreement” means an agreement, among a Loan Party, a depository institution or securities intermediary and the Administrative Agent, which agreement is in form and substance reasonably acceptable to the Administrative Agent and the Lender Representative and which provides the Administrative Agent with “control” (as such term is used in Article 9 of the UCC) over the deposit account(s) or securities account(s) described therein.

“Receivables Subsidiary” means a special purpose wholly owned Restricted Subsidiary of the Borrower created in connection with the transactions contemplated by a Permitted Financing Transaction, which Restricted Subsidiary engages in no activities other than those incidental to such Permitted Financing Transaction; and

(a) no portion of the Indebtedness or any other obligations (contingent or otherwise):

- (i) is guaranteed by the Borrower or any Restricted Subsidiary (other than a Receivables Subsidiary and excluding guarantees of obligations (other than the principal of, and interest on, Indebtedness) pursuant to Standard Securitization Undertakings);
- (ii) is recourse to or obligates the Borrower or any Restricted Subsidiary (other than a Receivables Subsidiary) in any way other than pursuant to Standard Securitization Undertakings; or
- (iii) subjects any property or asset of the Borrower or any Restricted Subsidiary, directly or indirectly, contingently or otherwise, to the satisfaction thereof, other than pursuant to Standard Securitization Undertakings;

(b) with which neither the Borrower nor any Restricted Subsidiary (other than a Receivables Subsidiary) has any material contract, agreement, arrangement or understanding other than on terms which the Borrower reasonably believes to be no less favorable to the Borrower or such Restricted Subsidiary than those that might be obtained at the time from Persons that are not Affiliates of the Borrower, other than with respect to Standard Securitization Undertakings; and

(c) to which neither the Borrower nor any other Restricted Subsidiary has any obligation to maintain or preserve such entity’s financial condition or cause such entity to achieve certain levels of operating results.

“Recipient” means the Administrative Agent, any Lender or any other recipient of any payment to be made by or on account of any obligation of any Loan Party hereunder.

“Reduced Commitments” has the meaning set forth in Section 2.04(a)(ii).

“Register” has the meaning specified in Section 11.06(c).

“Regulation U” means Regulation U of the FRB, as in effect from time to time and all official rulings and interpretations thereunder or thereof.

“Regulatory Approval” means any authorization, approval, license, permit, certificate or exemption issued by any Governmental Authority that is necessary to commercialize a given biologic product, pharmaceutical product or medical device product in a given regulatory jurisdiction.

“Regulatory Documentation” means any and all regulatory filings, reports, applications, notifications and documentation in the United States or in any other country, including all submissions to Governmental Authorities, all investigational new drug applications and amendments thereto, all research ethics committee submissions and authorizations, all Regulatory Approvals, including all Specified Product NDAs and all supplemental applications or amendments thereto, all related drug master files, as well as all correspondence with any Governmental Authorities with respect thereto, in each case, directly or otherwise reasonably relating to any Specified Product (other than Inclisiran), any clinical trial for a Specified Product (other than Inclisiran) administered by or on behalf of the Borrower or any of its Restricted Subsidiaries or the research, development, use, manufacture, licensure, packaging, processing, delivery or commercialization of a Specified Product (other than Inclisiran), or any services provided directly or otherwise reasonably in connection with a Specified Product (other than Inclisiran).

“Related Parties” means, with respect to any Person, such Person’s Affiliates and the partners, directors, officers, employees, investment committee members, accountants, agents, trustees, administrators, managers, advisors, consultants, attorneys, current or prospective investors, advisors, financing or funding sources, service providers and representatives of such Person and of such Person’s Affiliates.

“Release” means any actual or threatened release, spill, emission, discharge, deposit, dispersal, disposal, leaking, pumping, pouring, dumping, emptying, placing, injection or leaching or migration into or through the Environment.

“Replacement Collateral” means any Intellectual Property owned by any Loan Party, other than RPA Assets, that is of equal value to the assets sold in connection with a Disposition pursuant to Section 2.03(b) (as mutually determined by the Lender Representative and the Borrower in good faith, or, in the absence of any such determination, at the Borrower’s sole expense, by an independent third-party to be selected by mutual agreement between the Borrower and the Lender Representative).

“Reportable Event” means any of the events set forth in Section 4043(c) of ERISA, other than events for which the thirty (30) day notice period has been waived.

“Required Lenders” means, at any time, Lenders having Total Credit Exposures representing more than 50% of the Total Credit Exposures of all Lenders. The Total Credit Exposure of any Defaulting Lender shall be disregarded in determining Required Lenders at any time.

“Resignation Effective Date” has the meaning set forth in Section 9.06(a).

“Resolution Authority” means an EEA Resolution Authority or, with respect to any UK Financial Institution, a UK Resolution Authority.

“Responsible Officer” means the chief executive officer, chief operating officer, president, chief financial officer, treasurer, assistant treasurer or controller of a Loan Party, solely for purposes of the delivery of incumbency certificates pursuant to Section 4.01(b), the secretary or any assistant secretary of a Loan Party and, solely for purposes of notices given pursuant to Article II, any other officer or employee of the applicable Loan Party so designated by any of the foregoing officers in a notice to the Administrative

Agent or any other officer or employee of the applicable Loan Party designated in or pursuant to an agreement between the applicable Loan Party, the Administrative Agent and the Lender Representative. Any document delivered hereunder that is signed by a Responsible Officer of a Loan Party shall be conclusively presumed to have been authorized by all necessary corporate, partnership and/or other action on the part of such Loan Party and such Responsible Officer shall be conclusively presumed to have acted on behalf of such Loan Party. To the extent requested by the Administrative Agent or the Lender Representative, each Responsible Officer will provide an incumbency certificate and to the extent requested by the Administrative Agent, appropriate authorization documentation, in form and substance reasonably satisfactory to the Lender Representative.

“Restricted Payment” means (a) any dividend or other distribution, direct or indirect, on account of any shares (or equivalent) of any class of Equity Interests of the Borrower or any of its Restricted Subsidiaries, now or hereafter outstanding, (b) any redemption, retirement, sinking fund or similar payment, purchase or other acquisition for value, direct or indirect, of any shares (or equivalent) of any class of Equity Interests of the Borrower or any of its Restricted Subsidiaries, now or hereafter outstanding, and (c) any payment made to retire, or to obtain the surrender of, any outstanding warrants, options or other rights (in each case, other than Permitted Convertible Debt or Permitted Warrant Transactions) to acquire shares of any class of Equity Interests of any Loan Party or any of its Restricted Subsidiaries, now or hereafter outstanding.

“Restricted Subsidiary” means any Subsidiary of the Borrower other than an Unrestricted Subsidiary.

“Retained Royalty” means 50% of the royalties and 25% of the milestones payable to the Borrower pursuant to the MedCo License Agreement; *provided that*, if the Applicable Percentage (as defined in the Royalty Purchase Agreement) with respect to the Royalty (as defined in the Royalty Purchase Agreement) is increased to 55% in accordance with the terms of the Royalty Purchase Agreement, then the Retained Royalty shall mean 45% of the royalties payable to the Borrower pursuant to the MedCo License Agreement on and after January 1, 2030.

“Royalty Purchase Agreement” means that certain Purchase and Sale Agreement, dated as of the Closing Date, among the Borrower, as seller, and BX Bodyguard Royalties L.P., a Delaware limited partnership, as purchaser, with respect to the Royalty Product (as defined therein).

“RPA Assets” means (i) the Royalty Purchase Agreement, and any of the rights or obligations of Purchaser or Seller thereunder; (ii) the MedCo License Agreement (but not the Retained Royalty); (iii) the MedCo Supply Agreement; (iv) the Purchased Assets (as defined in the Royalty Purchase Agreement); and (v) any IP Rights that claim or cover Inclisiran, including any “Royalty Product Patents” set forth on Exhibit G to the Royalty Purchase Agreement.

“S&P” means Standard & Poor’s Financial Services LLC, a subsidiary of S&P Global Inc., and any successor thereto.

“Sale/Leaseback Transaction” means an arrangement relating to property now owned or hereafter acquired by any Loan Party or any Restricted Subsidiary whereby any Loan Party or any Restricted Subsidiary transfers such property to a Person and any Loan Party or any Restricted Subsidiary leases it from such Person, other than leases between Loan Parties and their Restricted Subsidiaries.

“Sanction(s)” means any sanction administered or enforced by the United States Government (including, without limitation, OFAC), the United Nations Security Council, the European Union, Her Majesty’s Treasury (“HMT”) or other relevant sanctions authority.

“SEC” means the Securities and Exchange Commission, or any Governmental Authority succeeding to any of its principal functions.

“Secured Parties” means, collectively, the Administrative Agent, the Lenders, the Indemnitees, each Hedge Bank and each co-agent or sub-agent appointed by the Administrative Agent from time to time pursuant to Section 9.05.

“Secured Swap Agreement” means any Swap Agreement that is entered into by and between the Borrower and any Hedge Bank and designated in writing by the Borrower to the Administrative Agent as a “Secured Swap Agreement” (it being understood that one notice with respect to a specified Master Agreement may designate all transactions thereunder as being “Secured Swap Agreements”, without the need for separate notices for each individual transaction thereunder).

“Securities Act” means the Securities Act of 1933, including all amendments thereto and regulations promulgated thereunder.

“Security Agreement” means the security and pledge agreement, dated as of the Closing Date, executed in favor of the Administrative Agent by each of the Loan Parties, as amended, modified, extended, restated, replaced or supplemented from time to time.

“SEMS” means Superfund Enterprise Management System maintained by the U.S. Environmental Protection Agency.

“Shared IP” means the Specified Product IP that is applicable to any product or program of the Borrower or its Restricted Subsidiaries other than the Specified Products.

“Side Letter” means that certain Side Letter, dated as of the date hereof, between the Borrower and the Administrative Agent.

“Solvency Certificate” means a solvency certificate in substantially in the form of Exhibit F.

“Solvent” and “Solvency” mean, with respect to any Person on any date of determination, that on such date (a) the aggregate fair value of the property of such Person is greater than the total amount of liabilities, including contingent liabilities, of such Person, (b) the aggregate present fair saleable value of the assets of such Person is not less than the amount that will be required to pay the probable liability of such Person on its debts as they become absolute and matured, (c) such Person does not intend to, and does not believe that it will, incur debts or liabilities beyond such Person’s ability to pay such debts and liabilities as they mature, (d) such Person is not engaged in business or a transaction, and is not about to engage in business or a transaction, for which such Person’s property would constitute an unreasonably small capital, and (e) such Person is able to pay its debts and liabilities, contingent obligations and other commitments as they mature in the ordinary course of business. The amount of contingent liabilities at any time shall be computed as the amount that, in the light of all the facts and circumstances existing at such time, represents the amount that can reasonably be expected to become an actual or matured liability.

“Specified Event of Default” means an Event of Default pursuant to Section 8.01(a) or Section 8.01(f).

“Specified Product IP” means any and all Patents, Copyrights, Trademarks, trade secrets and other intellectual property recognized under applicable Law (other than Patents, Copyrights, Trademarks, trade secrets and other intellectual property recognized under applicable Law consisting of RPA Assets) that are necessary for, and material to, the research, development, manufacture, commercialization, or other exploitation of any Specified Product(s), including the Orange Book Patents, in each case, during the term of this Agreement.

“Specified Product NDAs” means the FDA-approved NDA for any Specified Product (other than Inclisiran) in the United States, including NDA #210922 for Onpattro and NDA #212194 for Givlaari, and all amendments and supplemental applications to such NDAs, and any other Regulatory Approval for any Specified Product (other than Inclisiran) in any country of the world.

“Specified Products” means Onpattro, Givlaari, Vutrisiran and Inclisiran, together with any other forms, formulations or methods of delivery of any such products in the United States under any brand name or as a generic product by or on behalf of any Loan Party.

“Specified Products Business” has the meaning specified in Section 5.23(a).

“Specified Transaction” means any (a) disposition of all or substantially all the assets of or all the Equity Interests of the Borrower or any Restricted Subsidiary or of any product line, business unit, line of business or division of the Borrower or any Restricted Subsidiary, (b) Permitted Acquisitions, (c) Investment, (d) designation of any Restricted Subsidiary as an Unrestricted Subsidiary, or of any Unrestricted Subsidiary as a Restricted Subsidiary, (e) the proposed incurrence of Indebtedness or making of a Restricted Payment or payment in respect of Indebtedness in respect of which compliance with any financial test or ratio is by the terms of this Agreement required to be calculated on a Pro Forma Basis or (f) cost savings initiative, operating improvement, restructuring or other initiative, action or event, including entry into new contracts, increased pricing or volume and optimization actions.

“Standard Securitization Undertakings” means representations, warranties, covenants, indemnities and Guarantees of performance entered into by the Borrower or any Restricted Subsidiary of the Borrower that a Responsible Officer of the Borrower has determined in good faith to be customary in a receivables or royalties financing, as applicable, including those relating to the servicing of the assets of a Receivables Subsidiary.

“Subject Interest Period” has the meaning specified in Section 2.06(a)(iii).

“Subordinated Debt” means Indebtedness incurred by any Loan Party which by is subordinated in Lien priority to the Lien securing the Obligations or in right of payment to the prior payment of the Obligations.

“Subsequent Borrowing Condition” means, as of any date, either (x) (1) Regulatory Approval for Inclisiran shall have been obtained and remain in effect as of such date and (2) the First Commercial Sale shall have occurred on or prior to such date or (y) the Consolidated revenue attributable to Onpattro and Givlaari as of the last day of the most recently ended Measurement Period shall be equal to or greater than \$300,000,000.

“Subsidiary” of a Person means a corporation, partnership, joint venture, limited liability company or other business entity of which a majority of the shares of Voting Stock is at the time beneficially owned, or the management of which is otherwise controlled, directly, or indirectly through one or more intermediaries, or both, by such Person. Unless otherwise specified, all references herein to a “Subsidiary” or to “Subsidiaries” shall refer to a Subsidiary or Subsidiaries of the Borrower.

“Swap Contract” means (a) any and all rate swap transactions, basis swaps, credit derivative transactions, forward rate transactions, commodity swaps, commodity options, forward commodity contracts, equity or equity index swaps or options, bond or bond price or bond index swaps or options or forward bond or forward bond price or forward bond index transactions, interest rate options, forward foreign exchange transactions, cap transactions, floor transactions, collar transactions, currency swap transactions, cross-currency rate swap transactions, currency options, spot contracts, or any other similar transactions or any combination of any of the foregoing (including any options to enter into any of the foregoing), whether or not any such transaction is governed by or subject to any master agreement, and (b) any and all transactions of any kind, and the related confirmations, which are subject to the terms and conditions of, or governed by, any form of master agreement published by the International Swaps and Derivatives Association, Inc., any International Foreign Exchange Master Agreement, or any other master agreement (any such master agreement, together with any related schedules, a “Master Agreement”), including any such obligations or liabilities under any Master Agreement.

“Swap Obligations” means any obligation to pay or perform under any agreement, contract or transaction that constitutes a “swap” within the meaning of Section 1a(47) of the Commodity Exchange Act.

“Swap Termination Value” means, in respect of any one or more Swap Contracts, after taking into account the effect of any legally enforceable netting agreement relating to such Swap Contracts, (a) for any date on or after the date such Swap Contracts have been closed out and termination value(s) determined in accordance therewith, such termination value(s), and (b) for any date prior to the date referenced in clause (a), the amount(s) determined as the mark-to-market value(s) for such Swap Contracts, as determined based upon one or more mid-market or other readily available quotations provided by any recognized dealer in such Swap Contracts (which may include a Lender or any Affiliate of a Lender).

“Synthetic Debt” means, with respect to any Person as of any date of determination thereof, all obligations of such Person in respect of transactions entered into by such Person that are intended to function primarily as a borrowing of funds (including any minority interest transactions that function primarily as a borrowing) but are not otherwise included in the definition of “Indebtedness” or as a liability on the Consolidated balance sheet of such Person and its Restricted Subsidiaries in accordance with GAAP.

“Synthetic Lease Obligation” means the monetary obligation of a Person under (a) a so-called synthetic, off-balance sheet or tax retention lease, or (b) an agreement for the use or possession of property (including Sale/Leaseback Transactions), in each case, creating obligations that do not appear on the balance sheet of such Person but which, upon the application of any Debtor Relief Laws to such Person, would be characterized as the indebtedness of such Person (without regard to accounting treatment).

“Target” has the meaning set forth in the definition of “Acquisition.”

“Taxes” means all present or future taxes, levies, imposts, duties, deductions, withholdings (including backup withholding), assessments, fees or other charges imposed by any Governmental Authority, including any interest, additions to tax or penalties applicable thereto.

“Threshold Amount” means \$30,000,000.

“Total Credit Exposure” means, as to any Lender at any time, the unused Commitments and Outstanding Amount of all Loans of such Lender at such time.

“Total Funded Debt” means, as of any date of determination, the aggregate amount of Indebtedness of the Borrower and its Restricted Subsidiaries consisting of Indebtedness of the type described in clauses (a), (b) (to the extent not cash collateralized and more than one (1) Business Day overdue), (f) and (g) of the

definition of Indebtedness. For the avoidance of doubt, Total Funded Debt shall not include any obligations in respect of a Permitted Financing Transaction, milestone payments, back-end payments or similar obligations.

“Total Leverage Ratio” means, with respect to any Measurement Period, the ratio of (a) Total Funded Debt as of the last day of such Measurement Period minus the aggregate amount of unrestricted cash and Cash Equivalents of the Borrower and the Restricted Subsidiaries as of such date maintained in accounts in the United States in an aggregate amount not to exceed \$375,000,000 to (b) Consolidated EBITDA of the Borrower and its Restricted Subsidiaries for such Measurement Period.

“Trade Date” has the meaning specified in Section 11.06(g)(i).

“Tranche 1 Availability Period” means the period from and including the Closing Date to the earliest of (i) December 31, 2020 (or such later date as may be agreed by the Lender Representative in its sole discretion), (ii) the date of termination of the Tranche 1 Commitments pursuant to Section 2.04(b), and (iii) the date of termination of the Aggregate Commitments of each Lender pursuant to Section 8.02.

“Tranche 1 Commitment” means, as to each Lender, its obligation to make Tranche 1 Loans to the Borrower pursuant to Section 2.01(a) in an aggregate principal amount not to exceed the amount set forth opposite such Lender’s name on Schedule 1.01(b) under the caption “Tranche 1 Commitment” or opposite such caption in the Assignment and Assumption pursuant to which such Lender becomes a party hereto, as applicable, as such amount may be adjusted from time to time in accordance with this Agreement. The aggregate Tranche 1 Commitments of all of the Lenders on the Closing Date shall be \$200,000,000.

“Tranche 1 Funding Date” means the date on which the condition specified in Section 4.03 is satisfied (or waived in accordance with Section 11.01) and the Tranche 1 Loans are funded in accordance with the terms hereof.

“Tranche 1 Loans” has the meaning specified in Section 2.01(a).

“Tranche 1 Mandatory Borrowing Date” has the meaning specified in Section 6.19(a).

“Tranche 2 Availability Period” means the period from and including the Closing Date to the earliest of (i) the Outside Date, (ii) the date of termination of the Tranche 2 Commitments pursuant to Section 2.04(b), and (iii) the date of termination of the Aggregate Commitments of each Lender pursuant to Section 8.02.

“Tranche 2 Commitment” means, as to each Lender, its obligation to make Tranche 2 Loans to the Borrower pursuant to Section 2.01(b) in an aggregate principal amount not to exceed the amount set forth opposite such Lender’s name on Schedule 1.01(b) under the caption “Tranche 2 Commitment” or opposite such caption in the Assignment and Assumption pursuant to which such Lender becomes a party hereto, as applicable, as such amount may be adjusted from time to time in accordance with this Agreement. The aggregate Tranche 2 Commitments of all of the Lenders on the Closing Date shall be \$250,000,000.

“Tranche 2 Funding Date” means the date on which the conditions specified in Section 4.04 are satisfied (or waived in accordance with Section 11.01) and the Tranche 2 Loans are funded in accordance with the terms hereof.

“Tranche 2 Loans” has the meaning specified in Section 2.01(b).

“Tranche 2 Mandatory Borrowing Date” has the meaning specified in Section 6.19(b)(ii).

“Tranche 3 Availability Period” means the period from and including the Closing Date to the earliest of (i) the Outside Date, (ii) the date of termination of the Tranche 3 Commitments pursuant to Section 2.04(b), and (iii) the date of termination of the Aggregate Commitments of each Lender pursuant to Section 8.02.

“Tranche 3 Commitment” means, as to each Lender, its obligation to make Tranche 3 Loans to the Borrower pursuant to Section 2.01(c) in an aggregate principal amount not to exceed the amount set forth opposite such Lender’s name on Schedule 1.01(b) under the caption “Tranche 3 Commitment” or opposite such caption in the Assignment and Assumption pursuant to which such Lender becomes a party hereto, as applicable, as such amount may be adjusted from time to time in accordance with this Agreement. The aggregate Tranche 3 Commitments of all of the Lenders on the Closing Date shall be \$250,000,000.

“Tranche 3 Funding Date” means the date on which the conditions specified in Section 4.05 are satisfied (or waived in accordance with Section 11.01) and the Tranche 3 Loans are funded in accordance with the terms hereof.

“Tranche 3 Loans” has the meaning specified in Section 2.01(c).

“Tranche 3 Mandatory Borrowing Date” has the meaning specified in Section 6.19(c)(ii).

“Transactions” means, collectively, (a) the execution and delivery of this Agreement and the other Loan Documents, the funding and continuation (as applicable) of the Tranche 1 Loans, (b) the consummation of the transactions contemplated by the Royalty Purchase Agreement, (c) the consummation of any other transactions in connection with the foregoing, and (d) the payment of the fees and expenses incurred in connection with any of the foregoing.

“Treasury Rate” means, as of any date of notice of prepayment, the yield to maturity as of the date of such notice of U.S. Treasury securities with a constant maturity (as compiled and published in the most recent statistical release designated as “H.15” under the caption “Treasury constant maturities” or any successor publication which is published at least weekly by the Board of Governors of the Federal Reserve System (or companion online data resource published by the Board of Governors of the federal reserve system) and which establishes yields on actively traded United States Treasury securities adjusted to constant maturity that has become publicly available at least two (2) Business Days prior to the date of such notice (or, if such Statistical Release is no longer published, any publicly available source of similar market data)) most nearly equal to the period from the applicable Prepayment Date or the Applicable Measurement Date, as applicable, to the date that is twenty-four months after the Applicable Measurement Date; *provided, however*, that if the period from the applicable Prepayment Date or the Applicable Measurement Date, as applicable, to the date that is twenty-four months after the Applicable Measurement Date is less than one year, the weekly average yield on actively traded U.S. Treasury securities adjusted to a constant maturity of one year will be used.

“Type” means, with respect to a Loan, its character as a Base Rate Loan or a Eurodollar Rate Loan.

“UCC” means the Uniform Commercial Code as in effect in the State of New York; *provided that*, if perfection or the effect of perfection or non-perfection or the priority of any security interest in any Collateral is governed by the Uniform Commercial Code as in effect in a jurisdiction other than the State of New York, “UCC” means the Uniform Commercial Code as in effect from time to time in such other jurisdiction for purposes of the provisions hereof relating to such perfection, effect of perfection or non-perfection or priority.

“UK Financial Institution” means any BRRD Undertaking (as such term is defined under the PRA Rulebook (as amended from time to time) promulgated by the United Kingdom Prudential Regulation Authority) or any person falling within IFPRU 11.6 of the FCA Handbook (as amended from time to time) promulgated by the United Kingdom Financial Conduct Authority, which includes certain credit institutions and investment firms, and certain affiliates of such credit institutions or investment firms.

“UK Resolution Authority” means the Bank of England or any other public administrative authority having responsibility for the resolution of any UK Financial Institution.

“United States” and “U.S.” mean the United States of America.

“Unrestricted Subsidiary” means any Subsidiary formed or acquired after the Closing Date which, at the option of the Borrower, is designated in writing by the Borrower to the Administrative Agent as being an Unrestricted Subsidiary. The Borrower may designate any such Subsidiary as an Unrestricted Subsidiary (or subsequently re-designate an Unrestricted Subsidiary as a Restricted Subsidiary) at any time so long as immediately after giving effect to such designation or re-designation, as applicable, and any related transactions, on a Pro Forma Basis, (i) no Event of Default shall have occurred and be continuing or shall result therefrom and (ii) the Borrower shall be in pro forma compliance with the financial covenant set forth in Section 7.11 for the Measurement Period most recently ended prior to such designation. The designation of any Subsidiary as an Unrestricted Subsidiary shall constitute an Investment by the Borrower or applicable Subsidiary therein in a non-Guarantor at the date of designation in an amount equal to the fair market value of the applicable Person’s Investment therein. The designation of any Unrestricted Subsidiary as a Restricted Subsidiary will constitute the incurrence at the time of designation of any Indebtedness and Liens of such Subsidiary existing at such time and a return on any Investment by the Borrower in Unrestricted Subsidiaries in an amount equal to the fair market value at the date of such designation of the Borrower’s or its Restricted Subsidiary’s (as applicable) Investment in such Subsidiary. It is understood and agreed that at no time may any Unrestricted Subsidiary own any IP Collateral, Shared IP or Mortgaged Property.

“U.S. Person” means any Person that is a “United States Person” as defined in Section 7701(a)(30) of the Code.

“U.S. Tax Compliance Certificate” has the meaning specified in Section 3.01(f)(ii)(B)(3).

“USPTO” means the United States Patent and Trademark Office.

“Voting Stock” means, with respect to any Person, Equity Interests issued by such Person the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of directors (or persons performing similar functions) of such Person, even though the right to so vote has been suspended by the happening of such contingency.

“Vutrisiran” means that certain pharmaceutical product known by the non-proprietary name vutrisiran, which, as of the Closing Date, is being developed by the Borrower.

“Withholding Agent” means the Borrower and the Administrative Agent.

“Write-Down and Conversion Powers” means, (a) with respect to any EEA Resolution Authority, the write-down and conversion powers of such EEA Resolution Authority from time to time under the Bail-In Legislation for the applicable EEA Member Country, which write-down and conversion powers are described in the EU Bail-In Legislation Schedule and (b) with respect to the United Kingdom, any powers of the applicable Resolution Authority under the Bail-In Legislation to cancel, reduce, modify or change the form of a liability of any UK Financial Institution or any contract or instrument under which that liability

arises, to convert all or part of that liability into shares, securities or obligations of that person or any other person, to provide that any such contract or instrument is to have effect as if a right had been exercised under it or to suspend any obligation in respect of that liability or any of the powers under that Bail-In Legislation that are related to or ancillary to any of those powers.

1.02 Other Interpretive Provisions.

With reference to this Agreement and each other Loan Document, unless otherwise specified herein or in such other Loan Document:

(a) The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words “include,” “includes” and “including” shall be deemed to be followed by the phrase “without limitation.” The word “will” shall be construed to have the same meaning and effect as the word “shall.” Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument or other document (including the Loan Documents and any Organization Document) shall be construed as referring to such agreement, instrument or other document as from time to time amended, amended and restated, modified, extended, restated, replaced or supplemented from time to time (subject to any restrictions on such amendments, supplements or modifications set forth herein or in any other Loan Document), (ii) any reference herein to any Person shall be construed to include such Person’s successors and assigns, (iii) the words “hereto,” “herein,” “hereof” and “hereunder,” and words of similar import when used in any Loan Document, shall be construed to refer to such Loan Document in its entirety and not to any particular provision thereof, (iv) all references in a Loan Document to Articles, Sections, Preliminary Statements, Exhibits and Schedules shall be construed to refer to Articles and Sections of, and Preliminary Statements, Exhibits and Schedules to, the Loan Document in which such references appear, (v) any reference to any law shall include all statutory and regulatory rules, regulations, orders and provisions consolidating, amending, replacing or interpreting such law and any reference to any law, rule or regulation shall, unless otherwise specified, refer to such law, rule or regulation as amended, modified, extended, restated, replaced or supplemented from time to time, and (vi) the words “asset” and “property” shall be construed to have the same meaning and effect and to refer to any and all tangible and intangible assets and properties, including cash, securities, accounts and contract rights.

(b) In the computation of periods of time from a specified date to a later specified date, the word “from” means “from and including;” the words “to” and “until” each mean “to but excluding;” and the word “through” means “to and including.”

(c) Section headings herein and in the other Loan Documents are included for convenience of reference only and shall not affect the interpretation of this Agreement or any other Loan Document.

(d) Any reference herein to a merger, transfer, consolidation, amalgamation, assignment, sale, disposition or transfer, or similar term, shall be deemed to apply to a division of or by a limited liability company, or an allocation of assets to a series of a limited liability company (or the unwinding of such a division or allocation), as if it were a merger, transfer, consolidation, amalgamation, assignment, sale, disposition or transfer, or similar term, as applicable, to, of or with a separate Person. Any division of a limited liability company shall constitute a separate Person hereunder (and each division of any limited liability company that is a Subsidiary, joint venture or any other like term shall also constitute such a Person or entity).

1.03 Accounting Terms.

(a) Generally. All accounting terms not specifically or completely defined herein shall be construed in conformity with, and all financial data (including financial ratios and other financial calculations) required to be submitted pursuant to this Agreement shall be prepared in conformity with, GAAP applied on a consistent basis, as in effect from time to time, except as otherwise specifically prescribed herein. Notwithstanding the foregoing, for purposes of determining compliance with any covenant (including the computation of any financial covenant) contained herein, (i) Indebtedness of the Borrower and its Restricted Subsidiaries shall be deemed to be carried at 100% of the outstanding principal amount thereof, and the effects of FASB ASC 825 and FASB ASC 470–20 on financial liabilities shall be disregarded, (ii) [reserved], and (iii) all terms of an accounting or financial nature used herein shall be construed, and all computations of amounts and ratios referred to herein shall be made, without giving effect to any election under FASB ASC Topic 825 “Financial Instruments” (or any other financial accounting standard having a similar result or effect) to value any Indebtedness of the Borrower or any Restricted Subsidiary at “fair value”, as defined therein. For purposes of determining the amount of any outstanding Indebtedness, no effect shall be given to any election by the Borrower to measure an item of Indebtedness using fair value (as permitted by Financial Accounting Standards Board Accounting Standards Codification 825–10–25 (formerly known as FASB 159) or any similar accounting standard).

(b) Changes in GAAP. If at any time any change in GAAP would affect the computation of any financial ratio or requirement set forth in any Loan Document, and either the Borrower, the Lender Representative or the Required Lenders shall so request, the Lender Representative and the Borrower shall negotiate in good faith to amend such ratio or requirement to preserve the original intent thereof in light of such change in GAAP (subject to the approval of the Required Lenders); *provided* that, until so amended, (i) such ratio or requirement shall continue to be computed in accordance with GAAP prior to such change therein and (ii) the Borrower shall provide to the Administrative Agent (for distribution to the Lenders) financial statements and other documents required under this Agreement or as reasonably requested hereunder setting forth a reconciliation between calculations of such ratio or requirement made before and after giving effect to such change in GAAP.

(c) Consolidation of Variable Interest Entities. All references herein to Consolidated financial statements of the Borrower and its Restricted Subsidiaries or to the determination of any amount for the Borrower and its Restricted Subsidiaries on a Consolidated basis or any similar reference shall, in each case, be deemed to include each variable interest entity that the Borrower is required to consolidate pursuant to FASB ASC 810 as if such variable interest entity were a Subsidiary as defined herein.

1.04 Rounding.

Any financial ratios required to be maintained by the Borrower pursuant to this Agreement shall be calculated by dividing the appropriate component by the other component, carrying the result to one place more than the number of places by which such ratio is expressed herein and rounding the result up or down to the nearest number (with a rounding-up if there is no nearest number).

1.05 Times of Day.

Unless otherwise specified, all references herein to times of day shall be references to Eastern time (daylight or standard, as applicable).

1.06 UCC Terms.

Terms defined in the UCC in effect on the Closing Date and not otherwise defined herein shall, unless the context otherwise indicates, have the meanings provided by those definitions. Subject to the foregoing, the term “UCC” refers, as of any date of determination, to the UCC then in effect.

1.07 Rates.

The Administrative Agent does not warrant, nor accept responsibility, nor shall the Administrative Agent have any liability with respect to the administration, submission or any other matter related to the rates in the definition of “Eurodollar Rate” or with respect to any rate that is an alternative or replacement for or successor to any of such rates (including, without limitation, any LIBOR Successor Rate) or the effect of any of the foregoing, or of any LIBOR Successor Rate Conforming Changes.

1.08 Limited Condition Transactions.

For purposes of (i) determining compliance with any provision of this Agreement or the other Loan Documents which requires the calculation of any ratio, (ii) determining the accuracy of any representations or warranties or determining whether any Default or Event of Default has occurred or (iii) testing availability under baskets set forth in this Agreement or the other Loan Documents (including baskets measured as a percentage of Consolidated EBITDA or Consolidated Total Assets), in each case, in connection with a Limited Condition Transaction, at the option of the Borrower (the Borrower’s election to exercise such option in connection with any Limited Condition Transaction, an “LCT Election”), the date of determination of whether any such action is permitted hereunder, shall be deemed to be the date the definitive agreement for such Limited Condition Transaction is entered into (such date, the “LCT Test Date”), and if, on a Pro Forma Basis after giving effect to the Limited Condition Transaction and the other transactions to be entered into in connection therewith (including any incurrence of Indebtedness and the use of proceeds thereof) as if they had occurred at the beginning of the most recent Measurement Period, as applicable, ending prior to the LCT Test Date, the Borrower could have taken such action on the relevant LCT Test Date in compliance with such ratio or basket, such ratio or basket shall be deemed to have been complied with. If the Borrower has made an LCT Election for any Limited Condition Transaction, then in connection with any subsequent calculation of any ratio or basket on or following the relevant LCT Test Date and prior to the earlier of (i) the date on which such Limited Condition Transaction is consummated, and (ii) the date that the definitive agreement for such Limited Condition Transaction is terminated or expires without consummation of such Limited Condition Transaction, any such ratio or basket shall be calculated and tested on a Pro Forma Basis assuming such Limited Condition Transaction and other transactions in connection therewith have been consummated until such time as the applicable Limited Condition Transaction has actually closed or the definitive agreement for such Limited Condition Transaction has been terminated. For the avoidance of doubt, if any of such ratios or amounts are exceeded

as a result of fluctuations in such ratio or amount (including due to fluctuations in Consolidated EBITDA or Consolidated Total Assets of the Borrower and its Restricted Subsidiaries or of the Person subject to such Limited Condition Transaction), at or prior to the consummation of the relevant transaction or action, such ratios will not be deemed to have been exceeded as a result of such fluctuations solely for purposes of determining whether the relevant transaction or action is permitted to be consummated or taken.

ARTICLE II

COMMITMENTS AND BORROWINGS

2.01 Loans.

(a) Tranche 1 Borrowing. Subject to the terms and conditions set forth herein, each Lender severally agrees to make a single Loan to the Borrower, in Dollars, on any Business Day during the Tranche 1 Availability Period in an amount equal to its Tranche 1 Commitment as of the Tranche 1 Funding Date (the “Tranche 1 Loans”). The Tranche 1 Loans shall consist of Loans made simultaneously by the Lenders in accordance with their respective Applicable Percentage of the Tranche 1 Commitments as of the Tranche 1 Funding Date. Amounts borrowed under this Section 2.01(a) and repaid or prepaid may not be reborrowed. The Tranche 1 Loans may be Base Rate Loans or Eurodollar Rate Loans, as further provided herein.

(b) Tranche 2 Borrowing. Subject to the terms and conditions set forth herein, each Lender severally agrees to make a single Loan to the Borrower, in Dollars, on any Business Day during the Tranche 2 Availability Period in an amount equal to its Tranche 2 Commitment as of the Tranche 2 Funding Date (the “Tranche 2 Loans”). The Tranche 2 Loans shall consist of Loans made simultaneously by the Lenders in accordance with their respective Applicable Percentage of the Tranche 2 Commitments as of the Tranche 2 Funding Date. Amounts borrowed under this Section 2.01(b) and repaid or prepaid may not be reborrowed. The Tranche 2 Loans may be Base Rate Loans or Eurodollar Rate Loans, as further provided herein.

(c) Tranche 3 Borrowing. Subject to the terms and conditions set forth herein, each Lender severally agrees to make a single Loan to the Borrower, in Dollars, on any Business Day during the Tranche 3 Availability Period in an amount equal to its Tranche 3 Commitment as of the Tranche 3 Funding Date (the “Tranche 3 Loans”). The Tranche 3 Loans shall consist of Loans made simultaneously by the Lenders in accordance with their respective Applicable Percentage of the Tranche 3 Commitments as of the Tranche 3 Funding Date. Amounts borrowed under this Section 2.01(c) and repaid or prepaid may not be reborrowed. The Tranche 3 Loans may be Base Rate Loans or Eurodollar Rate Loans, as further provided herein.

2.02 Borrowings, Conversions and Continuations of Loans.

(a) Notice of Borrowing. Each Borrowing, each conversion of Loans from one Type to the other, and each continuation of Eurodollar Rate Loans shall be made upon the Borrower’s irrevocable notice to the Administrative Agent, which notice shall be given by a Loan Notice. Each such Loan Notice must be received by the Administrative Agent not later than 11:00 a.m. (x) twelve (12) Business Days prior to the requested date of any Borrowing of Eurodollar Rate Loans or (y) five (5) Business Days prior to the requested date of any conversion to or continuation of Eurodollar Rate Loans or of any conversion of Eurodollar Rate Loans to Base Rate Loans and (B) twelve (12) Business Days prior to the requested date of any Borrowing of Base Rate Loans (in each case, or such shorter period as may be agreed by the Administrative Agent and the Lender Representative). Each Borrowing of, conversion to or continuation of Eurodollar Rate Loans shall

be in a principal amount of \$5,000,000 or a whole multiple of \$1,000,000 in excess thereof (or, in connection with any conversion or continuation of a Loan, if less, the entire principal thereof then outstanding). Each Borrowing of or conversion to Base Rate Loans shall be in a principal amount of \$500,000 or a whole multiple of \$100,000 in excess thereof (or, in connection with any conversion or continuation of a Loan, if less, the entire principal thereof then outstanding). Each Loan Notice shall specify (I) whether the Borrower is requesting a Borrowing, a conversion of Loans from one Type to the other, or a continuation of Loans, as the case may be, (II) the requested date of the Borrowing, conversion or continuation, as the case may be (which shall be a Business Day), (III) the principal amount of Loans to be borrowed, converted or continued, (IV) the Type of Loans to be borrowed or to which existing Loans are to be converted, and (V) if applicable, the duration of the Interest Period with respect thereto. If the Borrower fails to specify a Type of Loan in a Loan Notice or if the Borrower fails to give a timely notice requesting a conversion or continuation, then the applicable Loans shall be made as, or converted to, Base Rate Loans. Any such automatic conversion to Base Rate Loans shall be effective as of the last day of the Interest Period then in effect with respect to the applicable Eurodollar Rate Loans. If the Borrower requests a Borrowing of, conversion to, or continuation of Eurodollar Rate Loans in any such Loan Notice, but fails to specify an Interest Period, it will be deemed to have specified an Interest Period of one (1) month.

(b) Advances. Following receipt of a Loan Notice for a Borrowing, the Administrative Agent shall promptly notify each Lender of the amount of its Applicable Percentage of the applicable Loans, and if no timely notice of a conversion or continuation is provided by the Borrower, the Administrative Agent shall notify each Lender of the details of any automatic conversion to Base Rate Loans described in Section 2.02(a). In the case of a Borrowing, each Lender shall make the amount of its Loan available to the Administrative Agent in immediately available funds at the Administrative Agent's Office not later than 1:00 p.m. on the Business Day specified in the applicable Loan Notice. Upon satisfaction of the applicable conditions set forth in Section 4.02 and (x) with respect to the Tranche 1 Loans, Section 4.03, (y) with respect to the Tranche 2 Loans, Section 4.04, and (z) with respect to the Tranche 3 Loans, Section 4.05, the Administrative Agent shall make all funds so received available to the Borrower in like funds as received by the Administrative Agent either by wire transfer of such funds, in each case in accordance with instructions provided to (and reasonably acceptable to) the Administrative Agent by the Borrower.

(c) Eurodollar Rate Loans. Except as otherwise provided herein, a Eurodollar Rate Loan may be continued or converted only on the last day of an Interest Period for such Eurodollar Rate Loan. During the existence of an Event of Default, no Loans may be requested as, converted to or continued as Eurodollar Rate Loans without the consent of the Required Lenders, and the Required Lenders may demand that any or all of the outstanding Eurodollar Rate Loans be converted immediately to Base Rate Loans.

(d) Interest Rates. Each determination of an interest rate by the Administrative Agent pursuant to any provision of this Agreement shall be conclusive and binding on the Borrower and the Lenders in the absence of manifest error.

(e) Interest Periods. After giving effect to all Borrowings, all conversions of Loans from one Type to the other, and all continuations of Loans as the same Type, there shall not be more than five Interest Periods in effect.

(f) Cashless Settlement Mechanism. Notwithstanding anything to the contrary in this Agreement, any Lender may exchange, continue or rollover all or the portion of its Loans in connection with any refinancing, extension, loan modification or similar transaction permitted by

the terms of this Agreement, pursuant to a cashless settlement mechanism approved by the Borrower, the Administrative Agent, the Lender Representative and such Lender.

2.03 Prepayments.

(a) Optional.

(i) The Borrower may, upon notice to the Administrative Agent pursuant to delivery to the Administrative Agent of a Notice of Loan Prepayment, at any time or from time to time voluntarily prepay Loans in whole or in part without premium or penalty subject to Section 2.03(c) and Section 3.05; *provided* that, unless otherwise agreed by the Administrative Agent, (A) such notice must be received by the Administrative Agent not later than 11:00 a.m. (1) three (3) Business Days prior to any date of prepayment of Eurodollar Rate Loans and (2) one (1) Business Day prior to any date of prepayment of Base Rate Loans; (B) any prepayment of Eurodollar Rate Loans shall be in a principal amount of \$5,000,000 or a whole multiple of \$1,000,000 in excess thereof; and (C) any prepayment of Base Rate Loans shall be in a principal amount of \$500,000 or a whole multiple of \$100,000 in excess thereof or, in each case, if less, the entire principal amount thereof then outstanding. Each such notice shall specify the date and amount of such prepayment and the Type(s) of Loans to be prepaid and, if Eurodollar Rate Loans are to be prepaid, the Interest Period(s) of such Loans. The Administrative Agent will promptly notify each Lender of its receipt of each such notice, and of the amount of such Lender's ratable portion of such prepayment. If such notice is given by the Borrower, the Borrower shall make such prepayment and the payment amount specified in such notice shall be due and payable on the date specified therein; *provided* that the Notice of Loan Prepayment may state that such notice is conditioned upon the effectiveness of other credit facilities, indentures or similar agreements or other transactions, in which case such notice may be revoked or postponed by the Borrower (by written notice to the Administrative Agent on or prior to the specified effective date) if such condition is not satisfied. Any prepayment of a Eurodollar Rate Loan shall be accompanied by all accrued interest on the amount prepaid, together with any additional amounts required pursuant to Section 3.05. Each prepayment of the outstanding Loans pursuant to this Section 2.03(a) shall be applied to the principal repayment installments thereof as directed by the Borrower, and, in the absence of direction, in direct order of maturity. Subject to Section 2.12, such prepayments shall be paid to the Lenders in accordance with their respective Applicable Percentages of the outstanding Loans.

(b) Mandatory.

(i) Dispositions and Involuntary Dispositions. The Borrower shall prepay the Loans in an aggregate amount equal to 100% of the Net Cash Proceeds received by the Loan Parties from all Dispositions pursuant to Section 7.05(f), (h), (i), (j) and (l) (other than Permitted Transfers) and Involuntary Dispositions of Collateral within ten (10) Business Days of the date of such Disposition or Involuntary Disposition that are in excess of \$10,000,000; *provided* that, other than with respect to Net Cash Proceeds received in connection with a Disposition or Involuntary Disposition of the Manufacturing Facility, if the Borrower or its Restricted Subsidiaries invest (or commit to invest) the Net Cash Proceeds from such event (or a portion thereof) within 12 months after receipt of such Net Cash Proceeds to acquire, maintain, develop, construct, improve, upgrade, repair or make capital expenditures or Investments with respect to assets or property (x) that constitute Collateral or (y) with respect to which the Administrative Agent, on behalf of the Secured

Parties, shall have received a first priority perfected security interest, then no prepayment shall be required pursuant to this paragraph in respect of such Net Cash Proceeds in respect of such event (or the applicable portion of such Net Cash Proceeds, if applicable) except to the extent of any such Net Cash Proceeds therefrom that have not been so invested (or committed to be invested) by the end of such 12-month period (or if committed to be so invested within such 12-month period, have not been so invested within one hundred eighty (180) days after the 12-month period that follows receipt thereof), at which time a prepayment shall be required in an amount equal to such Net Cash Proceeds that have not been so invested (or committed to be invested); *provided, further that*, if (x) the Borrower or a Restricted Subsidiary has identified Replacement Collateral in writing to the Lender Representative at least five (5) Business Days prior to the date of such Disposition or Involuntary Disposition, and (y) the Administrative Agent, on behalf of the Secured Parties shall have received (or shall receive in connection with the closing of such Disposition or Involuntary Disposition) a first priority perfected security interest in all such Replacement Collateral on or prior to the date of such Disposition or Involuntary Disposition, then no prepayment (or Cash Collateral) shall be required pursuant to this paragraph in respect of such Net Cash Proceeds.

(ii) Dispositions of Inclisiran. At any time prior to the First Commercial Sale, the Borrower shall prepay the Loans and/or Cash Collateralize the Obligations in an aggregate amount equal to 100% of the Net Cash Proceeds received by the Borrower or any Restricted Subsidiary from all Dispositions and Involuntary Dispositions of Inclisiran (or any rights with respect thereto) that are consummated after the Closing Date within ten (10) Business Days of the date of such Disposition or Involuntary Disposition; *provided that*, if (x) the Borrower or a Subsidiary has identified Replacement Collateral in writing to the Lender Representative at least ten (10) Business Days prior to the date of such Disposition or Involuntary Disposition, and (y) the Administrative Agent, on behalf of the Secured Parties shall have received (or shall receive in connection with the closing of such Disposition or Involuntary Disposition) a first priority perfected security interest in all such Replacement Collateral, to the extent required by Section 6.14, on or prior to the date of such Disposition or Involuntary Disposition, then no prepayment (or Cash Collateral) shall be required pursuant to this paragraph in respect of such Net Cash Proceeds.

(iii) Debt Issuance. Within one (1) Business Day upon the receipt by the Borrower or any Restricted Subsidiary of the Net Cash Proceeds of any Debt Issuance, the Borrower shall prepay the Loans as hereinafter provided in an aggregate amount equal to 100% of such Net Cash Proceeds.

(iv) Application of Payments. Each prepayment of Loans pursuant to the foregoing provisions of this Section 2.03(b) shall be applied, to the principal repayment installments of the Loans, on a ratable basis among the Tranche 1 Loans, the Tranche 2 Loans and the Tranche 3 Loans outstanding at the time of such prepayment, in inverse order of maturity in respect of each tranche, including, without limitation, the final principal repayment installment on the Maturity Date. Subject to Section 2.12, such prepayments shall be paid to the Lenders in accordance with their respective Applicable Percentages of the outstanding Loans.

(v) Foreign Subsidiary Prepayments. Notwithstanding any other provisions of this Section 2.03, (i) to the extent that any or all of the Net Cash Proceeds of any event giving rise to prepayment pursuant to Section 2.03(b)(i) or (iii) are attributable to any Foreign Subsidiary that is not a Guarantor (a "Foreign Prepayment Event"), which is

prohibited or delayed by any applicable local law relating to financial assistance, corporate benefit, thin capitalization and the fiduciary and statutory duties of the directors of the relevant Foreign Subsidiary or any other from being repatriated to the Loan Parties, an amount equal to the portion of such Net Cash Proceeds generated by such Foreign Subsidiary and so affected will not be required to be applied to repay the Loans at the times provided in this Section 2.03(b), but only to the extent, and for so long as, Applicable Law will not permit repatriation to the Loan Parties, and once a repatriation of any of such affected Net Cash Proceeds is permitted under Applicable Law, an amount equal to such Net Cash Proceeds will be promptly (and in any event not later than three (3) Business Days after such repatriation is permitted) applied (net of any taxes payable resulting from any repatriation) to the repayment of the Loans pursuant to this Section 2.03(b), and (ii) to the extent that the Borrower has determined in good faith that repatriation to the United States of any or all of the Net Cash Proceeds of any Foreign Prepayment Event generated by any Foreign Subsidiary that is not a Guarantor would have material adverse tax consequences to the Borrower (in the Borrower's reasonable determination, and taking into account any foreign tax credit or benefit actually realized in connection with such repatriation), an amount equal to such Net Cash Proceeds so affected will not be required to be applied to repay the Loans at the times provided in this Section 2.03(b), but only to the extent, and so long as, such material adverse tax consequences apply and once such material adverse tax consequences no longer apply, an amount equal to such Net Cash Proceeds will be promptly (and in any event not later than three (3) Business Days after such repatriation no longer causes such material adverse tax consequences) applied to the repayment of the Loans pursuant to this Section 2.03(b); *provided that*, in each case, each Loan Party will, and will cause the applicable Foreign Subsidiary to, use commercially reasonable efforts to take any action to permit such repatriation without material adverse tax consequences including (A) the making of an intercompany loan by the applicable Foreign Subsidiary to the Loan Party in an amount equal to the portion of such Net Cash Proceeds and (B) in the case of clause (i), the taking of all commercially reasonable actions required by Applicable Law to permit such repatriation.

(c) Call Protection. Notwithstanding anything to the contrary contained in this Agreement, at the time of (x) any prepayment of the Loans pursuant to Section 2.03(a) or Section 2.03(b), (y) the acceleration of any Loans pursuant to Article VIII or (z) any termination of any Commitment as a result of a Commitment Termination Event, in each case, prior to the Maturity Date:

(i) prior to the date that is twenty-four months after the Applicable Measurement Date, the Borrower agrees to pay to the Administrative Agent, for the ratable account of each applicable Lender, a fee in an amount equal to the product of the Applicable Premium multiplied by the aggregate principal amount of all Loans so prepaid (in the case of clause (x)), accelerated (in the case of clause (y)) or deemed prepaid (in the case of clause (z));

(ii) on and after the date that is twenty-four months after the Applicable Measurement Date, but prior to the date that is thirty-six months after the Applicable Measurement Date, the Borrower agrees to pay to the Administrative Agent, for the ratable account of each Lender with outstanding Loans, a fee in an amount equal to 5.0% of the aggregate principal amount of all Loans so prepaid (in the case of clause (x)), accelerated (in the case of clause (y)) or deemed prepaid (in the case of clause (z));

(iii) on and after the date that is thirty-six months after the Applicable Measurement Date, but prior to the date that is forty-eight months after the Applicable Measurement Date, the Borrower agrees to pay to the Administrative Agent, for the ratable account of each Lender with outstanding Loans, a fee in an amount equal to 2.0% of the aggregate principal amount of all Loans so prepaid (in the case of clause (x)), accelerated (in the case of clause (y)) or deemed prepaid (in the case of clause (z)); and

(iv) on and after the date that is forty-eight months after the Applicable Measurement Date, but prior to the date that is sixty (60) months after the Applicable Measurement Date, the Borrower agrees to pay to the Administrative Agent, for the ratable account of each Lender with outstanding Loans, a fee in an amount equal to 1.0% of the aggregate principal amount of all Loans so prepaid (in the case of clause (x)), accelerated (in the case of clause (y)) or deemed prepaid (in the case of clause (z)).

The Applicable Premium shall be fully earned, and due and payable, on the date of the applicable prepayment, or, if earlier, on the date such prepayment is required to be made, and shall be non-refundable or curable when made. The Loan Parties further acknowledge and agree that the Applicable Premium is not intended to act as a penalty or to punish the Loan Parties for any such prepayment or amendment.

Notwithstanding anything to the contrary in this Agreement or any other Loan Document, it is understood and agreed that if the Obligations are accelerated as a result of the occurrence of any Event of Default (including by operation of law or otherwise), the Applicable Premium will also be due and payable and shall constitute part of the Obligations for all purposes herein. The Applicable Premium shall also be payable in the event the Obligations (and/or this Agreement) are satisfied or released by foreclosure (whether by power of judicial proceeding), deed in lieu of foreclosure or by any other means. THE LOAN PARTIES EXPRESSLY WAIVE THE PROVISIONS OF ANY PRESENT OR FUTURE STATUTE OR LAW THAT PROHIBITS OR MAY PROHIBIT, THE ACCRUAL OR COLLECTION OF THE APPLICABLE PREMIUM. The Loan Parties expressly agree that (i) the Applicable Premium is reasonable and is the product of an arm's length transaction between sophisticated business people, ably represented by counsel, (ii) the Applicable Premium shall be payable notwithstanding the then prevailing market interest rates at the time payment is made, (iii) there has been a course of conduct between the Lender Representative, the Lenders and the Loan Parties giving specific consideration in this transaction for such agreement to pay the Applicable Premium, (iv) the Loan Parties shall be estopped hereafter from claiming differently than as agreed to in this Section 2.04(c), (v) the Loan Parties' agreement to pay the Applicable Premium is a material inducement to the Lenders to make the Loans, and (vi) the Applicable Premium represents a good faith, reasonable estimate and calculation of the lost profits or damages of the Lenders, not a penalty, and that it would be impractical and extremely difficult to ascertain the actual amount of damages to the Lenders or profits lost by the Lenders.

Within the parameters of the applications set forth above, prepayments pursuant to Section 2.03(b) shall be applied first to Base Rate Loans and then to Eurodollar Rate Loans in inverse order of Interest Period maturities. All prepayments under Section 2.03(b) shall be subject to Section 3.05, but otherwise without premium or penalty, and shall be accompanied by interest on the principal amount prepaid through the date of prepayment.

2.04 Termination, Reduction or Acceleration of Commitments.

(a) Optional.

(i) Except as set forth in Section 2.04(a)(ii) and Section 2.04(a)(iii), the Borrower may not terminate or permanently reduce any Commitments at any time other than in connection with an Early Refinancing.

(ii) Reduced Commitments. On any date prior to the date that is twelve (12) months after the Closing Date, the Borrower may elect to permanently reduce the undrawn Commitments in an aggregate principal amount not to exceed the Maximum Modification Amount upon notice to the Administrative Agent and the Lender Representative (the amount of reduced Commitments, the “*Reduced Commitments*”); *provided* that (i) any such notice shall be received by the Administrative Agent and the Lender Representative not later than 11:00 a.m. five (5) Business Days prior to the date of reduction and (ii) the Reduced Commitments shall be applied to the undrawn Commitments as directed by the Borrower on such date.

(iii) Accelerated Commitments. On any date prior to the date that is twelve (12) months after the Closing Date, the Borrower may accelerate the undrawn Tranche 2 Commitments and/or the undrawn Tranche 3 Commitments (the “*Accelerated Commitments*”) in an aggregate amount not to exceed the Maximum Modification Amount on such date by reallocating the Accelerated Commitments to Tranche 1 Commitments and/or Tranche 2 Commitments; *provided* that the Borrower shall have provided written notice to the Administrative Agent not later than 11:00 a.m. five (5) Business Days prior to the date of such acceleration. The Tranche 2 Commitments and the Tranche 3 Commitments that are accelerated pursuant to this Section 2.04(a)(iii) shall be automatically and permanently reduced as directed by the Borrower.

(b) Mandatory.

(i) The aggregate Tranche 1 Commitments shall be automatically and permanently reduced to zero on the Tranche 1 Funding Date.

(ii) The aggregate Tranche 2 Commitments shall be automatically and permanently reduced to zero on the Tranche 2 Funding Date.

(iii) The aggregate Tranche 3 Commitments shall be automatically and permanently reduced to zero on the Tranche 3 Funding Date.

(c) Outside Date. If the Subsequent Borrowing Condition has not been satisfied as of the Outside Date, the Lender Representative may in its sole discretion, upon notice to the Borrower, terminate all (or any portion) of the Aggregate Commitments that are undrawn as of such date.

2.05 Repayment of Loans

The Borrower shall repay to the Lenders an amount equal to the aggregate principal amount of all Loans outstanding on the Maturity Date together with all interest accrued and unpaid thereon, and all other amounts owing or payable hereunder.

2.06 Interest and Default Rate

(a) Interest.

(i) Subject to the provisions of Section 2.06(b), the unpaid principal amount of each Base Rate Loan shall bear interest (i) with respect to each Interest Period ending on or prior to the PIK Interest Termination Date and any portion of any Interest Period occurring on or prior to the PIK Interest Termination Date, at the Borrower's election, (A) at a rate per annum equal to the Base Rate in effect from time to time plus the Applicable Rate, payable entirely in cash ("Cash Interest"), or (B) so long as no Event of Default shall have occurred and be continuing, at a rate per annum equal to the Base Rate in effect from time to time plus the PIK Rate, payable in kind ("PIK Interest") by adding such interest to such unpaid principal amount (on a pro rata basis among the Lenders) and (ii) with respect to each Interest Period ending after the PIK Interest Termination Date (other than any portion of any Interest Period occurring on or prior to the PIK Interest Termination Date), entirely as Cash Interest at a rate per annum equal to the Base Rate in effect from time to time plus the Applicable Rate, in each case from the date of the Borrowing thereof until maturity (whether by acceleration or otherwise).

(ii) Subject to the provisions of Section 2.06(b), the unpaid principal amount of each Eurodollar Rate Loan shall bear interest (i) with respect to each Interest Period ending on or prior to the PIK Interest Termination Date and any portion of any Interest Period occurring on or prior to the PIK Interest Termination Date, at the Borrower's election, (A) at a rate per annum equal to the Eurodollar Rate in effect from time to time plus Applicable Rate, payable entirely as Cash Interest or (B) so long as no Event of Default shall have occurred and be continuing, at a rate per annum equal to the Eurodollar Rate in effect from time to time plus the PIK Rate, as PIK Interest by adding such interest to such unpaid principal amount (on a pro rata basis among the Lenders) and (ii) with respect to each Interest Period ending after the PIK Interest Termination Date (other than any portion of any Interest Period occurring on or prior to the PIK Interest Termination Date), entirely as Cash Interest at a rate per annum equal to the Eurodollar Rate in effect from time to time plus the Applicable Rate, in each case from the date of the Borrowing thereof until maturity (whether by acceleration or otherwise).

(iii) Prior to the PIK Interest Termination Date, the Borrower shall elect the form of interest payment for each Interest Period by delivering a notice (the "Interest Election Notice") at least three (3) Business Days prior to the commencement of the applicable Interest Period. Each Interest Election Notice shall include information to the following effect: (i) the relevant Interest Payment Date; (ii) whether interest shall be paid on such interest payment date as Cash Interest or as PIK Interest; and (iii) if interest shall be paid as PIK Interest, the increase in the principal amount of the Loans to be effective upon the relevant Interest Payment Date as a result of such payment and the principal amount of the Loans to be outstanding as of such Interest Payment Date after giving effect to such payment. If the Borrower does not deliver an Interest Election Notice in respect of any Interest Period (the "Subject Interest Period"), the interest on the Loans will be payable on the Interest Payment Date in respect of the Subject Interest Period as Cash Interest; *provided that* (1) in no event shall any interest in respect of any Interest Period (or portion thereof) occurring after the PIK Interest Termination Date be payable as PIK Interest and (2) in no event shall accrued and unpaid interest be payable as PIK Interest in connection with any voluntary or mandatory prepayment of principal of the Loans.

(b) Default Rate. Upon the request of the Required Lenders, and notice to the Borrower while any Event of Default exists (including a payment default), all past due Obligations may accrue at a fluctuating interest rate per annum at all times equal to the Default Rate to the

fullest extent permitted by Applicable Laws. Accrued and unpaid interest on past due amounts (including interest on past due interest) shall be due and payable promptly upon demand.

(c) Interest Payments. Interest on each Loan shall be due and payable in arrears on each Interest Payment Date applicable thereto and at such other times as may be specified herein. Interest hereunder shall be due and payable in accordance with the terms hereof before and after judgment, and before and after the commencement of any proceeding under any Debtor Relief Law.

2.07 Fees.

(a) Agency Fee Letter. The Borrower shall pay to the Administrative Agent, for its own account, fees in the amounts and at the times specified in the Agency Fee Letter.

(b) Fee Letter. The Borrower shall pay to the Lender Representative, for its own account, fees in the amounts and at the times specified in the Fee Letter.

2.08 Computation of Interest and Fees.

All computations of interest for Base Rate Loans (including Base Rate Loans determined by reference to the Eurodollar Rate) shall be made on the basis of a year of 365 or 366 days, as the case may be, and actual days elapsed. All other computations of fees and interest shall be made on the basis of a three hundred sixty (360) day year and actual days elapsed (which results in more fees or interest, as applicable, being paid than if computed on the basis of a 365 day year). Interest shall accrue on each Loan for the day on which the Loan is made, and shall not accrue on a Loan, or any portion thereof, for the day on which the Loan or such portion is paid, *provided* that any Loan that is repaid on the same day on which it is made shall, subject to Section 2.10(a), bear interest for one (1) day. Each determination by the Administrative Agent of an interest rate or fee hereunder shall be conclusive and binding for all purposes, absent manifest error. The Administrative Agent shall, at the request of the Borrower, deliver to the Borrower a statement showing the quotations used by the Administrative Agent in determining any interest rate hereunder.

2.09 Evidence of Debt.

The Loans made by each Lender shall be evidenced by one or more accounts or records maintained by such Lender in the ordinary course of business. The Administrative Agent shall maintain the Register in accordance with Section 11.06(c). The accounts or records maintained by each Lender shall be conclusive absent manifest error of the amount of the Loans made by the Lenders to the Borrower and the interest and payments thereon. Any failure to so record or any error in doing so shall not, however, limit or otherwise affect the obligation of the Borrower hereunder to pay any amount owing with respect to the Obligations. In the event of any conflict between the accounts and records maintained by any Lender and the Register, the Register shall control in the absence of manifest error. Upon the request of any Lender to the Borrower, the Borrower shall execute and deliver to such Lender (with a copy to the Administrative Agent) a Note, which shall evidence such Lender's Loans in addition to such accounts or records. Each Lender may attach schedules to its Note and endorse thereon the date, Type (if applicable), amount and maturity of its Loans and payments with respect thereto.

2.10 Payments Generally: Administrative Agent's Clawback.

(a) General. All payments to be made by the Borrower shall be made free and clear of and without condition or deduction for any counterclaim, defense, recoupment or setoff. Except as otherwise expressly provided herein, all payments by the Borrower hereunder shall be made to the Administrative Agent, for the account of the respective Lenders to which such payment is owed, at

the Administrative Agent's Office in Dollars and in immediately available funds not later than 2:00 p.m. on the date specified herein. The Administrative Agent will promptly distribute to each Lender its Applicable Percentage (or other applicable share as provided herein) of such payment in like funds as received by wire transfer to such Lender's Lending Office. All payments received by the Administrative Agent after 2:00 p.m. shall be deemed received on the next succeeding Business Day and any applicable interest or fee shall continue to accrue. Except as otherwise specifically provided for in this Agreement, if any payment to be made by the Borrower shall come due on a day other than a Business Day, payment shall be made on the next following Business Day, and such extension of time shall be reflected in computing interest or fees, as the case may be.

(b) Funding by Lenders; Presumption by Administrative Agent.

(i) Unless the Administrative Agent shall have received notice from a Lender prior to the proposed date of any Borrowing of Eurodollar Rate Loans (or, in the case of any Borrowing of Base Rate Loans, prior to 12:00 noon on the date of such Borrowing) that such Lender will not make available to the Administrative Agent such Lender's share of such Borrowing, the Administrative Agent may assume that such Lender has made such share available on such date in accordance with Section 2.02 (or, in the case of a Borrowing of Base Rate Loans, that such Lender has made such share available in accordance with and at the time required by Section 2.02) and may, in reliance upon such assumption, but shall have no obligation to do so, make available to the Borrower a corresponding amount. In such event, if a Lender has not in fact made its share of the applicable Borrowing available to the Administrative Agent, then the applicable Lender and the Borrower severally agree to pay to the Administrative Agent forthwith on demand such corresponding amount in immediately available funds with interest thereon, for each day from and including the date such amount is made available to the Borrower to but excluding the date of payment to the Administrative Agent, at (A) in the case of a payment to be made by such Lender, the greater of the Federal Funds Rate and a rate determined by the Administrative Agent in accordance with banking industry rules on interbank compensation, *plus* any administrative, processing or similar fees customarily charged by the Administrative Agent in connection with the foregoing, and (B) in the case of a payment to be made by the Borrower, the interest rate applicable to Base Rate Loans. If the Borrower and such Lender shall pay such interest to the Administrative Agent for the same or an overlapping period, the Administrative Agent shall promptly remit to the Borrower the amount of such interest paid by the Borrower for such period. If such Lender pays its share of the applicable Borrowing to the Administrative Agent, then the amount so paid shall constitute such Lender's Loan included in such Borrowing. Any payment by the Borrower shall be without prejudice to any claim the Borrower may have against a Lender that shall have failed to make such payment to the Administrative Agent.

(ii) Payments by Borrower; Presumptions by Administrative Agent. Unless the Administrative Agent shall have received notice from the Borrower prior to the date on which any payment is due to the Administrative Agent for the account of the Lenders hereunder that the Borrower will not make such payment, the Administrative Agent may assume that the Borrower has made such payment on such date in accordance herewith and may, in reliance upon such assumption, but shall have no obligation to do so, distribute to the Lenders the amount due. In such event, if the Borrower has not in fact made such payment, then each of the Lenders severally agrees to repay to the Administrative Agent forthwith on demand the amount so distributed to such Lender, in immediately available funds with interest thereon, for each day from and including the date such amount is distributed to it to but excluding the date of payment to the Administrative Agent, at the

greater of the Federal Funds Rate and a rate determined by the Administrative Agent in accordance with banking industry rules on interbank compensation.

A notice of the Administrative Agent to any Lender or the Borrower with respect to any amount owing under this clause (b) shall be conclusive, absent manifest error.

(c) Failure to Satisfy Conditions Precedent. If any Lender makes available to the Administrative Agent funds for any Loan to be made by such Lender as provided in the foregoing provisions of this Article II, and such funds are not made available to the Borrower by the Administrative Agent because the conditions to the applicable Borrowing set forth in Article IV are not satisfied or waived in accordance with the terms hereof, the Administrative Agent shall return such funds (in like funds as received from such Lender) to such Lender, without interest.

(d) Obligations of Lenders Several. The obligations of the Lenders hereunder to make Loans and to make payments pursuant to Section 11.04(c) are several and not joint. The failure of any Lender to make any Loan, to fund any such participation or to make any payment under Section 11.04(c) on any date required hereunder shall not relieve any other Lender of its corresponding obligation to do so on such date, and no Lender shall be responsible for the failure of any other Lender to so make its Loan, to purchase its participation or to make its payment under Section 11.04(c).

(e) Funding Source. Nothing herein shall be deemed to obligate any Lender to obtain the funds for any Loan in any particular place or manner or to constitute a representation by any Lender that it has obtained or will obtain the funds for any Loan in any particular place or manner.

(f) Pro Rata Treatment. Except to the extent otherwise provided herein: (i) each Borrowing shall be made from the Lenders, each payment of fees under Section 2.07 shall be made for account of the Lenders, and each termination or reduction of the amount of the Commitments shall be applied to the respective Commitments of the Lenders, *pro rata* according to the amounts of their respective Commitments; (ii) each Borrowing shall be allocated *pro rata* among the Lenders according to the amounts of their respective or their respective Loans that are to be included in such Borrowing (in the case of conversions and continuations of Loans); (iii) each payment or prepayment of principal of Loans by the Borrower shall be made for account of the Lenders *pro rata* in accordance with the respective unpaid principal amounts of the Loans held by them; (iv) each payment of interest on Loans by the Borrower shall be made for account of the applicable Lenders *pro rata* in accordance with the amounts of interest on such Loans then due and payable to the respective Lenders; and (v) each payment of the Obligations under Secured Swap Agreements shall be made for the account of the applicable Hedge Banks *pro rata* in accordance with the amounts due thereunder then and due payable to the respective Hedge Banks.

2.11 Sharing of Payments by Lenders.

If any Lender shall, by exercising any right of setoff or counterclaim or otherwise, obtain payment in respect of (a) Obligations due and payable to such Lender hereunder and under the other Loan Documents at such time in excess of its ratable share (according to the proportion of (i) the amount of such Obligations due and payable to such Lender at such time to (ii) the aggregate amount of the Obligations due and payable to all Lenders hereunder and under the other Loan Documents at such time) of payments on account of the Obligations due and payable to all Lenders hereunder and under the other Loan Documents at such time obtained by all the Lenders at such time or (b) Obligations owing (but not due and payable) to such Lender hereunder and under the other Loan Documents at such time in excess of its ratable share (according to the proportion of (i) the amount of such Obligations owing (but not due and payable) to such

Lender at such time to (ii) the aggregate amount of the Obligations owing (but not due and payable) to all Lenders hereunder and under the other Loan Documents at such time) of payments on account of the Obligations owing (but not due and payable) to all Lenders hereunder and under the other Loan Documents at such time obtained by all of the Lenders at such time, then, in each case under clauses (a) and (b) above, the Lender receiving such greater proportion shall (A) notify the Administrative Agent and the Lender Representative of such fact, and (B) purchase (for cash at face value) participations in the Loans of the other Lenders, or make such other adjustments as shall be equitable, so that the benefit of all such payments shall be shared by the Lenders ratably in accordance with the aggregate amount of Obligations then due and payable to the Lenders or owing (but not due and payable) to the Lenders, as the case may be, *provided that*:

(i) if any such participations or sub-participations are purchased and all or any portion of the payment giving rise thereto is recovered, such participations or sub-participations shall be rescinded and the purchase price restored to the extent of such recovery, without interest; and

(ii) the provisions of this Section 2.11 shall not be construed to apply to (A) any payment made by or on behalf of the Borrower pursuant to and in accordance with the express terms of this Agreement (including the application of funds arising from the existence of a Defaulting Lender) or (B) any payment obtained by a Lender as consideration for the assignment of or sale of a participation in any of its Loans to any assignee or participant, other than an assignment to any Loan Party or any Affiliate thereof (as to which the provisions of this Section 2.11 shall apply).

Each Loan Party consents to the foregoing and agrees, to the extent it may effectively do so under Applicable Law, that any Lender acquiring a participation pursuant to the foregoing arrangements may exercise against such Loan Party rights of setoff and counterclaim with respect to such participation as fully as if such Lender were a direct creditor of such Loan Party in the amount of such participation.

2.12 Defaulting Lenders.

(a) Adjustments. Notwithstanding anything to the contrary contained in this Agreement, if any Lender becomes a Defaulting Lender, then, until such time as that Lender is no longer a Defaulting Lender, to the extent permitted by Applicable Law:

(i) Waivers and Amendments. Such Defaulting Lender's right to approve or disapprove any amendment, waiver or consent with respect to this Agreement shall be restricted as set forth in the definition of "Required Lenders" and Section 11.01.

(ii) Defaulting Lender Waterfall. Any payment of principal, interest, fees or other amounts received by the Administrative Agent for the account of such Defaulting Lender (whether voluntary or mandatory, at maturity, pursuant to Article VIII or otherwise) or received by the Administrative Agent from a Defaulting Lender pursuant to Section 11.08 shall be applied at such time or times as may be determined by the Lender Representative as follows: *first*, to the payment of any amounts owing by such Defaulting Lender to the Administrative Agent hereunder; *second*, as the Borrower may request (so long as no Default or Event of Default exists), to the funding of any Loan in respect of which such Defaulting Lender has failed to fund its portion thereof as required by this Agreement, as determined by the Lender Representative; *third*, if so determined by the Lender Representative and the Borrower, to be held in a deposit account and released *pro rata* in order to satisfy such Defaulting Lender's potential future funding obligations with respect to Loans under this Agreement; *fourth*, to the payment of any amounts owing to the

Lenders as a result of any judgment of a court of competent jurisdiction obtained by any Lender, against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; *fifth*, so long as no Default or Event of Default exists, to the payment of any amounts owing to the Borrower as a result of any judgment of a court of competent jurisdiction obtained by the Borrower against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; and *sixth*, to such Defaulting Lender or as otherwise as may be required under the Loan Documents in connection with any Lien conferred thereunder or directed by a court of competent jurisdiction; *provided* that if (x) such payment is a payment of the principal amount of any Loans in respect of which such Defaulting Lender has not fully funded its appropriate share, and (y) such Loans were made at a time when the conditions set forth in Section 4.02 were satisfied or waived, such payment shall be applied solely to pay the Loans of all Non-Defaulting Lenders on a *pro rata* basis prior to being applied to the payment of any Loans of such Defaulting Lender until such time as all Loans are held by the Lenders *pro rata* in accordance with the Commitments hereunder. Any payments, prepayments or other amounts paid or payable to a Defaulting Lender that are applied (or held) to pay amounts owed by a Defaulting Lender shall be deemed paid to and redirected by such Defaulting Lender, and each Lender irrevocably consents hereto.

(b) Defaulting Lender Cure. If the Borrower, the Administrative Agent and the Lender Representative agree in writing that a Lender is no longer a Defaulting Lender, the Administrative Agent will so notify the parties hereto, whereupon as of the effective date specified in such notice and subject to any conditions set forth therein, that Lender will, to the extent applicable, purchase at par that portion of outstanding Loans of the other Lenders or take such other actions as the Administrative Agent may determine to be necessary to cause the Loans to be held *pro rata* by the Lenders in accordance with their Commitments, whereupon such Lender will cease to be a Defaulting Lender; *provided* that no adjustments will be made retroactively with respect to fees accrued or payments made by or on behalf of the Borrower while that Lender was a Defaulting Lender; and *provided, further*, that except to the extent otherwise expressly agreed by the affected parties, no change hereunder from Defaulting Lender to Lender will constitute a waiver or release of any claim of any party hereunder arising from that Lender's having been a Defaulting Lender.

2.13 Increase in Commitments.

On any date following the one year anniversary of the Closing Date, by written notice to the Administrative Agent, the Borrower may request from the Lenders a one-time increase in the Aggregate Commitments by an amount up to \$50,000,000 (the "Incremental Commitments"); *provided* that (i) no Lender will have an obligation to provide any portion of the Incremental Commitments and (ii) the Incremental Commitments shall be made on terms and conditions as agreed between the Administrative Agent, the Borrower and the Lenders providing such Incremental Commitments.

ARTICLE III

TAXES, YIELD PROTECTION AND ILLEGALITY

3.01 Taxes.

(a) Defined Terms. For purposes of this Section 3.01, the term "Applicable Law" includes FATCA.

(b) Payments Free of Taxes; Obligation to Withhold; Payments on Account of Taxes. Any and all payments by or on account of any obligation of any Loan Party under any Loan Document shall be made without deduction or withholding for any Taxes, except as required by Applicable Laws. If any Applicable Laws (as determined in the good faith discretion of an applicable Withholding Agent) require the deduction or withholding of any Tax from any such payment by a Withholding Agent, then the applicable Withholding Agent shall be entitled to make such deduction or withholding and shall timely pay the full amount deducted or withheld to the relevant Governmental Authority in accordance with Applicable Law and, if such Tax is an Indemnified Tax, then the sum payable by the applicable Loan Party shall be increased as necessary so that after any required withholdings or deductions (including withholdings or deductions applicable to additional sums payable under this Section 3.01) the applicable Recipient receives an amount equal to the sum it would have received had no such withholding or deduction been made.

(c) Payment of Other Taxes by the Borrower. The Borrower shall timely pay to the relevant Governmental Authority in accordance with Applicable Law, or at the option of the Administrative Agent or the Lender Representative timely reimburse it for the payment of, any Other Taxes.

(d) Tax Indemnifications.

(i) Each of the Loan Parties shall, and does hereby, jointly and severally indemnify each Recipient, and shall make payment in respect thereof within ten (10) days after demand therefor, for the full amount of any Indemnified Taxes (including Indemnified Taxes imposed or asserted on or attributable to amounts payable under this Section 3.01) payable or paid by such Recipient or required to be withheld or deducted from a payment to such Recipient, and any penalties, interest and reasonable expenses arising therefrom or with respect thereto, whether or not such Indemnified Taxes were correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to the Borrower by a Lender (with a copy to the Administrative Agent), or by the Administrative Agent on its own behalf or on behalf of a Lender, shall be conclusive absent manifest error.

(ii) Each Lender shall, and does hereby, severally indemnify and shall make payment in respect thereof within ten (10) days after demand therefor, (A) the Administrative Agent against any Indemnified Taxes attributable to such Lender (but only to the extent that any Loan Party has not already indemnified the Administrative Agent for such Indemnified Taxes and without limiting the obligation of the Loan Parties to do so), (B) the Administrative Agent against any Taxes attributable to such Lender's failure to comply with the provisions of Section 11.06(d) relating to the maintenance of a Participant Register and (C) the Administrative Agent against any Excluded Taxes attributable to such Lender, in each case, that are payable or paid by the Administrative Agent in connection with any Loan Document, and any reasonable expenses arising therefrom or with respect thereto, whether or not such Taxes were correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to any Lender by the Administrative Agent shall be conclusive absent manifest error. Each Lender hereby authorizes the Administrative Agent to set off and apply any and all amounts at any time owing to such Lender under any Loan Document or otherwise payable by the Administrative Agent to the Lender from any other source against any amount due to the Administrative Agent under this clause (d)(ii).

(e) Evidence of Payments. As soon as practicable after any payment of Taxes by any Loan Party to a Governmental Authority, as provided in this Section 3.01, the Borrower shall deliver to the Administrative Agent the original or a certified copy of a receipt issued by such Governmental Authority evidencing such payment, a copy of any return reporting such payment or other evidence of such payment reasonably satisfactory to the Lender Representative.

(f) Status of Lenders; Tax Documentation.

(i) Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Loan Document shall deliver to the Borrower and the Administrative Agent, at the time or times reasonably requested by the Borrower or the Administrative Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Administrative Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Administrative Agent, shall deliver such other documentation prescribed by Applicable Law or reasonably requested by the Borrower or the Administrative Agent as will enable the Borrower or the Administrative Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Section 3.01(f)(ii)(A), (ii)(B) and (ii)(D) below) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender.

(ii) Without limiting the generality of the foregoing, in the event that the Borrower is a U.S. Person,

(A) any Lender that is a U.S. Person shall deliver to the Borrower and the Administrative Agent on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax;

(B) any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), whichever of the following is applicable:

(1) in the case of a Foreign Lender claiming the benefits of an income tax treaty to which the United States is a party (x) with respect to payments of interest under any Loan Document, executed copies of IRS Form W-8BEN-E (or W-8BEN, as applicable) establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the "interest" article of such tax treaty and (y) with respect to any other applicable payments under any Loan Document, IRS Form W-8BEN-E (or W-8BEN, as applicable) establishing an exemption from, or reduction

of, U.S. federal withholding Tax pursuant to the “business profits” or “other income” article of such tax treaty;

(2) executed copies of IRS Form W-8ECI;

(3) in the case of a Foreign Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Code, (x) a certificate substantially in the form of Exhibit I-1 to the effect that such Foreign Lender is not a “bank” within the meaning of Section 881(c)(3)(A) of the Code, a “10 percent shareholder” of the Borrower within the meaning of Section 881(c)(3)(B) of the Code, or a “controlled foreign corporation” described in Section 881(c)(3)(C) of the Code (a “U.S. Tax Compliance Certificate”) and (y) executed copies of IRS Form W-8BEN-E (or W-8BEN, as applicable); or

(4) to the extent a Foreign Lender is not the beneficial owner, executed copies of IRS Form W-8IMY, accompanied by IRS Form W-8ECI, IRS Form W-8BEN-E (or W-8BEN, as applicable), a U.S. Tax Compliance Certificate substantially in the form of Exhibit I-2 or Exhibit I-3, IRS Form W-9, and/or other certification documents from each beneficial owner, as applicable; *provided* that if the Foreign Lender is a partnership and one or more direct or indirect partners of such Foreign Lender are claiming the portfolio interest exemption, such Foreign Lender may provide a U.S. Tax Compliance Certificate substantially in the form of Exhibit I-4 on behalf of each such direct and indirect partner;

(C) any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies (or originals, as required) of any other form prescribed by Applicable Law as a basis for claiming exemption from or a reduction in U.S. federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by Applicable Law to permit the Borrower or the Administrative Agent to determine the withholding or deduction required to be made; and

(D) if a payment made to a Lender under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), such Lender shall deliver to the Borrower and the Administrative Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Administrative Agent such documentation prescribed by Applicable Law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower or the Administrative Agent as may be necessary for the Borrower and the Administrative Agent to comply with their obligations under FATCA and to determine that such Lender has complied with such Lender’s obligations under FATCA or to determine the amount to deduct and withhold from such payment.

Solely for the purposes of this clause (f)(ii)(D), “FATCA” shall include any amendments made to FATCA after the date of this Agreement.

(iii) Each Lender agrees that if any form or certification it previously delivered pursuant to this Section 3.01 expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Administrative Agent in writing of its legal inability to do so.

(g) Treatment of Certain Refunds. If any party determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified pursuant to this Section 3.01, including any payments of additional amounts pursuant to this Section 3.01, it shall pay to the indemnifying party an amount equal to such refund (but only to the extent of indemnity payments made under this Section 3.01 with respect to the Taxes giving rise to such refund), net of all out-of-pocket expenses (including Taxes) of such indemnified party and without interest (other than any interest paid by the relevant Governmental Authority with respect to such refund). Such indemnifying party, upon the request of such indemnified party, shall repay to such indemnified party the amount paid over pursuant to this clause (g) (plus any penalties, interest or other charges imposed by the relevant Governmental Authority) in the event that such indemnified party is required to repay such refund to such Governmental Authority. Notwithstanding anything to the contrary in this clause (g), in no event will the indemnified party be required to pay any amount to an indemnifying party pursuant to this clause (g) the payment of which would place the indemnified party in a less favorable net after-Tax position than the indemnified party would have been in if the Tax subject to indemnification and giving rise to such refund had not been deducted, withheld or otherwise imposed and the indemnification payments or additional amounts with respect to such Tax had never been paid. This clause (g) shall not be construed to require any indemnified party to make available its Tax returns (or any other information relating to its Taxes that it deems confidential) to the indemnifying party or any other Person.

(h) Survival. Each party’s obligations under this Section 3.01 shall survive the resignation or replacement of the Administrative Agent or any assignment of rights by, or the replacement of, a Lender, the termination of the Commitments and the repayment, satisfaction or discharge of all obligations under any Loan Document.

3.02 Illegality.

If any Lender determines that any Change in Law after the Closing Date has made it unlawful, or that any Governmental Authority has asserted that it is unlawful, for any Lender or its Lending Office to make, maintain or fund or charge interest with respect to any Loan, or to determine or charge interest rates based upon the Eurodollar Rate, or any Governmental Authority has imposed material restrictions on the authority of such Lender to purchase or sell, or to take deposits of, Dollars in the London interbank market, then, upon notice thereof by such Lender to the Borrower (through the Administrative Agent), (i) any obligation of such Lender to make or continue Eurodollar Rate Loans or to convert Base Rate Loans to Eurodollar Rate Loans shall be suspended, and (ii) if such notice asserts the illegality of such Lender making or maintaining Base Rate Loans the interest rate on which is determined by reference to the Eurodollar Rate component of the Base Rate, the interest rate on which Base Rate Loans of such Lender shall, if necessary to avoid such illegality, be determined by the Administrative Agent and the Lender Representative without reference to the Eurodollar Rate component of the Base Rate, in each case until such Lender notifies the Administrative Agent, the Lender Representative and the Borrower that the circumstances giving rise to such determination no longer exist. Upon receipt of such notice,

(A) the Borrower shall, upon demand from such Lender (with a copy to the Administrative Agent), prepay or, if applicable, convert all Eurodollar Rate Loans of such Lender to Base Rate Loans (the interest rate on which Base Rate Loans of such Lender shall, if necessary to avoid such illegality, be determined by the Administrative Agent and the Lender Representative without reference to the Eurodollar Rate component of the Base Rate), either on the last day of the Interest Period therefor, if such Lender may lawfully continue to maintain such Eurodollar Rate Loans to such day, or immediately, if such Lender may not lawfully continue to maintain such Eurodollar Rate Loans and (B) if such notice asserts the illegality of such Lender determining or charging interest rates based upon the Eurodollar Rate, the Administrative Agent shall during the period of such suspension compute the Base Rate applicable to such Lender without reference to the Eurodollar Rate component thereof until the Administrative Agent is advised in writing by such Lender that it is no longer illegal for such Lender to determine or charge interest rates based upon the Eurodollar Rate. Upon any such prepayment or conversion, the Borrower shall also pay accrued interest on the amount so prepaid or converted, together with any additional amounts required pursuant to Section 3.05.

3.03 Inability to Determine Rates.

(a) If in connection with any request for a Eurodollar Rate Loan or a conversion to or continuation thereof, (i) the Administrative Agent or the Lender Representative determines that (A) Dollar deposits are not being offered to banks in the London interbank eurodollar market for the applicable amount and Interest Period of such Eurodollar Rate Loan, or (B) (1) adequate and reasonable means do not exist for determining the Eurodollar Rate for any requested Interest Period with respect to a proposed Eurodollar Rate Loan or in connection with an existing or proposed Base Rate Loan and (2) the circumstances described in Section 3.03(c)(i) do not apply (in each case with respect to this clause (i), “Impacted Loans”), or (ii) the Administrative Agent, the Lender Representative or the Required Lenders determine that for any reason the Eurodollar Rate for any requested Interest Period with respect to a proposed Eurodollar Rate Loan does not adequately and fairly reflect the cost to such Lenders of funding such Loan, the Administrative Agent will promptly so notify the Borrower and each Lender. Thereafter, (x) the obligation of the Lenders to make or maintain Eurodollar Rate Loans shall be suspended (to the extent of the affected Eurodollar Rate Loans or Interest Periods), and (y) in the event of a determination described in the preceding sentence with respect to the Eurodollar Rate component of the Base Rate, the utilization of the Eurodollar Rate component in determining the Base Rate shall be suspended, in each case until the Administrative Agent and the Lender Representative (or, in the case of a determination by the Required Lenders described in clause (ii) of this Section 3.03(a), until the Administrative Agent upon instruction of the Required Lenders) revoke such notice. Upon receipt of such notice, the Borrower may revoke any pending request for a Borrowing of, conversion to or continuation of Eurodollar Rate Loans (to the extent of the affected Eurodollar Rate Loans or Interest Periods) or, failing that, will be deemed to have converted such request into a request for a Borrowing of Base Rate Loans in the amount specified therein.

(b) Notwithstanding the foregoing, if the Administrative Agent or the Lender Representative has made the determination described in clause (a)(i) of this Section 3.03, the Administrative Agent, the Lender Representative and the Borrower, may establish an alternative interest rate for the Impacted Loans, in which case, such alternative rate of interest shall apply with respect to the Impacted Loans until (i) the Administrative Agent and the Lender Representative revoke the notice delivered with respect to the Impacted Loans under clause (a)(i) of this Section 3.03, (ii) the Administrative Agent and the Lender Representative or the Required Lenders notify the Administrative Agent and the Borrower that such alternative interest rate does not adequately and fairly reflect the cost to the Lenders of funding the Impacted Loans, or (iii) any Lender

determines that any Law has made it unlawful, or that any Governmental Authority has asserted that it is unlawful, for such Lender or its applicable Lending Office to make, maintain or fund Loans whose interest is determined by reference to such alternative rate of interest or to determine or charge interest rates based upon such rate or any Governmental Authority has imposed material restrictions on the authority of such Lender to do any of the foregoing and provides the Administrative Agent, the Lender Representative and the Borrower written notice thereof.

(c) Notwithstanding anything to the contrary in this Agreement or any other Loan Documents, but without limiting Sections 3.03(a) and (b) above, if the Administrative Agent and the Lender Representative determine (which determination shall be conclusive and binding upon all parties hereto absent manifest error), or the Borrower or Required Lenders notify the Administrative Agent (with, in the case of the Required Lenders, a copy to the Lender Representative and the Borrower) that the Borrower or Required Lenders (as applicable) have determined (which determination likewise shall be conclusive and binding upon all parties hereto absent manifest error), that:

(i) adequate and reasonable means do not exist for ascertaining LIBOR for any requested Interest Period, including, without limitation, because the LIBOR Screen Rate is not available or published on a current basis and such circumstances are unlikely to be temporary; or

(ii) the administrator of the LIBOR Screen Rate or a Governmental Authority having or purporting to have jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which LIBOR or the LIBOR Screen Rate shall no longer be made available, or used for determining the interest rate of loans, *provided* that, at the time of such statement, there is no successor administrator that is satisfactory to the Administrative Agent, that will continue to provide LIBOR after such specific date (such specific date, the “Scheduled Unavailability Date”); or

(iii) syndicated loans currently being executed, or that include language similar to that contained in this Section 3.03, are being executed or amended (as applicable) to incorporate or adopt a new benchmark interest rate to replace LIBOR,

then, reasonably promptly after such determination by the Administrative Agent and the Lender Representative or receipt by the Administrative Agent of such notice, as applicable, the Administrative Agent, the Lender Representative and the Borrower may amend this Agreement solely for purpose of replacing LIBOR in accordance with this Section 3.03 with (x) one or more SOFR-Based Rates or (y) another alternate benchmark rate giving due consideration to any evolving or then existing convention for similar U.S. dollar denominated credit facilities for such alternative benchmarks and, in each case, including any mathematical or other adjustments to such benchmark giving due consideration to any evolving or then existing convention for similar U.S. dollar denominated credit facilities for such benchmarks which adjustment or method for calculating such adjustment shall be published on an information service as selected by the Lender Representative (with written notice of such selection provided to Administrative Agent) from time to time in its reasonable discretion and may be periodically updated (the “Adjustment,” and any such proposed rate, a “LIBOR Successor Rate”), and any such amendment shall become effective at 5:00 p.m. on the fifth Business Day after the Administrative Agent shall have posted such proposed amendment to all Lenders and the Borrower unless, prior to such time, Lenders comprising the Required Lenders have delivered to the Administrative Agent written notice that such Required Lenders (A) in the case of an amendment to replace LIBOR with a rate described in clause (x), object to the Adjustment; or (B) in the case of an amendment to replace LIBOR with a rate

described in clause (y), object to such amendment; *provided* that for the avoidance of doubt, in the case of clause (A), the Required Lenders shall not be entitled to object to any SOFR-Based Rate contained in any such amendment. Such LIBOR Successor Rate shall be applied in a manner consistent with market practice; *provided* that to the extent such market practice is not administratively feasible for the Administrative Agent, such LIBOR Successor Rate shall be applied in a manner as otherwise reasonably determined by the Administrative Agent in consultation with the Lender Representative.

(d) If no LIBOR Successor Rate has been determined and the circumstances under clause (c)(i) above exist or the Scheduled Unavailability Date has occurred (as applicable), the Administrative Agent will promptly so notify the Borrower and each Lender. Thereafter, (i) the obligation of the Lenders to make or maintain Eurodollar Rate Loans shall be suspended, (to the extent of the affected Eurodollar Rate Loans or Interest Periods), and (ii) the Eurodollar Rate component shall no longer be utilized in determining the Base Rate. Upon receipt of such notice, the Borrower may revoke any pending request for a Borrowing of, conversion to or continuation of Eurodollar Rate Loans (to the extent of the affected Eurodollar Rate Loans or Interest Periods) or, failing that, will be deemed to have converted such request into a request for a Borrowing of Base Rate Loans (subject to the foregoing clause (ii)) in the amount specified therein.

(e) Notwithstanding anything else herein, any definition of LIBOR Successor Rate shall provide that in no event shall such LIBOR Successor Rate be less than 1.00% for purposes of this Agreement.

(f) In connection with the implementation of a LIBOR Successor Rate, the Administrative Agent, in consultation with the Lender Representative and with the consent of the Borrower, will have the right to make LIBOR Successor Rate Conforming Changes from time to time and, notwithstanding anything to the contrary herein or in any other Loan Document, any amendments implementing such LIBOR Successor Rate Conforming Changes will become effective without any further action or consent of any other party to this Agreement; *provided* that, with respect to any such amendment effected, the Administrative Agent shall post each such amendment implementing such LIBOR Successor Rate Conforming Changes to the Lenders reasonably promptly after such amendment becomes effective.

(g) For purposes hereof:

(i) “LIBOR Successor Rate Conforming Changes” means, with respect to any proposed LIBOR Successor Rate, any conforming changes to the definition of Base Rate, Interest Period, timing and frequency of determining rates and making payments of interest and other technical, administrative or operational matters as may be appropriate, in the discretion of the Administrative Agent (in consultation with the Lender Representative and with the consent of the Borrower), to reflect the adoption and implementation of such LIBOR Successor Rate and to permit the administration thereof by the Administrative Agent in a manner substantially consistent with market practice (or, if the Administrative Agent and the Borrower, in consultation with the Lender Representative, determine that adoption of any portion of such market practice is not administratively feasible or that no market practice for the administration of such LIBOR Successor Rate exists, in such other manner of administration as the Administrative Agent, in consultation with the Lender Representative and with the consent of the Borrower, determines is reasonably necessary in connection with the administration of this Agreement);

(ii) “Relevant Governmental Body” means the Federal Reserve Board and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York for the purpose of recommending a benchmark rate to replace LIBOR in loan agreements similar to this Agreement;

(iii) “SOFR” with respect to any day means the secured overnight financing rate published for such day by the Federal Reserve Bank of New York, as the administrator of the benchmark (or a successor administrator) on the Federal Reserve Bank of New York’s website and that has been selected or recommended by the Relevant Governmental Body;

(iv) “SOFR-Based Rate” means SOFR or Term SOFR; and

(v) “Term SOFR” means the forward-looking term rate for any period that is approximately (as determined by the Administrative Agent, the Lender Representative and the Borrower) as long as any of the Interest Period options set forth in the definition of “Interest Period” and that is based on SOFR and that has been selected or recommended by the Relevant Governmental Body, in each case as published on an information service as selected by the Administrative Agent, in consultation with the Lender Representative and the Borrower, from time to time in its reasonable discretion.

3.04 Increased Costs; Reserves on Eurodollar Rate Loans.

(a) Increased Costs Generally. If any Change in Law shall:

(i) impose, modify or deem applicable any reserve, special deposit, compulsory loan, insurance charge or similar requirement against assets of, deposits with or for the account of, or credit extended or participated in by, any Lender (except any reserve requirement contemplated by Section 3.04(e));

(ii) subject any Recipient to any Taxes (other than (A) Indemnified Taxes, (B) Taxes described in clauses (b) through (d) of the definition of Excluded Taxes and (C) Connection Income Taxes) on its loans, loan principal, letters of credit, commitments, or other obligations, or its deposits, reserves, other liabilities or capital attributable thereto; or

(iii) impose on any Lender or the London interbank market any other condition, cost or expense (other than Taxes) affecting this Agreement or Eurodollar Rate Loans made by such Lender;

and the result of any of the foregoing shall be to increase the cost to such Lender of making, converting to, continuing or maintaining any Loan (or of maintaining its obligation to make any such Loan) or to reduce the amount of any sum received or receivable by such Lender hereunder (whether of principal, interest or any other amount) then, upon request of such Lender, the Borrower will pay to such Lender such additional amount or amounts as will compensate such Lender for such additional costs incurred or reduction suffered.

(b) Capital Requirements. If any Lender determines that any Change in Law affecting such Lender or any Lending Office of such Lender or such Lender’s holding company, if any, regarding capital or liquidity requirements has or would have the effect of reducing the rate of

return on such Lender's capital or on the capital of such Lender's holding company, if any, as a consequence of this Agreement, the Commitments of such Lender or the Loans made by such Lender, to a level below that which such Lender or such Lender's holding company could have achieved but for such Change in Law (taking into consideration such Lender's policies and the policies of such Lender's holding company with respect to capital adequacy), then from time to time the Borrower will pay to such Lender such additional amount or amounts as will compensate such Lender or such Lender's or holding company for any such reduction suffered.

(c) Certificates for Reimbursement. A certificate of a Lender setting forth the amount or amounts necessary to compensate such Lender or its holding company, as the case may be, as specified in clause (a) or (b) of this Section 3.04 and delivered to the Borrower shall be conclusive absent manifest error. The Borrower shall pay such Lender the amount shown as due on any such certificate within ten (10) days after receipt thereof.

(d) Reserves on Eurodollar Rate Loans. The Borrower shall pay to each Lender, (i) as long as such Lender shall be required to maintain reserves with respect to liabilities or assets consisting of or including eurocurrency funds or deposits (currently known as "Eurocurrency liabilities"), additional interest on the unpaid principal amount of each Eurodollar Rate Loan equal to the actual costs of such reserves allocated to such Loan by such Lender (as determined by such Lender in good faith, which determination shall be conclusive absent demonstrable error), and (ii) as long as such Lender shall be required to comply with any reserve ratio requirement or analogous requirement of any central banking or financial regulatory authority imposed in respect of the maintenance of the Commitments or the funding of the Loans, such additional costs (expressed as a percentage per annum and rounded upwards, if necessary, to the nearest five decimal places) equal to the actual costs allocated to such Commitment or Loan by such Lender (as determined by such Lender in good faith, which determination shall be conclusive), which in each case shall be due and payable on each date on which interest is payable on such Loan, *provided* the Borrower shall have received at least ten (10) days' prior notice (with a copy to the Administrative Agent and the Lender Representative) of such additional interest or costs from such Lender. If a Lender fails to give notice ten (10) days prior to the relevant Interest Payment Date, such additional interest shall be due and payable ten (10) days from receipt of such notice.

(e) Delay in Requests. Failure or delay on the part of any Lender to demand compensation pursuant to the foregoing provisions of this Section 3.04 shall not constitute a waiver of such Lender's right to demand such compensation, *provided* that the Borrower shall not be required to compensate a Lender pursuant to the foregoing provisions of this Section 3.04 for any increased costs incurred or reductions suffered more than nine (9) months prior to the date that such Lender notifies the Borrower of the Change in Law giving rise to such increased costs or reductions and of such Lender's intention to claim compensation therefor (except that, if the Change in Law giving rise to such increased costs or reductions is retroactive, then the nine (9) month period referred to above shall be extended to include the period of retroactive effect thereof).

3.05 Compensation for Losses

Upon demand of any Lender (with a copy to the Administrative Agent and the Lender Representative) from time to time, the Borrower shall promptly compensate such Lender for and hold such Lender harmless from any loss, cost or expense (other than lost profits) incurred by it as a result of:

(a) any continuation, conversion, payment or prepayment of any Loan other than a Base Rate Loan on a day other than the last day of the Interest Period for such Loan (whether voluntary, mandatory, automatic, by reason of acceleration, or otherwise);

(b) any failure by the Borrower (for a reason other than the failure of such Lender to make a Loan) to prepay, borrow, continue or convert any Loan other than a Base Rate Loan on the date or in the amount notified by the Borrower; or

(c) any assignment of a Eurodollar Rate Loan on a day other than the last day of the Interest Period therefor as a result of a request by the Borrower pursuant to Section 11.13;

excluding any loss of anticipated profits but including any loss or expense arising from the liquidation or reemployment of funds obtained by it to maintain such Loan or from fees payable to terminate the deposits from which such funds were obtained.

3.06 Mitigation Obligations; Replacement of Lenders.

(a) Designation of a Different Lending Office. If any Lender requests compensation under Section 3.04, or requires the Borrower to pay any Indemnified Taxes or additional amounts to any Lender, or any Governmental Authority for the account of any Lender pursuant to Section 3.01, or if any Lender gives a notice pursuant to Section 3.02, then at the request of the Borrower, such Lender shall use reasonable efforts to designate a different Lending Office for funding or booking its Loans hereunder or to assign its rights and obligations hereunder to another of its offices, branches or affiliates, if, in the judgment of such Lender such designation or assignment (i) would eliminate or reduce amounts payable pursuant to Section 3.01 or 3.04, as the case may be, in the future, or eliminate the need for the notice pursuant to Section 3.02, as applicable, and (ii) in each case, would not subject such Lender or to any unreimbursed cost or expense and would not otherwise be disadvantageous to such Lender. The Borrower hereby agrees to pay all reasonable costs and expenses incurred by any Lender in connection with any such designation or assignment.

(b) Replacement of Lenders. If any Lender requests compensation under Section 3.04, or if the Borrower is required to pay any Indemnified Taxes or additional amounts to any Lender or any Governmental Authority for the account of any Lender pursuant to Section 3.01 and, in each case, such Lender has declined or is unable to designate a different lending office in accordance with Section 3.06(a), the Borrower may replace such Lender in accordance with Section 11.13.

3.07 Survival.

All of the Borrower's obligations under this Article III shall survive termination of the Aggregate Commitments, repayment of all other Obligations hereunder, resignation of the Administrative Agent and the Lender Representative and the Facility Termination Date.

ARTICLE IV

CONDITIONS PRECEDENT

4.01 Conditions of Effectiveness.

The effectiveness of this Agreement and the obligation of each Lender to make Loans hereunder is subject to satisfaction or waiver of the following conditions precedent:

(a) Execution of Credit Agreement; Loan Documents. The Administrative Agent and the Lenders shall have received (i) counterparts of this Agreement, executed by a Responsible Officer of each Loan Party and a duly authorized officer of each Lender, (ii) for the account of each Lender that has requested a Note prior to the Closing Date, a Note executed by the Borrower,

(iii) counterparts of the Security Agreement executed by a Responsible Officer of the applicable Loan Parties and a duly authorized officer of each other Person party thereto, as applicable, (iv) counterparts of the Agency Fee Letter, the Fee Letter and the Side Letter and (v) counterparts of the Nondisturbance Agreement.

(b) Officer's Certificate. The Administrative Agent and the Lenders shall have received an Officer's Certificate dated the Closing Date, certifying as to the Organization Documents of each Loan Party (which, to the extent filed with a Governmental Authority, shall be certified as of a recent date by such Governmental Authority), the resolutions of the governing body of each Loan Party, the good standing, existence or its equivalent of each Loan Party in its jurisdiction of formation and of the incumbency (including specimen signatures) of the Responsible Officers of each Loan Party.

(c) Legal Opinions of Counsel. The Administrative Agent and the Lenders shall have received a customary opinion or opinions of counsel for the Loan Parties, dated the Closing Date and addressed to the Administrative Agent and the Lenders party to this Agreement on the Closing Date.

(d) Personal Property Collateral. The Administrative Agent and the Lenders shall have received:

(i) (A) searches of UCC filings in the jurisdiction of incorporation or formation, as applicable, of each Loan Party and each jurisdiction where a filing would need to be made in order to perfect the Administrative Agent's security interest in the Collateral and copies of the financing statements on file in such jurisdictions and (B) tax lien, judgment and bankruptcy searches;

(ii) searches of ownership of Intellectual Property in the appropriate governmental offices and such patent/trademark/copyright filings as requested by the Administrative Agent or the Lender Representative prior to the Closing Date in order to perfect the Administrative Agent's security interest in the Intellectual Property; and

(iii) forms of UCC financing statements for each appropriate jurisdiction as is necessary, in the Administrative Agent's and the Lender Representative's sole discretion, to perfect the Administrative Agent's security interest in the Collateral.

(e) Liability, Casualty, Property, Terrorism and Business Interruption Insurance. The Administrative Agent and the Lenders shall have received copies of insurance certificates evidencing insurance meeting the requirements set forth herein or in the Collateral Documents.

(f) Solvency Certificate. The Administrative Agent and the Lenders shall have received a Solvency Certificate signed by a Responsible Officer of the Borrower as to the Solvency of the Borrower and its Restricted Subsidiaries, on a Consolidated basis, after giving effect to the transactions contemplated hereby.

(g) Anti-Money-Laundering; Beneficial Ownership. Upon the reasonable request of the Administrative Agent, the Lender Representative or any other Lender made at least five (5) Business Days prior to the Closing Date, the Borrower shall have provided to the Administrative Agent, the Lender Representative or such other Lender or the Lender Representative the documentation and other information so requested in connection with applicable "know your customer" and anti-money-laundering rules and regulations, including, without limitation, the

Patriot Act, and any Loan Party that qualifies as a “legal entity customer” under the Beneficial Ownership Regulation shall have delivered to each Lender that so requests, a Beneficial Ownership Certification in relation to such Loan Party.

(h) Consents. The Administrative Agent and the Lenders shall have received evidence that all members, boards of directors, governmental, shareholder and material third party consents and approvals necessary in connection with the entering into of this Agreement have been obtained.

(i) Fees and Expenses. The Administrative Agent, the Lender Representative and the Lenders shall have received all fees and expenses owing hereunder or under the Agency Fee Letter and under the Fee Letter on the Closing Date, but, in the case of expenses, only to the extent invoiced prior to the Closing Date.

Without limiting the generality of the provisions of Section 9.03(c), for purposes of determining compliance with the conditions specified in this Section 4.01, the Lender Representative and each Lender that has signed this Agreement shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to the Lender Representative or any Lender unless the Administrative Agent shall have received notice from the Lender Representative or such Lender prior to the proposed Closing Date specifying its objection thereto.

4.02 Conditions to all Borrowings.

The obligation of each Lender to honor any Loan Notice (other than a Loan Notice requesting only a conversion of Loans to the other Type, or a continuation of Eurodollar Rate Loans) is subject to the following conditions precedent:

(a) Representations and Warranties. The representations and warranties of the Borrower and each other Loan Party contained in Article II, Article V or any other Loan Document, shall (i) with respect to representations and warranties that contain a materiality qualification, be true and correct on and as of the date of such Borrowing and (ii) with respect to representations and warranties that do not contain a materiality qualification, be true and correct in all material respects on and as of the date of such Borrowing, and except that for purposes of this Section 4.02, the representations and warranties contained in Sections 5.05(a) shall be deemed to refer to the most recent statements furnished pursuant to Sections 6.01(a).

(b) Default. No Default shall exist, or would immediately result from such proposed Borrowing or from the application of the proceeds thereof.

(c) Loan Notice. The Administrative Agent shall have received a Loan Notice in accordance with the requirements hereof.

Each Loan Notice (other than a Loan Notice requesting only a conversion of Loans to the other Type or a continuation of Eurodollar Rate Loans) submitted by the Borrower shall be deemed to be a representation and warranty that the conditions specified in Sections 4.02(a) and (b) have been satisfied on and as of the date of the applicable Borrowing.

4.03 Conditions to Borrowing of Tranche 1 Loans.

The obligation of each Lender to honor the Loan Notice with respect to the Borrowing of Tranche 1 Loans is subject to the requested funding date of the Tranche 1 Loans occurring during the Tranche 1 Availability Period.

4.04 Conditions to Borrowing of Tranche 2 Loans.

The obligation of each Lender to honor the Loan Notice with respect to the Borrowing of Tranche 2 Loans is subject to the following conditions precedent:

(a) Subsequent Borrowing Condition. The Subsequent Borrowing Condition shall have been satisfied on and as of the Tranche 2 Funding Date.

(b) Tranche 1 Funding Date. The condition specified in Section 4.03 has been satisfied on as of the date of the Tranche 2 Funding Date.

(c) Loan Notice. The requested funding date of the Tranche 2 Loans as specified in the applicable Loan Notice is a date occurring during the Tranche 2 Availability Period.

4.05 Conditions to Borrowing of Tranche 3 Loans.

The obligation of each Lender to honor the Loan Notice with respect to the Borrowing of Tranche 3 Loans is subject to the following conditions precedent:

(a) Subsequent Borrowing Condition. The Subsequent Borrowing Condition shall have been satisfied on and as of the Tranche 3 Funding Date.

(b) Tranche 2 Funding Date. The conditions specified in Section 4.04 have been satisfied on as of the date of the Tranche 3 Funding Date.

(c) Loan Notice. The requested funding date of the Tranche 3 Loans as specified in the applicable Loan Notice is a date occurring during the Tranche 3 Availability Period.

ARTICLE V

REPRESENTATIONS AND WARRANTIES

Each Loan Party represents and warrants to the Administrative Agent, the Lender Representative and the Lenders, as of the date made or deemed made, that:

5.01 Existence, Qualification and Power.

Each Loan Party and each of its Restricted Subsidiaries (a) is duly organized or formed, validly existing and, as applicable, in good standing under the Laws of the jurisdiction of its incorporation or organization, (b) has all requisite power and authority and all requisite governmental licenses, authorizations, consents and approvals to (i) own or lease its assets and carry on its business and (ii) execute, deliver and perform its obligations under the Loan Documents to which it is a party, and (c) is duly qualified and is licensed and, as applicable, in good standing under the Laws of each jurisdiction where its ownership, lease or operation of properties or the conduct of its business requires such qualification or

license; except in each case referred to in clause (b)(i) or (c), to the extent that failure to do so could not reasonably be expected to have a Material Adverse Effect.

5.02 Authorization; No Contravention.

The execution, delivery and performance by each Loan Party of each Loan Document to which such Person is or is to be a party have been duly authorized by all necessary corporate or other organizational action, and do not and will not (a) contravene the terms of any of such Person's Organization Documents; (b) conflict with or result in any breach or contravention of, or the creation of (or the requirement to create) any Lien under, or require any payment to be made under (i) any Contractual Obligation to which such Person is a party or affecting such Person or the properties of such Person or any of its Restricted Subsidiaries or (ii) any order, injunction, writ or decree of any Governmental Authority or any arbitral award to which such Person or its property is subject; or (c) violate any Applicable Law, except in the case of this Section 5.02(b), with respect to any conflict, breach, violation, or payment, to the extent that such conflict, breach, violation, or payment would not reasonably be expected to have a Material Adverse Effect.

5.03 Governmental Authorization; Other Consents.

No approval, consent, exemption, authorization, or other action by, or notice to, or filing with, any Governmental Authority or any other Person is necessary or required in connection with (a) the execution, delivery or performance by, or enforcement against, any Loan Party of this Agreement or any other Loan Document, (b) the grant by any Loan Party of the Liens granted by it pursuant to the Collateral Documents, (c) the perfection or maintenance of the Liens created under the Collateral Documents (including the first priority nature thereof) or (d) the exercise by the Administrative Agent or any Lender of its rights under the Loan Documents or the remedies in respect of the Collateral pursuant to the Collateral Documents, other than (i) authorizations, approvals, actions, notices and filings which have been duly obtained, (ii) filings to perfect the Liens created by the Collateral Documents and (iii) those approvals, consents, exemptions, authorizations or other actions, notices or filings, the failure of which to obtain or make could not reasonably be expected to have a Material Adverse Effect.

5.04 Binding Effect.

This Agreement has been, and each other Loan Document, when delivered hereunder, will have been, duly executed and delivered by each Loan Party that is party thereto. This Agreement constitutes, and each other Loan Document when so delivered will constitute, a legal, valid and binding obligation of such Loan Party, enforceable against each Loan Party that is party thereto in accordance with its terms, subject to applicable bankruptcy, insolvency, reorganization, moratorium or other laws affecting creditors' rights generally and subject to general principals of equity.

5.05 Financial Statements; No Material Adverse Effect.

(a) Audited Financial Statements. The Audited Financial Statements (i) were prepared in accordance with GAAP consistently applied throughout the period covered thereby, except as otherwise expressly noted therein and (ii) fairly present in all material respects the financial condition of the Borrower and its Subsidiaries as of the date thereof and their results of operations and comprehensive loss, cash flows and changes in shareholders' equity for the period covered thereby in accordance with GAAP consistently applied throughout the period covered thereby, except as otherwise expressly noted therein.

(b) Material Adverse Effect. Since the Closing Date, there has been no event or circumstance, either individually or in the aggregate, that has had or would reasonably be expected to have a Material Adverse Effect.

5.06 Litigation.

There are no actions, suits, proceedings, claims or disputes pending or, to the knowledge of the Loan Parties, threatened in writing, at law, in equity, in arbitration or before any Governmental Authority, by or against any Loan Party or any Restricted Subsidiary that (a) purport to affect or pertain to this Agreement or any other Loan Document or any of the transactions contemplated hereby, or (b) either individually or in the aggregate would reasonably be expected to have a Material Adverse Effect.

5.07 [Reserved].

5.08 Ownership of Property.

Each Loan Party and each of its Restricted Subsidiaries has good record and marketable title in fee simple to, or valid leasehold interests in, all real property necessary or used in the ordinary conduct of its business, subject to Permitted Liens and except for such defects in title as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

5.09 Environmental Matters.

(a) (A) except as could not reasonably be expected to result in material liability to any Loan Party or any of its Restricted Subsidiaries, none of the properties currently or formerly owned, leased or operated by any Loan Party or any of its Restricted Subsidiaries is listed or formally proposed for listing on the NPL or on the SEMS list; (B) except as would not have a Material Adverse Effect, as of the Closing Date, to the best knowledge of the Loan Parties and their Subsidiaries, there is no asbestos or asbestos-containing material on, at or in any property currently owned, leased or operated by any Loan Party or any of its Restricted Subsidiaries; (C) except as would not have a Material Adverse Effect, there has not been a Release of Hazardous Materials on, at, under or from any property currently, or to the best knowledge of the Loan Parties and their Subsidiaries, formerly owned, leased or operated by any Loan Party or any of its Restricted Subsidiaries, or otherwise arising from the operations of any Loan Party or any of its Restricted Subsidiaries; and (D) except as would not have a Material Adverse Effect, no Environmental Claim is pending or, to the best knowledge of the Loan Parties and their Subsidiaries, threatened, with respect to or in connection with any Loan Party or any of its Restricted Subsidiaries or any real properties currently or formerly owned, leased or operated by any Loan Party or any of its Restricted Subsidiaries;

(b) (A) except as would not have a Material Adverse Effect, neither any Loan Party nor any of its Restricted Subsidiaries is undertaking, either individually or together with other potentially responsible parties, any investigation or assessment or remedial or response action relating to any Release of Hazardous Materials at, on, under, or from any site, location or operation, either voluntarily or pursuant to the order of any Governmental Authority or the requirements of any Environmental Law; and (B) except as would not have a Material Adverse Effect, all Hazardous Materials generated, used, treated, handled, stored, or transported by or on behalf of any Loan Party or any of its Restricted Subsidiaries have been disposed of in a manner which could not reasonably be expected to result in liability to any Loan Party or any of its Restricted Subsidiaries; and

(c) except as would not have a Material Adverse Effect, each of the Loan Parties and their respective Subsidiaries is, and within the period of all applicable statutes of limitation has been, in compliance with all Environmental Laws (which compliance includes, but is not limited to, the possession of all Environmental Permits and compliance with the terms and conditions thereof).

5.10 Insurance.

The properties of each Loan Party are insured with financially sound and reputable insurance companies not Affiliates of the Borrower, in such amounts, with such deductibles and covering such risks as are customarily carried by companies engaged in similar businesses and owning similar properties in localities where the applicable Loan Party or the applicable Restricted Subsidiary operates. The general liability, casualty, property, terrorism and business interruption insurance coverage of the Loan Parties as in effect on the Closing Date is outlined as to carrier, policy number, expiration date, type, amount and deductibles on Schedule 5.10 and such insurance coverage complies with the requirements set forth in this Agreement and the other Loan Documents.

5.11 Taxes.

Each Loan Party and its Restricted Subsidiaries have filed all federal, state and other material tax returns and reports required to be filed, and have paid all federal, state and other material taxes, assessments, fees and other governmental charges levied or imposed upon them or their properties, income or assets otherwise due and payable, except those which are being contested in good faith by appropriate proceedings diligently conducted and for which adequate reserves have been provided in accordance with GAAP or where the failure to do so would not reasonably be expected to result in a Material Adverse Effect. There is no proposed tax assessment against any Loan Party or any Restricted Subsidiary that would, if made, have a Material Adverse Effect, nor is there any tax sharing agreement applicable to the Borrower or any Restricted Subsidiary (other than any tax sharing agreement solely between Borrower and one or more of its Restricted Subsidiaries).

5.12 ERISA Compliance.

(a) Each Plan is in compliance in all material respects with the applicable provisions of ERISA, the Code and other federal or state laws except as would not have a Material Adverse Effect. Each Pension Plan that is intended to be a qualified plan under Section 401(a) of the Code has received a favorable determination letter or is subject to a favorable opinion letter from the IRS to the effect that the form of such Plan is qualified under Section 401(a) of the Code and the trust related thereto has been determined by the IRS to be exempt from federal income tax under Section 501(a) of the Code, or an application for such a letter is currently being processed by the IRS except as would not have a Material Adverse Effect. To the best knowledge of the Loan Parties, nothing has occurred that would prevent or cause the loss of such tax-qualified status except as would not have a Material Adverse Effect.

(b) There are no pending or, to the best knowledge of the Loan Parties, threatened claims, actions or lawsuits, or action by any Governmental Authority, with respect to any Plan that would reasonably be expected to have a Material Adverse Effect. There has been no prohibited transaction or violation of the fiduciary responsibility rules with respect to any Plan that has resulted or could reasonably be expected to result in a Material Adverse Effect.

(c) (i) No ERISA Event has occurred, and no Loan Party nor any ERISA Affiliate is aware of any fact, event or circumstance that could reasonably be expected to constitute or result in an ERISA Event with respect to any Pension Plan or Multiemployer Plan except as would not have

a Material Adverse Effect; (ii) as of the most recent valuation date for any Pension Plan, the funding target attainment percentage (as defined in Section 430(d)(2) of the Code) is 60% or higher and no Loan Party nor any ERISA Affiliate knows of any facts or circumstances that could reasonably be expected to cause the funding target attainment percentage for any such plan to drop below 60% as of the most recent valuation date except as would not have a Material Adverse Effect; (iii) no Loan Party nor any ERISA Affiliate has incurred any liability to the PBGC other than for the payment of premiums, and there are no premium payments which have become due that are unpaid except as would not have a Material Adverse Effect; (iv) neither the Borrower nor any ERISA Affiliate has engaged in a transaction that could be subject to Section 4069 or Section 4212(c) of ERISA except as would not have a Material Adverse Effect; and (v) no Pension Plan has been terminated by the plan administrator thereof nor by the PBGC, and no event or circumstance has occurred or exists that could reasonably be expected to cause the PBGC to institute proceedings under Title IV of ERISA to terminate any Pension Plan except as would not have a Material Adverse Effect.

(d) Neither the Borrower nor any ERISA Affiliate maintains or contributes to, or has any unsatisfied obligation to contribute to, or liability under, any active or terminated Pension Plan other than (i) on the Closing Date, those listed on Schedule 5.12 hereto and (ii) thereafter, Pension Plans not otherwise prohibited by this Agreement.

5.13 Margin Regulations; Investment Company Act.

(a) Margin Regulations. Neither the Borrower nor any of its Restricted Subsidiaries is engaged or will engage, principally or as one of its important activities, in the business of purchasing or carrying margin stock (within the meaning of Regulation U), or extending credit for the purpose of purchasing or carrying margin stock. Following the application of the proceeds of each Borrowing, not more than twenty-five percent (25%) of the value of the assets (either of the Borrower only or of the Borrower and its Restricted Subsidiaries on a Consolidated basis) subject to the provisions of Section 7.01 or Section 7.05 or subject to any restriction contained in any agreement or instrument between the Borrower or any of its Restricted Subsidiaries and any Lender or any Affiliate of any Lender relating to Indebtedness and within the scope of Section 8.01(e) will be margin stock.

(b) Investment Company Act. No Loan Party is required to be registered as an “investment company” under the Investment Company Act of 1940, as amended.

5.14 Disclosure.

(a) No report, financial statement, certificate or other written information with respect to the Borrower or its Subsidiaries furnished by or on behalf of any Loan Party to the Administrative Agent, the Lender Representative or any Lender in connection with the transactions contemplated hereby and the negotiation of this Agreement or delivered hereunder or under any other Loan Document (in each case as modified or supplemented by other information so furnished and other than projected financial information, pro forma information and information of a general economic or industry nature), when taken as a whole, contains any material misstatement of fact or omits to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not materially misleading; *provided* that, with respect to projected financial information, pro forma information each Loan Party represents only that such information was prepared in good faith based upon assumptions believed to be reasonable at the time of preparation and delivery; it being understood that actual results may vary from such forecasts and that such variances may be material.

(b) On the Closing Date, the Borrower does not have any Subsidiaries other than the Subsidiaries listed on Schedule 5.14(b). Schedule 5.14(b) sets forth, as of the Closing Date, the name and the jurisdiction of organization of each Subsidiary and, as to each Subsidiary, the percentage of each class of Equity Interests owned by any Loan Party and the designation of any Subsidiary as an Immaterial Subsidiary. The Borrower does not own or hold, directly or indirectly, any Equity Interests of any Person other than such Subsidiaries and Investments permitted by Section 7.03.

5.15 Compliance with Laws.

Each Loan Party and each Restricted Subsidiary thereof is in compliance with the requirements of all Applicable Laws, except in such instances in which (a) such requirement of Law or order, writ, injunction or decree is being contested in good faith by appropriate proceedings diligently conducted or (b) the failure to comply therewith, either individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect.

5.16 Solvency.

The Borrower and its Restricted Subsidiaries are Solvent on a Consolidated basis.

5.17 Reserved.

5.18 Sanctions Concerns and Anti-Corruption Laws.

(a) Sanctions Concerns. No Loan Party, nor any Restricted Subsidiary, nor, to the knowledge of the Loan Parties and their Subsidiaries, any director, officer, employee, agent, affiliate or representative thereof, is an individual or entity that is, or is owned or controlled by one or more individuals or entities that are (i) currently the subject or target of any Sanctions, (ii) included on OFAC's List of Specially Designated Nationals or HMT's Consolidated List of Financial Sanctions Targets, or any similar list enforced by any other relevant sanctions authority or (iii) located, organized or resident in a Designated Jurisdiction. The Borrower and its Restricted Subsidiaries have conducted their businesses in compliance with all applicable Sanctions and have instituted and maintained policies and procedures designed to promote and achieve compliance with such Sanctions.

(b) Anti-Corruption Laws. The Loan Parties and their Subsidiaries have conducted their business in compliance in all material respects with the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010 and other applicable anti-corruption legislation in other jurisdictions, and have instituted and maintained policies and procedures designed to promote and achieve compliance with such laws.

5.19 EEA Financial Institutions.

No Loan Party is an EEA Financial Institution.

5.20 Covered Entities.

No Loan Party is a Covered Entity.

5.21 Beneficial Ownership Certification.

The information included in the Beneficial Ownership Certification, if applicable, is true and correct in all material respects as of the date when furnished.

5.22 Reserved.

5.23 Intellectual Property; Licenses, Etc.

(a) Each Loan Party and each of its Restricted Subsidiaries owns, or possesses the right to use, all of the trademarks, service marks, trade names, copyrights, patents, patent rights, trade secrets, know-how, franchises, licenses and all other Intellectual Property and related rights (collectively, “IP Rights”) that are used in or reasonably necessary for the development, manufacture, and commercialization of the Specified Products (“Specified Products Business”), and no Specified Product IP is owned or in-licensed by any Affiliate of the Borrower that is not a Loan Party or a Restricted Subsidiary.

(b) Schedule 5.23(b) sets forth a true, correct and complete listing, under separate headings, of all written Contractual Obligations under which any Loan Party or any of its Restricted Subsidiaries (i) has received a license or other right to practice of use any Specified Product IP that any other Person owns, or (ii) owes any royalties or other payments to any Person for the use of any Specified Product IP with respect to any Specified Product, or (iii) has granted any Person any right or interest in any Specified Product IP with respect to any Specified Product in return for royalties or other payments, excluding, in the case of each of clause (i)-(iii), Contractual Obligations that are (x) not material or (y) entered into in the ordinary course of business (which, for the avoidance of doubt, includes investigator-initiated study agreements and material transfer agreements related to research, in both cases entered into in the ordinary course of business). The Borrower may update this list to add additional Contractual Obligations, so long as such amendment occurs by written notice to the Administrative Agent, subject to the Borrower’s obligations and restrictions under this Agreement.

(c) Schedule 5.23(c) sets forth a true, correct and complete listing, including the owner and registration or application number, of all the Specified Product IP that are U.S. (federal or state) and foreign (i) Patents, (ii) registered trademarks and trademark applications and (iii) registered copyrights and copyright applications. As used herein, the term “registrations” refers to issued Patents under subsection (i), registered trademarks under subsection (ii), and registered copyrights under subsection (iii). Except as identified in Schedule 5.23(c), (A) with respect to the Specified Product IP owned by a Loan Party or a Restricted Subsidiary, the owner listed on Schedule 5.23(c) is the exclusive owner of such registration or application; (B) to the Borrower’s knowledge, the registrations of the Specified Product IP owned by a Loan Party or a Restricted Subsidiary are valid, subsisting and enforceable; (C) (x) with respect to the Specified Product IP owned by a Loan Party, none of those registrations or applications have lapsed or been abandoned, cancelled or expired and (y) with respect to all other Specified Product IP, to the Borrower’s knowledge, none of those registrations or applications have lapsed or been abandoned, cancelled or expired; (D) solely with respect to such registrations or applications within the Specified Product IP owned by a Loan Party, such Loan Party has taken commercially reasonable steps to maintain such registrations or applications, including by paying filing fees and submitting responses prior to final deadlines; and (E) solely with respect to such registrations or applications within the Specified Product IP owned by a Loan Party or a Restricted Subsidiary, each individual (including, to the Borrower’s knowledge, individuals not employed by a Loan Party or any Restricted Subsidiary) associated with the filing and prosecution of such registrations or applications, including the named inventors, has

complied in all material respects with all applicable duties of candor and good faith in dealing with any patent office, including the USPTO, in those jurisdictions where such duties exist. The Borrower may update this list to add additional registrations or applications, so long as such amendment occurs by written notice to the Administrative Agent and the Lender Representative, subject to the Borrower's obligations and restrictions under this Agreement.

(d) Except as disclosed on Schedule 5.23(d), there is no opposition, interference, reexamination, inter partes review, post-grant review, derivation or other post-grant proceeding, injunction, claim, suit, action, subpoena, hearing, inquiry, investigation (by the International Trade Commission or otherwise), complaint, arbitration, mediation, demand, decree or other dispute, proceeding or claim (collectively, "Disputes") to which a Loan Party or a Restricted Subsidiary is a party (or, to the Borrower's knowledge, to which a Loan Party or a Restricted Subsidiary is not a party) that is pending or, to Borrower's knowledge, currently threatened, that challenges the legality, scope, validity, enforceability, infringement, ownership, inventorship or other rights with respect to any of the Specified Product IP, except, in each case, any of the foregoing that are not material or as may arise in the ordinary, day-to-day course of prosecution of intellectual property applications and registrations. As of the Closing Date, no Loan Party or Restricted Subsidiary has received any written notice that there is any, and to the Borrower's knowledge there is no, Person who is or claims to be an inventor under any Patent included in the Specified Product IP who is not a named inventor thereof. The Borrower may update Schedule 5.23(d), so long as such amendment occurs by written notice to the Administrative Agent, subject to the Borrower's obligations and restrictions under this Agreement.

(e) Except as set forth on Schedule 5.23(e), to the knowledge of the Borrower, neither the Specified Products Business as currently conducted, nor the discovery, development, manufacture, use, import, export or commercialization of any Specified Product, or related service, process, method, substance, part or other material now used by any Loan Party or any of its Restricted Subsidiaries in the Specified Products Business infringes, misappropriates or otherwise violates any IP Rights held by any other Person, and to the best knowledge of the Borrower, there is no pending or threatened, and no event has occurred or circumstance exists that (with or without notice or lapse of time, or both) would reasonably be expected to give rise to or serve as a basis for any reasonable action, suit, or proceeding, or any investigation or claim by any Person that claims or alleges that the discovery, development, manufacture, use, import, export or commercialization of any Specified Product anywhere in the world infringes on any Patent or other IP Rights of any other Person or constitutes misappropriation of any other Person's trade secrets or other Intellectual Property rights, in each case. Except as set forth on Schedule 5.23(e), to the knowledge of the Borrower, no slogan or other advertising device, product, process, method, substance, part or other material now employed by any Loan Party or any Restricted Subsidiary in connection with the Specified Products Business infringes upon any rights held by any other Person. Except as set forth on Schedule 5.23(e) or as would not reasonably be expected to have a Material Impact, to the Borrower's knowledge, no third party is infringing, misappropriating or otherwise violating any Specified Product IP owned or used by any Loan Party or any of its Restricted Subsidiaries, or any of their respective licensees. The Borrower may update Schedule 5.23(e), so long as such amendment occurs by written notice to the Administrative Agent, subject to the Borrower's obligations and restrictions under this Agreement.

(f) Except as disclosed in Schedule 5.23(f), no Loan Party or any of its Restricted Subsidiaries has entered into any Contractual Obligation (other than this Agreement and the other Loan Documents) (i) creating a lien, charge, security interest or other encumbrance on, the Specified Product IP or any royalties on, or proceeds from, sales of any Specified Product, except for any such lien, charge, security interest or other encumbrance on the Specified Product IP that is

immaterial to any Specified Product, (ii) pursuant to which a Loan Party or any of its Restricted Subsidiaries has sold, transferred, assigned or pledged to any Person royalties on, or proceeds from, sales of any Specified Product or (iii) providing for milestone payments or similar development, commercialization or intellectual property-related payments by a Loan Party to any Person applicable (or that with further development and commercialization may become applicable) to any Specified Product. The Borrower may update Schedule 5.23(f), so long as such amendment occurs by written notice to the Administrative Agent, subject to the Borrower's obligations and restrictions under this Agreement.

5.24 Labor Matters.

As of the Closing Date, there are no collective bargaining agreements or Multiemployer Plans covering the employees of the Borrower or any of its Domestic Subsidiaries as of the Closing Date and neither the Borrower nor any Restricted Subsidiary has suffered any strikes, walkouts, work stoppages or other material labor difficulty within the last five (5) years preceding the Closing Date.

5.25 FDA and Healthcare Matters.

(a) Borrower has all Permits from the FDA or other Governmental Authority required to conduct its business as currently conducted, and each such Permit is valid and subsisting in full force and effect, in each case, except where the failure to do so would not reasonably be expected to have a Material Adverse Effect. Borrower has not received written notice that the FDA or any other Governmental Authority is considering, limiting, suspending, or revoking such Permits or changing the marketing classification or labeling of any Specified Products under such Permits that, in each case, would reasonably be expected to have a Material Adverse Effect. To the knowledge of Borrower, there is no false or materially misleading information or significant omission in any Specified Product application or other required notification, submission or report to the FDA or other Governmental Authority that was not corrected by subsequent submission, and, to the knowledge of the Borrower, all such applications, notifications, submissions and reports provided by Borrower were true, complete, and correct in all material respects as of the date of submission to FDA or other Governmental Authority, in each case, except as would not reasonably be expected to have a Material Adverse Effect. Borrower has not failed to fulfill and perform its obligations which are due under each such Permit, and no event has occurred which would constitute a breach or default by Borrower under any such Permit, in each case that would reasonably be expected to have a Material Adverse Effect. To the knowledge of the Borrower, any third party that is engaged by the Borrower in Health Care Activities related to the Specified Products is in compliance in all material respects with all applicable Health Care Laws and Permits insofar as they pertain to the Specified Products except as would not reasonably be expected to have a Material Adverse Effect.

(b) To the extent applicable, to the knowledge of the Borrower, all Health Care Activities related to the Specified Products have been and are in compliance in all material respects with the Health Care Laws, in each case, except as would not reasonably be expected to have a Material Adverse Effect. There have been no recalls, field alerts, "dear doctor" letters, investigator notices, safety alerts or other notices of action relating to an alleged lack of safety, efficacy, or regulatory compliance of the Specified Products, except as would not reasonably be expected to have a Material Adverse Effect. To the knowledge of Borrower, there are no defects in the formulation of any approved Products that are reasonably expected to prevent the safe and effective performance of any such Product for its intended use (other than such limitations specified in the applicable package insert), in each case, except as would not reasonably be expected to have a Material Adverse Effect. None of the Specified Products has been the subject of any products

liability or warranty action against Borrower, in each case, except as would not reasonably be expected to have a Material Adverse Effect.

(c) The preclinical and clinical studies conducted by or on behalf of the Borrower with respect to the Specified Products, were, and, if still pending, are being, conducted in all material respects in accordance with applicable standards for products or product candidates comparable to those being developed by the Borrower, including without limitation 21 C.F.R. Parts 50, 54, 56, 58, and 312, except as would not reasonably be expected to have a Material Adverse Effect. The Borrower has not received any written notices from the FDA or other Governmental Authority or from any institutional review board or comparable authority requesting or requiring the termination, suspension, or clinical hold of any clinical studies with respect to the Specified Products, except as would not reasonably be expected to have a Material Adverse Effect.

(d) Except as set forth on Schedule 5.25(d), as of the Closing Date, Borrower has not received any written notice or communication from the FDA or other Governmental Authority alleging material noncompliance with any Health Care Law, including without limitation any Form FDA 483, notice of inspectional observation, notice of adverse finding, notice of violation, warning letters, untitled letters or other notices from the FDA. Except as would not reasonably be expected to result in a Material Adverse Effect, no Specified Product has been seized, withdrawn, detained, or subject to a suspension of research, manufacturing, distribution or commercialization activity imposed by a Governmental Authority.

(e) As of the Closing Date, neither the Borrower nor, to its knowledge, any of its Affiliates, has been debarred, suspended or excluded, or has been convicted of any crime or engaged in any conduct that would result in a debarment, suspension or exclusion by FDA or from any federal or state government health care program. As of the Closing Date, the Borrower is not a party to nor has any ongoing reporting obligations pursuant to any corporate integrity agreement, deferred prosecution agreement, monitoring agreement, consent decree, settlement order, plan of correction or similar agreement imposed by any Governmental Authority.

ARTICLE VI

AFFIRMATIVE COVENANTS

Each of the Loan Parties hereby covenants and agrees that on the Closing Date and thereafter until the Facility Termination Date, such Loan Party shall, and shall cause each of its Restricted Subsidiaries to:

6.01 Financial Statements.

Deliver to the Administrative Agent (for distribution to the Lender Representative and each Lender):

(a) Audited Financial Statements. As soon as available, but in any event within ninety (90) days after the end of each fiscal year of the Borrower, a Consolidated balance sheet of the Borrower and its Subsidiaries as at the end of such fiscal year, and the related Consolidated statements of operations and comprehensive loss, changes in shareholders' equity and cash flows for such fiscal year, setting forth in each case in comparative form the figures for the previous fiscal year, all in reasonable detail and prepared in accordance with GAAP, audited and accompanied by a report and opinion of PricewaterhouseCoopers LLP or any other independent certified public accountant selected by the Borrower of nationally recognized standing or that is otherwise reasonably acceptable to the Lender Representative, which report and opinion shall be prepared in

accordance with generally accepted auditing standards and shall not be subject to any “going concern” or like qualification or exception or any qualification or exception as to the scope of such audit other than solely with respect to, or resulting from, an upcoming maturity date occurring within one (1) year from the time such opinion is delivered.

(b) Quarterly Financial Statements. As soon as available, but in any event within forty-five (45) days after the end of each of the first three (3) fiscal quarters of each fiscal year of the Borrower (or, if later, five (5) days after the date required to be filed with the SEC solely as a result of any extension permitted by the SEC in connection with the 2020 COVID-19 pandemic), a Consolidated balance sheet of the Borrower and its Subsidiaries as at the end of such fiscal quarter, and the related Consolidated statements of operations and comprehensive loss, changes in shareholders’ equity and cash flows for such fiscal quarter and for the portion of the Borrower’s fiscal year then ended, setting forth in each case in comparative form the figures for the corresponding fiscal quarter of the previous fiscal year and the corresponding portion of the previous fiscal year, all in reasonable detail and prepared in accordance with GAAP, such Consolidated statements to be certified by the chief executive officer, chief financial officer, treasurer or controller who is a Responsible Officer of the Borrower as fairly presenting, in all material respects, the financial condition, results of operations and comprehensive loss, shareholders’ equity and cash flows of the Borrower and its Restricted Subsidiaries, subject only to normal year-end audit adjustments and the absence of footnotes.

(c) Unrestricted Subsidiary Reconciliation. For any period in which a Subsidiary has been designated as an Unrestricted Subsidiary, simultaneously with the delivery of the financial statements referred to in clauses (a) and (b) above for such period, supplemental financial information necessary to eliminate the accounts of Unrestricted Subsidiaries from such consolidated financial statements.

6.02 Certificates; Other Information.

Deliver to the Administrative Agent (for distribution to the Lender Representative and each Lender):

(a) Compliance Certificate. Concurrently with the delivery of the financial statements referred to in Sections 6.01(a) and (b), a duly completed Compliance Certificate signed by a Responsible Officer of the Borrower.

(b) SEC Notices. Promptly, and in any event within five (5) Business Days after receipt thereof by any Loan Party or any Restricted Subsidiary thereof, copies of each notice or other correspondence received from the SEC concerning any investigation or possible investigation by such agency regarding financial or other operational results of any Loan Party or any Restricted Subsidiary thereof that would reasonably be expected to result in a Material Adverse Effect.

(c) Reserved.

(d) Environmental Notice. Promptly after the assertion or occurrence thereof, (i) any Release required to be reported by any Loan Party or any of its Restricted Subsidiaries to any Governmental Authority under any applicable Environmental Laws, and any remedial actions related thereto; and (ii) any notice of any Environmental Claim received by any Loan Party or any of its Restricted Subsidiaries of any noncompliance by any Loan Party or any of its Restricted Subsidiaries with any applicable Environmental Law or Environmental Permit, or that causes any property described in the Mortgages to be subject to any material restrictions on ownership,

occupancy, use or transferability under any Environmental Law, in each case, that could reasonably be expected to result in a Material Adverse Effect.

(e) Anti-Money-Laundering; Beneficial Ownership Regulation. Promptly following any request therefor, information and documentation reasonably requested by the Administrative Agent, the Lender Representative or any Lender for purposes of compliance with applicable “know your customer” and anti-money-laundering rules and regulations, including, without limitation, the Patriot Act.

(f) Beneficial Ownership. To the extent any Loan Party qualifies as a “legal entity customer” under the Beneficial Ownership Regulation, an updated Beneficial Ownership Certification promptly following any change in the information provided in the Beneficial Ownership Certification delivered to any Lender in relation to such Loan Party that would result in a change to the list of beneficial owners identified in such certification.

(g) FDA Notifications. Promptly after the receipt thereof by any Responsible Officer of the Borrower, (a) details with respect to any material (i) “warning letter”, or (ii) notification of a mandated or requested recall, in each case, from the FDA (or analogous foreign, state or local Governmental Authority) affecting the Specified Products.

(h) MedCo Agreements and Material Product Agreements. Notice (i) promptly (but, in any event within ten (10) Business Days) after a Loan Party receives a written notice of default or event of default under any MedCo Agreement or any Material Product Agreement, (ii) promptly (but, in any event within five (5) Business Days) after a Loan Party receives any written termination notice or (iii) promptly upon the later of ten (10) Business Days and the delivery of the next Compliance Certificate, of any new agreement with MedCo with respect to Inclisiran or any new Material Product Agreement is entered into by the Loan Parties, in each case, together with a copy of such notice or new agreement.

(i) Specified Product IP. Promptly upon the later of ten (10) Business Days and the delivery of the next Compliance Certificate, written notice of any Dispute that the Borrower reasonably determines is material to the Borrower and its Restricted Subsidiaries, taken as a whole, involving any of the Orange Book Patents or Specified Product IP to which a Loan Party is a party.

(j) Additional Information. Promptly, such additional information regarding the business, financial, legal or corporate affairs of any Loan Party or any Restricted Subsidiary thereof, or compliance with the terms of the Loan Documents, as the Administrative Agent, the Lender Representative or any Lender may from time to time reasonably request in writing to the extent such information is reasonably available to such Loan Party or any Restricted Subsidiary.

Notwithstanding anything to the contrary in this Section 6.02, neither the Borrower nor any of its Subsidiaries will be required to disclose or permit the inspection or discussion of, any document, information or other matter (i) that constitutes non-financial trade secrets or non-financial proprietary information, (ii) in respect of which disclosure (or their respective representatives or contractors) is prohibited by Law or any binding agreement or (iii) that is subject to attorney client or similar privilege or constitutes attorney work product.

Documents required to be delivered pursuant to Section 6.01(a) or (b) (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date (i) on which the Borrower posts such documents, or provides a link thereto on the Borrower’s website on the

Internet at the website address listed on Schedule 1.01(a); or (ii) on which such documents are posted on the Borrower's behalf on an Internet or intranet website, if any, to which each Lender, the Lender Representative and the Administrative Agent have access (whether a commercial, third-party website or whether sponsored by the Administrative Agent). The Administrative Agent shall have no obligation to request the delivery of or to maintain paper copies of the documents referred to above, and in any event shall have no responsibility to monitor compliance by the Borrower with any such request by a Lender for delivery, and each Lender shall be solely responsible for requesting delivery to it or maintaining its copies of such documents.

The Borrower hereby acknowledges that (i) the Borrower, Administrative Agent and/or an Affiliate thereof may, but shall not be obligated to, make available to the Lenders materials and/or information provided by or on behalf of the Borrower hereunder (collectively, "Borrower Materials") by providing Borrower Materials directly to the Lenders or posting the Borrower Materials on IntraLinks, Syndtrak, ClearPar or a substantially similar electronic transmission system (the "Platform") and (ii) certain of the Lenders (each, a "Public Lender") may have personnel who do not wish to receive material non-public information with respect to the Borrower or its Affiliates, or the respective securities of any of the foregoing, and who may be engaged in investment and other market-related activities with respect to such Persons' securities. The Borrower hereby agrees that it will use commercially reasonable efforts to identify that portion of the Borrower Materials that may be distributed to the Public Lenders and that (A) all such Borrower Materials shall be clearly and conspicuously marked "PUBLIC" which, at a minimum, shall mean that the word "PUBLIC" shall appear prominently on the first page thereof; (B) by marking Borrower Materials "PUBLIC," the Borrower shall be deemed to have authorized the Administrative Agent, any Affiliate thereof and the Lenders to treat such Borrower Materials as not containing any material non-public information (although it may be sensitive and proprietary) with respect to the Borrower or its securities for purposes of United States federal and state securities laws; (C) all Borrower Materials marked "PUBLIC" are permitted to be made available by the Borrower directly to the Lenders or by the Administrative Agent through a portion of the Platform designated "Public Side Information;" (D) the Borrower and any Affiliate thereof shall be entitled to deliver any Borrower Materials that are not marked "PUBLIC" as being suitable only for delivery to the designated representative of Lender entitled to receive such non-PUBLIC information, and (E) the Administrative Agent and any Affiliate thereof shall be entitled to treat any Borrower Materials that are not marked "PUBLIC" as being suitable only for posting on a portion of the Platform not designated "Public Side Information" and shall only post such Borrower Materials on a portion of the Platform designated "PRIVATE." Each Lender agrees to designate in writing to Borrower and to Administrative Agent the names and contact information (including email addresses) of one or more representatives entitled to receive Public Side Information and one or more representatives to receive non-PUBLIC information.

6.03 Notices.

Promptly, but in any event within five (5) Business Days, notify the Administrative Agent (for distribution to the Lender Representative and each Lender) upon obtaining knowledge of:

(a) the occurrence of any Default;

(b) any matter that has resulted or would reasonably be expected to result in a Material Adverse Effect, including (i) breach or non-performance of, or any default under, a Contractual Obligation of the Borrower or any Restricted Subsidiary; (ii) any action, suit, dispute, litigation, investigation, proceeding or suspension involving the Borrower or any Restricted Subsidiary or any of their respective properties and any Governmental Authority; or (iii) the commencement of, or

any material development in, any litigation or proceeding affecting the Borrower or any Restricted Subsidiary, including pursuant to any applicable Environmental Laws;

(c) the occurrence of any ERISA Event that would reasonably be expected to result in a Material Adverse Effect;

(d) any occurrence of any Disposition of property or assets for which the Borrower is required to make a mandatory prepayment pursuant to Section 2.03(b)(i) or Section 2.03(b)(ii);

(e) the satisfaction of any component of the Subsequent Borrowing Condition; and

(f) (i) any written notice received by the Borrower from any Governmental Authority alleging any potential or actual violations of any Health Care Law by the Borrower, (ii) any written notice that the FDA (or international equivalent) is limiting, suspending or revoking any Permit affecting the Specified Products, (iii) any written notice that the Borrower has become subject to any administrative or regulatory enforcement action, proceeding or investigation issued by the FDA or other Governmental Authority with respect to any of the Specified Products, (iv) notice of the exclusion or debarment from any governmental healthcare program or debarment or disqualification by FDA of the Borrower, (v) any written notice that a Specified Product has been seized, withdrawn, recalled or subject to a suspension of manufacturing by a Governmental Authority, (vi) any written notice that FDA or other Governmental Authority is changing the market classification or labeling of any Specified Product under any such Permit, or (vii) the receipt of notice, or occurrence of any decision, to conduct a voluntary or mandatory recall, withdrawal, removal, suspension of manufacturing or marketing, or discontinuation of any Specified Product, in each case of clauses (i) through (vii), to the extent such notice would reasonably be expected to result in material and adverse consequences to the Borrower and its Restricted Subsidiaries, taken as a whole.

Each notice pursuant to this Section 6.03 (other than Section 6.03(d) or (e)) shall be accompanied by a statement of a Responsible Officer of the Borrower setting forth details of the occurrence referred to therein and to the extent applicable, stating what action the Borrower has taken and proposes to take with respect thereto.

6.04 Payment of Obligations.

Pay and discharge as the same shall become due and payable, all its obligations and liabilities, including (a) all tax liabilities, assessments and governmental charges or levies upon it or its properties or assets, unless the same are being contested in good faith by appropriate proceedings diligently conducted and adequate reserves in accordance with GAAP are being maintained by the Borrower or such Restricted Subsidiary; (b) all lawful claims which, if unpaid, would by law become a Lien upon its property (other than Permitted Liens); and (c) all Indebtedness, as and when due and payable, but subject to any subordination provisions contained in any instrument or agreement evidencing such Indebtedness, in each case, except where the failure to do so would not reasonably be expected to have a Material Adverse Effect.

6.05 Preservation of Existence, Etc.

(a) Preserve, renew and maintain in full force and effect its legal existence and good standing under the Laws of the jurisdiction of its organization except in a transaction permitted by Section 7.04 or 7.05;

(b) take all reasonable action to maintain all rights, privileges, permits, licenses and franchises necessary or desirable in the normal conduct of its business, except to the extent that failure to do so could not reasonably be expected to have a Material Adverse Effect; and

(c) use commercially reasonable efforts to preserve or renew all of its registered patents, trademarks, trade names and service marks related to the IP Collateral or the Shared IP, the non-preservation of which would reasonably be expected to have a Material Adverse Effect.

6.06 Maintenance of Properties.

(a) Except if the failure to do so would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect, maintain, preserve and protect all of its material properties and equipment necessary in the operation of its business in good working order and condition, ordinary wear and tear excepted; and

(b) make all necessary repairs thereto and renewals and replacements thereof except where the failure to do so could not reasonably be expected to have a Material Adverse Effect.

6.07 Maintenance of Insurance.

(a) Maintenance of Insurance. Maintain with financially sound and reputable (as determined by the Borrower in good faith) insurance companies not Affiliates of the Borrower, insurance with respect to its properties and business against loss or damage of the kinds customarily insured against by Persons engaged in the same or similar business, of such types and in such amounts as are customarily carried under similar circumstances by such other Persons.

(b) Evidence of Insurance. Cause the Administrative Agent to be named as lenders' loss payable, loss payee or mortgagee, as its interest may appear, and/or additional insured with respect of any such insurance providing liability coverage or coverage in respect of any Collateral, and cause, unless otherwise agreed to by the Lender Representative, each provider of any such insurance to agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to the Administrative Agent that it will give the Administrative Agent thirty (30) days prior written notice before any such policy or policies shall be altered or cancelled (or ten (10) days prior notice in the case of cancellation due to the nonpayment of premiums). No more than one time per year, the Loan Parties shall provide, or cause to be provided, to the Administrative Agent, evidence of insurance, to the extent such evidence is reasonably requested by the Administrative Agent (acting at the written direction of the Required Lenders) or the Lender Representative.

6.08 Compliance with Laws.

Comply with the requirements of all Applicable Laws (including applicable Health Care Laws) and all orders, writs, injunctions and decrees applicable to it or to its business or property, except in such instances in which (a) such requirement of Law or order, writ, injunction or decree is being contested in good faith by appropriate proceedings diligently conducted; or (b) the failure to comply therewith would not reasonably be expected to have a Material Adverse Effect.

6.09 Books and Records.

(a) Maintain proper books of record and account, in which full, true and correct entries in conformity with GAAP consistently applied shall be made of all financial transactions and

matters involving the assets and business of such Loan Party or such Restricted Subsidiary, as the case may be; and

(b) maintain such books of record and account in material conformity with all applicable requirements of any Governmental Authority having regulatory jurisdiction over such Loan Party or such Restricted Subsidiary, as the case may be.

6.10 Inspection Rights.

(a) Permit representatives of the Administrative Agent or the Lender Representative to visit and inspect any of its properties, to examine its corporate, financial and operating records, and make copies thereof or abstracts therefrom, and to discuss its affairs, finances and accounts with its directors, officers, and independent public accountants (subject to such accountants' customary policies and procedures and after giving the Borrower an opportunity to participate in any such discussions with such accountants), not more than one (1) time per calendar year at reasonable times during normal business hours and upon reasonable advance notice to the Borrower; *provided, however*, that when an Event of Default exists the Administrative Agent, the Lender Representative or any Lender (or any of their respective representatives or independent contractors) may do any of the foregoing at the expense of the Borrower. Notwithstanding anything to the contrary in this Section 6.10, the Borrower will not be required to disclose or permit the inspection or discussion of, any document, information or other matter (i) that constitutes non-financial trade secrets or non-financial proprietary information, (ii) in respect of which disclosure (or their respective representatives or contractors) is prohibited by Law or any binding agreement or (iii) that is subject to attorney client or similar privilege or constitutes attorney work product.

6.11 Use of Proceeds.

Use the proceeds of any Borrowing (i) to fund cash to the Borrower's balance sheet for clinical trial progression, (ii) to continue the development of the Borrower's manufacturing facility, (iii) consummate buybacks of the Borrower's Equity Interests and (iv) for general corporate purposes and working capital not in contravention of any Law or of any Loan Document.

6.12 [Reserved].

6.13 Covenant to Guarantee Obligations.

The Loan Parties will cause each of their Domestic Subsidiaries (other than any Excluded Subsidiary) whether newly formed, after acquired or otherwise existing (including any Subsidiary ceasing to be an Excluded Subsidiary) to promptly (and in any event within forty-five (45) days after such Subsidiary is formed or acquired or ceases to be an Excluded Subsidiary (or such longer period of time as agreed to by the Lender Representative in its reasonable discretion)) become a Guarantor hereunder by way of execution of a Joinder Agreement. In connection with the foregoing, the Loan Parties shall deliver to the Administrative Agent and the Lender Representative, with respect to each new Guarantor to the extent applicable, substantially the same documentation required pursuant to Sections 4.01(b) – (d), and 6.14 and such other documents or agreements as the Administrative Agent or the Lender Representative may reasonably request, including without limitation, updated Schedules 5.10, 5.12, and 5.14(b).

6.14 Covenant to Give Security.

Except with respect to Excluded Property:

(a) Equity Interests and Personal Property. Each Loan Party will cause the Pledged Equity and all of its tangible and intangible personal property that constitutes Collateral now owned or hereafter acquired by it to be subject at all times to a first priority, perfected Lien (subject to Permitted Liens) in favor of the Administrative Agent for the benefit of the Secured Parties to secure the Obligations pursuant to the terms and conditions of the Collateral Documents. Each Loan Party shall provide opinions of counsel to the extent reasonably requested by the Lender Representative and any filings and deliveries reasonably necessary in connection therewith to perfect the security interests therein, all in form and substance reasonably satisfactory to the Lender Representative.

(b) Real Property. If any Loan Party acquires a fee ownership interest in any Material Real Property after the Closing Date, it shall provide to the Administrative Agent within one hundred eighty (180) days (or such extended period of time as reasonably agreed to by the Lender Representative) a Mortgage and such other support documents as the Administrative Agent (acting at the written direction of the Required Lenders) or the Lender Representative may reasonably request to cause such Material Real Property to be subject to a first priority, perfected Lien (subject in each case to Permitted Liens) in favor of the Administrative Agent for the benefit of the Secured Parties to secure the Obligations pursuant to the terms and conditions of the Collateral Documents.

(c) Account Control Agreements. Subject to Section 6.18, each of the Loan Parties shall not open, maintain or otherwise have any deposit or other accounts (including securities accounts) at any bank or other financial institution, or any other account where money or securities are or may be deposited or maintained with any Person, other than (i) deposit accounts that are maintained at all times with depository institutions as to which the Administrative Agent shall have received a Qualifying Control Agreement within 30 days after the opening or acquisition thereof, (ii) securities accounts that are maintained at all times with financial institutions as to which the Administrative Agent shall have received a Qualifying Control Agreement thirty (30) days after the opening or acquisition thereof, and (iii) Excluded Accounts.

(d) Further Assurances. At any time upon the reasonably written request of the Administrative Agent (acting at the written direction of the Required Lenders) or the Lender Representative, promptly execute and deliver any and all further instruments and documents and take all such other action as the Administrative Agent or the Lender Representative may reasonably deem necessary or desirable to maintain in favor of the Administrative Agent, for the benefit of the Secured Parties, Liens on the Collateral that are duly perfected in accordance with the requirements of, or the obligations of the Loan Parties under, the Loan Documents and all Applicable Laws.

(e) Notwithstanding anything to the contrary in this Agreement or any other Loan Document, other than with respect to any Additional Foreign Guarantor, in no event shall the Loan Parties be required, nor shall the Administrative Agent be authorized, to take any of the following actions (i) execute, deliver or otherwise obtain any agreement, instrument or documents governed by foreign law, (ii) perfect any pledge, security interest or Mortgage by any means other than by (A) filings pursuant to the UCC in the office of the secretary of state (or similar central filing office) of the relevant states and jurisdictions, (B) filings in the applicable real estate records with respect to any Material Real Property with respect to which a Mortgage has been granted or any fixtures relating to any Material Real Property with respect to which a Mortgage has been granted to the extent provided in clause (b) above or Section 6.18(b), (C) filings with the USPTO, as applicable, with respect to Intellectual Property, (D) to the extent certificated, delivery of stock certificates and other certificated securities and the applicable transfer powers endorsed in blank and (E) entering into Control Agreements pursuant to clause (c) above or Section 6.18(a), or (iii) to take any actions with respect to any assets not located in the United States (including any Intellectual Property

registered or applied for in any jurisdiction outside the United States) or enter into any security document governed by the laws of a jurisdiction other than a jurisdiction within the United States; *provided that* this clause (iii) shall not apply to the Collateral described in clause (ii)(D) above.

6.15 Environmental Matters.

Comply in all material respects, and take commercially reasonable steps to cause all lessees and other Persons operating or occupying its properties to comply in all material respects, with all applicable Environmental Laws and Environmental Permits; obtain and renew all Environmental Permits necessary for its operations and properties; conduct any investigation, study, sampling and testing, cleanup, removal, remedial or other action to remove and clean up all Hazardous Materials from any of its properties to the extent required of any Loan Party or any of its Restricted Subsidiaries under, and in accordance with, all applicable Environmental Laws; and make an appropriate response to any Environmental Claim against such Loan Party or any of its Restricted Subsidiaries.

6.16 Anti-Corruption Laws; Sanctions.

Conduct its business in compliance with the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010 and other applicable anti-corruption legislation in other jurisdictions and with all applicable Sanctions, and maintain policies and procedures designed to promote and achieve compliance with such laws and Sanctions.

6.17 Further Assurances.

Promptly upon the reasonable written request by the Administrative Agent (acting at the written direction of the Required Lenders), the Lender Representative, or any Lender through the Administrative Agent, (a) correct any material defect or error that may be discovered in any Loan Document or in the execution, acknowledgment, filing or recordation thereof, and (b) do, execute, acknowledge, deliver, record, re-record, file, re-file, register and re-register any and all such further acts, deeds, certificates, assurances and other instruments as the Administrative Agent, the Lender Representative, or any Lender through the Administrative Agent, may reasonably require from time to time in order to (i) carry out more effectively the purposes of the Loan Documents, (ii) to the fullest extent permitted by Applicable Law, subject any Loan Party's or any of its Restricted Subsidiaries' properties, assets, rights or interests to the Liens now or hereafter intended to be covered by any of the Collateral Documents, (iii) perfect and maintain the validity, effectiveness and priority of any of the Collateral Documents and any of the Liens intended to be created thereunder to the extent provided in Section 6.14 and (iv) assure, convey, grant, assign, transfer, preserve, protect and confirm more effectively unto the Secured Parties the rights granted or now or hereafter intended to be granted to the Secured Parties under any Loan Document or under any other instrument executed in connection with any Loan Document to which any Loan Party is or is to be a party, and cause each of its Restricted Subsidiaries to do so.

6.18 Post-Closing Covenants.

(a) Qualifying Control Agreements. By the date that is ninety (90) days after the Closing Date, or such later date as agreed to by the Lender Representative, deliver to the Administrative Agent, each Qualifying Control Agreement required to be delivered pursuant to Section 6.14.

(b) Material Real Property. By the date that is one hundred eighty (180) days after the Closing Date, or such later date as reasonably agreed to by the Lender Representative, deliver to the Administrative Agent with respect to any Material Real Property, in form and substance reasonably

satisfactory to the Administrative Agent, the Lender Representative and the Lenders, a Mortgage, duly executed by the appropriate Loan Party, together with:

(i) evidence that counterparts of such Mortgage has been duly executed, acknowledged and delivered and is in form suitable for filing or recording in all filing or recording offices that the Lender Representative may deem necessary or desirable in order to create a valid first and subsisting Lien on the property described therein in favor of the Administrative Agent for the benefit of the Secured Parties and that all filing, documentary, stamp, intangible and recording taxes and other fees in connection therewith have been paid,

(ii) a fully paid American Land Title Association Lender's Extended Coverage title insurance policy (the "Mortgage Policy"), with endorsements and in amounts reasonably agreed between the Lender Representative and the Borrower based on the value of the property and, issued, coinsured and reinsured by title insurers reasonably acceptable to the Lender Representative, insuring the Mortgages to be valid first and subsisting Liens on the property described therein, free and clear of all Liens, other than Permitted Liens, and providing for such other affirmative insurance and such coinsurance (or reinsurance with direct access) as the Lender Representative may reasonably deem necessary or desirable,

(iii) an American Land Title Association/National Society of Professional Engineers form survey, for which all necessary fees (where applicable) have been paid, and dated no more than one hundred eighty (180) days after the Closing Date, or such later date as reasonably agreed to by the Lender Representative, certified to the Administrative Agent and the issuer of the Mortgage Policy in a manner reasonably satisfactory to the Lender Representative by a land surveyor duly registered and licensed in the jurisdiction in which the Material Real Property is located and reasonably acceptable to the Administrative Agent, showing all buildings and other improvements, any off-site improvements, the location of any easements, parking spaces, rights of way, building set-back lines and other dimensional regulations and the absence of encroachments, either by such improvements or on to such property, and other defects, other than encroachments and other defects acceptable to the Lender Representative,

(iv) evidence of the insurance required by the terms of Section 6.07,

(v) an opinion of local counsel as to the enforceability of the Mortgage and such other matters reasonably requested by the Administrative Agent or the Lender Representative; and

(vi) evidence that all other action that the Administrative Agent or the Lender Representative may deem necessary or desirable in order to create valid first and subsisting Liens (subject to Permitted Liens) on such Material Real Property has been taken.

(c) Stock Certificates. By the date that is (x) three (3) Business Days after the Closing Date with respect to Alnylam U.S., Inc, Sirna Therapeutics, Inc. and Alnylam Securities Corporation or (y) twenty (20) Business Days after the Closing Date with respect to Alnylam (Bermuda) Inc., or in either case, such later date as reasonably agreed to by the Lender Representative, deliver to the Administrative Agent all stock or membership certificates, if any, evidencing the Pledged Equity with respect to such Loan Parties and undated stock or transfer powers duly executed in blank.

(d) Insurance Endorsements. By the date that is fifteen (15) Business Days after the Closing Date, or such later date as reasonably agreed to by the Lender Representative, deliver to the Administrative Agent all endorsements with respect to the insurance certificates delivered to the Administrative Agent on the Closing Date pursuant to Section 4.01(e), in each case meeting the requirements set forth herein or in the Collateral Documents.

(e) Paying Agent Agreement. By the date that is ten (10) Business Days after the Closing Date, or such later date as reasonably agreed to by the Lender Representative, deliver or cause to be delivered to the Administrative Agent a fully executed version of the Paying Agent Agreement, with such changes and modifications from the form attached hereto as Exhibit K as may be agreed in good faith between the Borrower, BX Bodyguard Royalties L.P. and the Paying Agent; *provided* that any such changes or modifications that adversely affect the rights of the Administrative Agent under the Paying Agent Agreement must be acceptable to both the Administrative Agent and the Lender Representative, each in its sole discretion.

6.19 Loan Notices.

(a) Tranche 1 Loans. If the Borrower has not delivered a Loan Notice with respect to a Borrowing of Tranche 1 Loans and the conditions set forth in Section 4.03 shall have been satisfied prior to December 31, 2020 (other than delivery of a Loan Notice), deliver a Loan Notice pursuant to Section 4.03 on December 31, 2020 or such later date as may be agreed by the Lender Representative in its sole discretion (such date, the "Tranche 1 Mandatory Borrowing Date").

(b) Tranche 2 Loans.

(i) If (x) the Subsequent Borrowing Condition and conditions set forth in Section 4.03 shall have been satisfied on and as of June 30, 2021 (other than delivery of a Loan Notice) and (y) the Borrower has not delivered a Loan Notice with respect to a Borrowing of Tranche 2 Loans prior to June 30, 2021, deliver a Loan Notice pursuant to Section 4.04 on June 30, 2021 (or such later date as may be agreed by the Lender Representative in its sole discretion).

(ii) If the Subsequent Borrowing Condition or conditions set forth in Section 4.03 shall not have been satisfied on or prior to June 30, 2021 (other than delivery of a Loan Notice) but are each satisfied on and as of any later date that is within the Tranche 2 Availability Period (such date, the "Tranche 2 Mandatory Borrowing Date"), deliver a Loan Notice pursuant to Section 4.04 within five (5) Business Day following the Tranche 2 Mandatory Borrowing Date (or such later date as may be agreed by the Lender Representative in its sole discretion).

(c) Tranche 3 Loans.

(i) If (x) the Subsequent Borrowing Condition or conditions set forth in Section 4.03 shall have been satisfied on and as of December 31, 2021 (other than delivery of a Loan Notice) and (y) the Borrower has not delivered a Loan Notice with respect to a Borrowing of Tranche 3 Loans prior to December 31, 2021, deliver a Loan Notice pursuant to Section 4.05 on December 31, 2021 (or such later date as may be agreed by the Lender Representative in its sole discretion).

(ii) If the Subsequent Borrowing Condition or conditions set forth in Section 4.03 shall not have been satisfied on or prior to December 31, 2021 (other than delivery of

a Loan Notice) but are each satisfied on and as of any later date that is within the Tranche 3 Availability Period (such date, the “Tranche 3 Mandatory Borrowing Date”), deliver a Loan Notice pursuant to Section 4.05 within five (5) Business Day following the Tranche 3 Mandatory Borrowing Date (or such later date as may be agreed by the Lender Representative in its sole discretion).

6.20 Maintenance, Defense and Enforcement of Specified Product IP.

Each Loan Party and its Restricted Subsidiaries shall take all steps that the Loan Parties and Restricted Subsidiaries believe are commercially reasonable under the circumstances to maintain, defend and enforce the Specified Product IP that is owned by a Loan Party or any of its Restricted Subsidiaries.

6.21 Termination of MedCo License Agreement.

If MedCo terminates or provides written notice of termination of the MedCo License Agreement (in whole or with respect to Inclisiran, or any portion of the Territory (as defined in the MedCo License Agreement), or a termination that would adversely affect the value of the Collateral), or the MedCo License Agreement otherwise terminates (in whole or with respect to Inclisiran, or any portion of the Territory, or a termination that could adversely affect the value of the Collateral), then the Lender Representative and Borrower shall discuss and consider in good faith the scope of the Borrower’s commercialization capabilities (including consideration of the ability of the Borrower to maximize Inclisiran sales) as of such time and, if the Lender Representative and the Borrower, acting reasonably, mutually agree that the Borrower’s commercialization capabilities are sufficient to Commercialize (as defined in the MedCo License Agreement) Inclisiran in part or all of the Territory, then, to the extent permitted by Section 12.3 of the MedCo License Agreement, the Borrower may elect to use commercially reasonable efforts to Commercialize Inclisiran itself in part or all of such portion of the Territory. If the Borrower so elects, it shall consult with the Lender Representative in good faith regarding its Commercialization activities. If the Borrower does not elect to Commercialize Inclisiran in any portion of the Territory or the Lender Representative and the Borrower mutually conclude, after good faith discussion and consideration, that there is any portion of the Territory in which the Borrower lacks the requisite capabilities to Commercialize Inclisiran, then, to the extent permitted by Section 12.3 of the MedCo License Agreement, the Borrower shall use commercially reasonable efforts to negotiate and enter into one or more (sub)licenses with one or more third parties under the Royalty Product Patents (as defined in the Royalty Purchase Agreement), including pursuant to a co-promotion or co-commercialization arrangement in all or a portion of the Territory, to Commercialize Inclisiran in the Territory (any such (sub)license, a “New Arrangement”). If any New Arrangement is a co-promotion or co-commercialization agreement, the Borrower shall consult with the Lender Representative in a customary manner and on a reasonable basis regarding any Commercialization activities it performs under such agreement. The terms of any such New Arrangement (other than any co-promotion or co-commercialization agreement) shall be no less favorable to the Borrower than those contained in the MedCo License Agreement with respect to the royalty rates and milestone terms set forth in Article 7 of the MedCo License Agreement (including the incorporation into such New Arrangement of the limitations on Royalty Reductions (as defined in the Royalty Purchase Agreement) set forth in Section 7.4.6 of the MedCo License Agreement) and otherwise shall be no less materially favorable, and no less materially burdensome, to the Borrower with respect to the obligations and costs imposed on the Borrower, disclaimers of the Borrower’s liability, intellectual property ownership and control, commercialization diligence and indemnification of the Borrower. Should the Lender Representative identify any prospective New Arrangement, the Borrower agrees to evaluate such New Arrangement in good faith and shall use commercially reasonable efforts to negotiate and enter into such New Arrangement that satisfies the requirements set forth in the foregoing sentence. The Lender Representative shall provide assistance to and cooperate with the Borrower, at the Borrower’s cost and expense (to be paid by or on behalf of the Borrower), in such efforts as the Borrower shall undertake in connection with any New

Arrangement. In the event the Borrower enters into a New Arrangement, references in this Agreement to the MedCo License Agreement shall be deemed to be references to the New Arrangement, and references to MedCo shall be deemed to be references to the (sub)licensee under such New Arrangement. Such New Arrangement shall also provide that all payments in respect of the royalties and milestones that are payable under such New Arrangement, solely to the extent constituting Collateral, shall be made by the (sub)licensee directly to the Paying Agent pursuant to the Paying Agent Agreement (until the consummation of and subject to any Permitted Royalty Financings and permitted Dispositions, *provided* that any portion of such royalties and milestones constituting Collateral that is not transferred pursuant to a Permitted Royalty Financing or permitted Disposition shall continue to be paid to the Paying Agent until transferred pursuant to a Permitted Royalty Financing or permitted Disposition). Following the effective date of any New Arrangement, (A) the Lender Representative and the Borrower shall cooperate with one another to make mutually agreed amendments to this Agreement (and shall cooperate with one another and with the Paying Agent to make mutually agreed amendments to the Paying Agent Agreement) that give effect to the immediately preceding sentence and (B) the Borrower shall deliver to the (sub)licensee under such New Arrangement an instruction letter substantially similar to the MedCo Instruction but with references to the MedCo License Agreement and MedCo replaced by references to such New Arrangement and the (sub)licensee thereunder, respectively. In the event that, despite using commercially reasonable efforts to do so, the Borrower is unable to enter into a New Arrangement with a (sub)licensee for Inclisiran, then the Borrower shall (i) use commercially reasonable efforts to Commercialize Inclisiran itself in the Territory, and (ii) consult with the Lender Representative in a customary manner and on a reasonable basis, regarding the Borrower's own Commercialization activities, as well as other potential opportunities for a New Arrangement.

6.22 Regulatory Documentation.

Each Loan Party and each of its Restricted Subsidiaries shall, promptly upon the reasonable written request of the Administrative Agent (acting at the written direction of the Required Lenders or the Lender Representative), execute and deliver to the Administrative Agent any document required to acknowledge, confirm, register, record, or perfect the Administrative Agent's interest in any part of the Regulatory Documentation, whether now owned or hereafter acquired; provided, however, that the Loan Party that is the holder of any Specified Product NDA shall execute and deliver to the Administrative Agent following any Event of Default (a) a complete executed transferor letter in customary form for such Specified Product NDA and (b) any further version of such transferor letter together with any foreign equivalents of such transferor letter as requested by the Administrative Agent (acting at the written direction of the Required Lenders or the Lender Representative), and shall file any and all such transferor letters and related documentation with the appropriate Governmental Authorities upon the request of the Administrative Agent following an Event of Default.

6.23 Payments under MedCo License Agreement; Escrow.

On the Closing Date, the Borrower shall deliver the MedCo Instruction to MedCo, and thereafter, to the extent the Retained Royalty constitutes Collateral, the Borrower shall use commercially reasonable efforts to cause MedCo to pay amounts owed to the Borrower pursuant to the MedCo License Agreement (to the extent constituting Collateral) into an escrow account in accordance with the Paying Agent Agreement.

ARTICLE VII

NEGATIVE COVENANTS

Each of the Loan Parties hereby covenants and agrees that on the Closing Date and thereafter until the Facility Termination Date, no Loan Party shall, nor shall it permit any Restricted Subsidiary to, directly or indirectly:

7.01 Liens.

Create, incur, assume or suffer to exist any Lien upon any of its property or assets, whether now owned or hereafter acquired, except for the following (the "Permitted Liens"):

(a) Liens pursuant to any Loan Document;

(b) Liens existing on the Closing Date and listed on Schedule 7.01 and any renewals or extensions thereof, *provided* that (i) the property covered thereby is not changed, (ii) the amount secured or benefited thereby is not increased except as contemplated by Section 7.02(b) and (iii) any renewal, refinancings, replacements or extension of the obligations secured or benefited thereby is permitted by Section 7.02(b);

(c) Liens for Taxes, assessments or other governmental charges or levies not yet due and not yet overdue for 30 days or which are being contested in good faith and by appropriate proceedings diligently conducted, if adequate reserves with respect thereto are maintained on the books of the applicable Person in accordance with GAAP for property Taxes on property such Person or one of its Restricted Subsidiaries has determined to abandon if the sole recourse for such Tax, assessment, charge, levy or claim is to such property;

(d) Statutory Liens such as carriers', warehousemen's, landlords', mechanics', materialmen's, repairmen's, construction contractors', airports', navigation authority's or other like Liens arising in the ordinary course of business which are not overdue for a period of more than sixty (60) days or which are being contested in good faith and by appropriate proceedings diligently conducted (or which, if due and payable, are being contested in good faith by appropriate proceedings and for which adequate reserves are being maintained, to the extent required by GAAP); *provided* that adequate reserves with respect thereto are maintained on the books of the applicable Person;

(e) pledges or deposits in the ordinary course of business in connection with workers' compensation, unemployment insurance and other social security legislation, other than any Lien imposed by ERISA;

(f) deposits to secure the performance of bids, tenders, trade contracts and leases (other than Indebtedness), statutory obligations, surety, stay, customs and appeal bonds, performance bonds, or as security for contested taxes or import duties or for the payment of rent, and other obligations of a like nature incurred in the ordinary course of business;

(g) Liens in favor of the issuers of performance and surety bonds, bid, indemnity, warranty, release, appeal or similar bonds or with respect to regulatory requirements or letters of credit or bankers' acceptances issued and completion of guarantees provided for, in each case, pursuant to the request of and for the account of the Borrower or any Restricted Subsidiary in the ordinary course of its business;

(h) survey exceptions, non-monetary encumbrances, easements or reservations of, or rights of others for, licenses, rights-of-way, servitudes, sewers, electric lines, drains, telegraph and telephone and cable television lines, gas and oil pipelines and other similar purposes, reservations of rights or zoning, building codes or other restrictions (including, without limitation, minor defects or irregularities in title and similar encumbrances) affecting real property or incidental to the conduct of business of the applicable Person or to the ownership of its properties, which, in the aggregate, do not in any case materially interfere with the ordinary conduct of the business of the Borrower or its Restricted Subsidiaries and, with respect to the Manufacturing Facility, do not materially detract from the value thereof;

(i) Liens securing judgments for the payment of money (or appeal or other surety bonds relating to such judgments) not constituting an Event of Default under Section 8.01(h);

(j) Liens securing Indebtedness permitted under Section 7.02(c); *provided* that (i) such Liens do not at any time encumber any property other than the property financed by such Indebtedness and (ii) the Indebtedness secured thereby does not exceed the cost or fair market value, whichever is lower, of the property being acquired on the date of acquisition;

(k) bankers' Liens, rights of setoff and other similar Liens existing solely with respect to cash and Cash Equivalents on deposit in one or more accounts maintained by the Borrower or any of its Restricted Subsidiaries with any Lender, in each case in the ordinary course of business in favor of the bank or banks with which such accounts are maintained, securing solely the customary amounts owing to such bank with respect to cash management and operating account arrangements; *provided*, that in no case shall any such Liens secure (either directly or indirectly) the repayment of any Indebtedness;

(l) Liens arising out of judgments or awards not resulting in an Event of Default; *provided* the applicable Loan Party or Restricted Subsidiary shall in good faith be prosecuting an appeal or proceedings for review;

(m) Any interest or title of a lessor, licensor or sublessor under any lease, license, sublease, sublicense, occupancy agreement or assignment of or in respect of real or personal property and covering only those assets so leased, subleased, licensed or sublicensed;

(n) Liens of a collection bank arising under Section 4-210 of the UCC on items in the course of collection;

(o) Liens on property of a Person existing at the time such Person acquired the property or the Person is merged into or consolidated with the Borrower or any Restricted Subsidiary of the Borrower or becomes a Restricted Subsidiary of the Borrower; *provided* that such Liens were not created in contemplation of such merger, consolidation or Investment and do not extend to any assets other than those of the Person merged into or consolidated with the Borrower or such Restricted Subsidiary or acquired by the Borrower or such Restricted Subsidiary, and the applicable Indebtedness secured by such Lien is permitted under Section 7.02(f);

(p) Liens securing Indebtedness permitted under Section 7.02(g) or (j);

(q) any zoning, building or similar laws or rights reserved to or vested in any Governmental Authority;

(r) other Liens securing Indebtedness outstanding in an aggregate secured principal amount not to exceed the greater of (x) \$75,000,000 and (y) 3.75% of Consolidated Total Assets as of the last day of the Measurement Period most recently ended prior to the date of incurrence;

(s) Liens on specific items of inventory or other goods and proceeds of the Borrower or a Restricted Subsidiary securing such Person's obligations in respect of bankers' acceptances or letters of credit entered into in the ordinary course of business issued or created for the account of such Person to facilitate the purchase, shipment or storage of such inventory or other goods;

(t) Liens arising from, or from UCC financing statement filings regarding, operating leases or consignments entered into by the Borrower or its Restricted Subsidiaries in the ordinary course of business;

(u) Liens in favor of the Borrower or any Guarantor securing any Indebtedness permitted to be incurred under Section 7.02;

(v) deposits made or other security provided in the ordinary course of business to secure liability to insurance carriers or under self-insurance arrangements in respect of such obligations;

(w) Liens arising out of conditional sale, title retention, consignment or similar arrangements for the sale of goods entered into in the ordinary course of business;

(x) Liens in favor of customs and revenue authorities arising as a matter of law to secure payment of customs duties in connection with the importation and exportation of goods in the ordinary course of business;

(y) Liens (i) of a collection bank arising under Section 4-210 of the UCC, or any comparable or successor provision, on items in the course of collection; (ii) attaching to pooling, commodity trading accounts or other commodity brokerage accounts incurred in the ordinary course of business; and (iii) in favor of banking or other financial institutions or entities, or electronic payment service providers, arising as a matter of law encumbering deposits (including the right of set-off) and which are within the general parameters customary in the banking or finance industry;

(z) any Liens with respect to Equity Interests of any joint venture, co-promotion agreement or similar arrangement pursuant to any joint venture, co-promotion or similar agreement;

(aa) Liens on insurance policies and the proceeds thereof securing the financing of the premiums with respect thereto;

(bb) (x) Liens on receivables and related assets incurred under Permitted Receivables Financings and (y) Liens on IP Rights and related assets incurred under Permitted Royalty Financings;

(cc) (x) Liens solely on any cash earnest money deposits made by the Borrower or its Restricted Subsidiaries in connection with any letter of intent or other agreement in respect of any permitted Investment and (y) Liens on advances of cash or Cash Equivalents in favor of the seller of any property to be acquired in a permitted Investment to be applied against the purchase price for such Investment;

(dd) Liens on any real property that constitutes Excluded Property;

(ee) Liens listed as exceptions on any Mortgage Policy;

(ff) Liens on any IP Rights that do not constitute (x) IP Collateral, (y) Shared IP or (z) other IP Rights applicable to one or more of the Specified Products;

(gg) Liens in connection with any Permitted License;

(hh) Liens pursuant to the Royalty Purchase Agreement (as in effect on the date hereof) in favor of the purchaser thereunder;

(ii) in the case of any account described in clause (e)(ii) of the definition of “Excluded Accounts,” Liens on such account in favor of any counterparty to the applicable Contractual Obligation; and

(jj) Liens on any inbound license or other agreements that are not applicable to any of the Specified Products.

It is understood and agreed that Section 7.01(j), (r), (u), (ff)(y) and (ff)(z) will not permit a Lien to be granted on any Shared IP or any Material Product Agreement other than a Lien pursuant to the Loan Documents in favor of the Administrative Agent for the benefit of the Secured Parties

7.02 Indebtedness.

Create, incur, assume or suffer to exist any Indebtedness, except:

(a) Indebtedness under the Loan Documents;

(b) Indebtedness outstanding on the date hereof and listed on Schedule 7.02 and any refinancings, refundings, renewals or extensions thereof; *provided* that the amount of such Indebtedness is not increased at the time of such refinancing, refunding, renewal or extension except by an amount equal to a reasonable premium or other reasonable amount paid, and fees and expenses reasonably incurred, in connection with such refinancing and by an amount equal to any existing commitments unutilized thereunder and the direct or any contingent obligor with respect thereto is not changed, as a result of or in connection with such refinancing, refunding, renewal or extension; and, still further, that the terms relating to principal amount, amortization, maturity, collateral (if any) and subordination, standstill and related terms (if any), and other material terms taken as a whole, of any such refinancing, refunding, renewing or extending Indebtedness, and of any agreement entered into and of any instrument issued in connection therewith, are no less favorable, when taken as a whole, in any material respect to the Loan Parties or the Lenders than the terms of any agreement or instrument governing the Indebtedness being refinanced, refunded, renewed or extended and the interest rate applicable to any such refinancing, refunding, renewing or extending Indebtedness does not exceed the then applicable market interest rate;

(c) Indebtedness in respect of Finance Leases, Synthetic Lease Obligations and purchase money obligations (within the limitations set forth in Section 7.01(j)); *provided, however*, that the aggregate amount of all such Indebtedness (to the extent constituting Indebtedness under GAAP) at any one time outstanding that is secured by a Lien on the Collateral shall not exceed the greater of (x) \$25,000,000 and (y) 1.5% of Consolidated Total Assets as of the last day of the Measurement Period most recently ended prior to the date of incurrence;

(d) Unsecured Indebtedness of a Restricted Subsidiary of the Borrower owed to the Borrower or a Restricted Subsidiary of the Borrower, which Indebtedness is permitted under the provisions of Section 7.03 (“*Intercompany Debt*”);

(e) Guarantees of the Borrower or any Restricted Subsidiary in respect of Indebtedness otherwise permitted hereunder of the Borrower or any Restricted Subsidiary; *provided* that, (i) such Guarantees are not prohibited by the provisions of Section 7.03 and (ii) if the Indebtedness being guaranteed is subordinated to the Obligations, such Guarantee shall be subordinated to the Obligations on terms at least as favorable to the Lenders;

(f) Indebtedness of any Person that becomes a Restricted Subsidiary of the Borrower after the date hereof in a transaction permitted hereunder in an aggregate principal amount outstanding at the time such Person becomes a Restricted Subsidiary of the Borrower not to exceed (i) the greater of (x) 400% of Consolidated EBITDA of the Target as of the last day of the Measurement Period most recently ended prior to the date of incurrence and (y) 3.75% of Consolidated Total Assets of the Borrower and its Restricted Subsidiaries as of the last day of the Measurement Period most recently ended prior to the date of incurrence plus (ii) an unlimited amount so long as, in the case of this clause (ii), as of the Measurement Period most recently ended prior to the date of incurrence, the Total Leverage Ratio is not greater than 3.50:1.00 on a Pro Forma Basis; *provided* that such Indebtedness is existing at the time such Person becomes a Restricted Subsidiary of the Borrower and was not incurred solely in contemplation of such Person’s becoming a Restricted Subsidiary of the Borrower (and any refinancings, refundings, renewals or extensions on Indebtedness incurred in reliance on this Section 7.02(f)); *provided* that the amount of such Indebtedness is not increased at the time of such refinancing, refunding, renewal or extension except by an amount equal to a reasonable premium or other reasonable amount paid, and fees and expenses reasonably incurred, in connection with such refinancing and by an amount equal to any existing commitments unutilized thereunder and the direct or any contingent obligor with respect thereto is not changed, as a result of or in connection with such refinancing, refunding, renewal or extension; and, still further, that the terms relating to principal amount, amortization, maturity, collateral (if any) and subordination, standstill and related terms (if any), and other material terms taken as a whole, of any such refinancing, refunding, renewing or extending Indebtedness, and of any agreement entered into and of any instrument issued in connection therewith, are no less favorable, when taken as a whole, in any material respect to the Loan Parties or the Lenders than the terms of any agreement or instrument governing the Indebtedness being refinanced, refunded, renewed or extended and the interest rate applicable to any such refinancing, refunding, renewing or extending Indebtedness does not exceed the then applicable market interest rate);

(g) Swap Obligations (contingent or otherwise) existing or arising under any Swap Contract, including any payments in connection with the termination of any Swap Obligations, *provided* that such Swap Obligations are (or were) entered into by such Person for the purpose of directly mitigating risks associated with fluctuations in interest rates or foreign exchange rates and not for speculative purposes;

(h) Indebtedness owed to any financial institution in respect of overdrafts, netting services, purchasing or debit card programs, credit card programs and related liabilities arising from ordinary course treasury, depository or cash management services or in connection with any automated clearing house transfers of funds, including any payments in connection with the termination thereof;

(i) Indebtedness in respect of (A) letters of credit issued for the account of the Borrower or a Restricted Subsidiary (x) securing obligations not constituting Indebtedness for borrowed money or (y) otherwise, in aggregate principal amount not to exceed \$75,000,000 and (B) bankers' acceptances, bank guaranties, surety bonds and similar instruments;

(j) Indebtedness of the Borrower or any Restricted Subsidiary under an asset-based or cash flow revolving credit facility in an aggregate principal amount (inclusive of all unused commitments thereunder) not to exceed the greater of \$200,000,000 and 10% of Consolidated Total Assets as of the Measurement Period most recently ended prior to the date of incurrence; *provided* that, to the extent that any obligor under such revolving credit facility is a Loan Party, such revolving credit facility shall at all times subject to an intercreditor agreement on terms and conditions satisfactory to the Lender Representative in its reasonably discretion;

(k) Indebtedness consisting of obligations of the Borrower or any of its Restricted Subsidiaries in respect of deferred compensation, indemnification, earn-outs, milestone payments, adjustment of purchase or other similar arrangements incurred by such Person in connection with the Transactions, Permitted Acquisitions, any Investment permitted hereunder or any license, transfer or other Disposition permitted hereunder;

(l) Permitted Convertible Debt in an aggregate outstanding principal amount not to exceed (i) \$1,000,000,000 plus (ii) an unlimited amount so long as, in the case of this clause (ii), as of the Measurement Period most recently ended prior to the date of incurrence, the Total Leverage Ratio is not greater than 4.00:1.00 on a Pro Forma Basis;

(m) other Indebtedness in an aggregate principal amount outstanding not to exceed the greater of \$50,000,000 and 2.50% of Consolidated Total Assets as of the Measurement Period most recently ended prior to the date of incurrence;

(n) Indebtedness of the Borrower and its Restricted Subsidiaries consisting of (x) the financing of insurance premiums or (y) take-or-pay obligations contained in supply arrangements, in each case, in the ordinary course of business;

(o) Indebtedness of Restricted Subsidiaries that are not Loan Parties in an aggregate principal amount at any one time outstanding not to exceed \$50,000,000;

(p) Indebtedness owed to future, current or former officers, directors, managers, employees, consultants and independent contractors thereof or any direct or indirect parent thereof, their respective estates, heirs, family members, spouses or former spouses, in each case to finance the purchase or redemption of Equity Interests of the Borrower not to exceed \$10,000,000 at any time outstanding;

(q) customer deposits and advance payments received in the ordinary course of business from customers for goods purchased in the ordinary course of business;

(r) Indebtedness incurred by the Borrower and its Restricted Subsidiaries in connection with bankers' acceptances, discounted bills of exchange, warehouse receipts or similar facilities or the discounting or factoring of receivables for credit management purposes, in each case incurred or undertaken in the ordinary course of business;

(s) guarantees incurred in the ordinary course of business in respect of obligations to suppliers, customers, franchisees, lessors, licensees, sub-licensees and distribution partners;

(t) Indebtedness incurred by the Borrower and its Restricted Subsidiaries on behalf of, or representing Guarantees of Indebtedness of, joint ventures; *provided* that the aggregate principal amount or liquidation preference, as applicable, of Indebtedness incurred or guaranteed pursuant to this clause (t) at any time outstanding does not exceed \$15,000,000;

(u) unfunded pension fund and other employee benefit plan obligations and liabilities to the extent that they are permitted to remain unfunded under Applicable Law;

(v) Indebtedness incurred in connection with a Permitted Financing Transaction and Permitted Licenses;

(w) guarantees of Indebtedness of a direct or indirect parent of the Borrower in lieu of capital contributions, purchases of Equity Interests or other Investments; *provided* that any such guarantee described in this clause (w) constitutes an Investment that is permitted under Section 7.03; and

(x) Indebtedness of the Borrower or any Restricted Subsidiary consisting of (i) deferred compensation or equity based compensation to current or former officers, directors, consultants, advisors or employees thereof, in each case in the ordinary course of business or (ii) Taxes, assessments or governmental charges to the extent such Taxes are being contested in good faith.

7.03 Investments.

Make or hold any Investments, except:

(a) Investments held by the Borrower and its Restricted Subsidiaries in the form of cash or Cash Equivalents;

(b) Loans and advances to, or guarantees of Indebtedness of, officers, directors, employees, managers, consultants or independent contractors of the Borrower and Restricted Subsidiaries for travel, entertainment, relocation and analogous ordinary business purposes;

(c) (i) Investments by the Borrower and its Restricted Subsidiaries in their respective Restricted Subsidiaries outstanding on the date hereof, (ii) additional Investments by the Borrower and its Restricted Subsidiaries in Loan Parties, (iii) additional Investments by Restricted Subsidiaries of the Borrower that are not Loan Parties in other Restricted Subsidiaries that are not Loan Parties, (iv) additional Investments by the Loan Parties in Restricted Subsidiaries that are not Loan Parties to the extent such Investments constitute bona fide transfer pricing transactions, cost-sharing arrangements, “cost-plus” arrangements or cash management operations or are otherwise made in the ordinary course of business and (v) so long as no Event of Default has occurred and is continuing or would result from such Investment, additional Investments (other than those permitted by clause (iv) of this Section 7.03(c)) by the Loan Parties in Restricted Subsidiaries that are not Loan Parties in an aggregate amount invested from the date hereof not to exceed the greater of (x) \$100,000,000 and (y) 5.0% of Consolidated Total Assets as of the last day of the Measurement Period most recently ended prior to the date of such Investment; *provided* Investments made in reliance on this Section 7.03(c)(iv) shall not be made with any assets that constitute IP Collateral or Shared IP;

(d) Investments consisting of extensions of credit in the nature of accounts receivable or notes receivable arising from the grant of trade credit in the ordinary course of business, and

Investments received in satisfaction or partial satisfaction thereof from financially troubled account debtors to the extent reasonably necessary in order to prevent or limit loss;

(e) Guarantees permitted by Section 7.02;

(f) Investments existing on the date hereof (other than those referred to in Section 7.03(c)(i)) and set forth on Schedule 7.03 and Investment consisting of an extension, modification, replacement or renewal of any Investment existing on, or made pursuant to a binding commitment existing on, the Closing Date; *provided* that the amount of any such Investment may be increased (a) as required by the terms of such Investment as in existence on the Closing Date or (b) as otherwise permitted under this Agreement;

(g) Permitted Acquisitions; *provided* that the aggregate amount of all cash consideration invested after the Closing Date in connection with Permitted Acquisitions in reliance on this Section 7.03(g) and allocable to the purchase or other acquisition of (x) any Restricted Subsidiary that will not become a Loan Party or (y) assets to be held by a Person that is not or will not become a Loan Party shall not exceed the greater of \$250,000,000 and 12.5% of Consolidated Total Assets as of the last day of the most recently ended Measurement Period invested from the date hereof plus any portion of the Net Cash Proceeds received by the Borrower from the sale of Equity Interests (other than Disqualified Equity Interests) of the Borrower;

(h) Investments in Joint Ventures; *provided* that (1) Investments made in reliance on this Section 7.03(h) shall not be made with any assets that constitute Collateral (other than cash and Cash Equivalents) as of the Closing Date, (2) no Event of Default has occurred and is continuing or would result from such Investment and (3) immediately prior to, and after giving effect to such Investment, the Borrower would be in compliance with the financial covenant set forth in Section 7.11;

(i) Investments made with Equity Interests (other than Disqualified Equity Interests) of the Borrower or from the Net Cash Proceeds received by the Borrower from the sale of Equity Interests of the Borrower so long as such Investments are made within 270 days after the receipt of such proceeds;

(j) any customary upfront milestone, marketing or other payment in the ordinary course of business to another Person in connection with obtaining a right to receive a royalty or other payments in the future;

(k) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of suppliers and customers and in settlement of delinquent obligations of, and other disputes with, customers and suppliers arising in the ordinary course of business;

(l) other Investments in an aggregate amount invested from the date hereof not to exceed the greater of (x) \$200,000,000 and (y) 10.0% of Consolidated Total Assets as of the last day of the most recently ended Measurement Period; *provided* Investments made in reliance on this Section 7.03(l) shall not be made with any assets that constitute IP Collateral or Shared IP;

(m) Swap Contracts permitted under Sections 7.02(g);

(n) Investments in connection with any Permitted Licenses;

(o) Investments consisting of purchases or acquisitions of inventory, supplies, materials and equipment or purchases, acquisitions, licenses, sublicenses or leases or subleases of intellectual property, or other rights or assets, in each case in the ordinary course of business;

(p) Investments consisting of (v) Liens permitted under Section 7.01, (w) Indebtedness (including guarantees) permitted under Section 7.02, (x) mergers, amalgamations, consolidations and transfers of all or substantially all assets permitted under Section 7.04, (y) Dispositions permitted under Section 7.05, or (z) Restricted Payments permitted under Section 7.06;

(q) Investments consisting of purchases and acquisitions of assets or services useful in the business of the Borrower or any Restricted Subsidiary in the ordinary course of business;

(r) any Investment of the non-cash consideration received from a Disposition that was made pursuant to and in compliance with Section 7.05(j);

(s) Investments consisting of earnest money deposits made by the Borrower or its Restricted Subsidiaries in connection with any letter of intent or other agreement in respect of any Investment permitted by this Section 7.03;

(t) acquisitions of obligations of one or more officers or other employees of any direct or indirect parent of the Borrower, the Borrower or any Restricted Subsidiary of the Borrower in connection with such officer's or employee's acquisition of Equity Interests of any direct or indirect parent of the Borrower, so long as no cash is actually advanced by the Borrower or any Restricted Subsidiary to such officers or employees in connection with the acquisition of any such obligations;

(u) guarantees of operating leases (for the avoidance of doubt, excluding obligations in respect of Finance Leases) or of other obligations, in each case, that do not constitute Indebtedness and are entered into by the Borrower or any Restricted Subsidiary in the ordinary course of business;

(v) Investments consisting of the redemption, purchase, repurchase or retirement of any Equity Interests permitted by Section 7.06;

(w) non-cash Investments made in connection with bona fide tax planning and reorganization activities as determined in good faith by the Borrower; *provided* Investments made in reliance on this Section 7.03(w) shall not be made with any assets that constitute IP Collateral or Shared IP;

(x) Investments made in the ordinary course of business in connection with obtaining, maintaining or renewing client and customer contracts and loans or advances made to, and guarantees with respect to obligations of, distributors, suppliers, licensors and licensees in the ordinary course of business;

(y) Investments of a Restricted Subsidiary acquired after the Closing Date or of an entity merged into or amalgamated or consolidated with a Restricted Subsidiary in a transaction that is not prohibited by Section 7.03 after the Closing Date to the extent that such Investments were not made in contemplation of such acquisition, merger, amalgamation or consolidation and were in existence on the date of such acquisition, merger, amalgamation or consolidation;

(z) Investments in connection with the Manufacturing Facility;

(aa) Investments by the Loan Parties and their Restricted Subsidiaries made using the Cumulative Credit so long as the Cumulative Credit Conditions are satisfied at such time, *provided* Investments made in reliance on this Section 7.03(aa), shall not be made with any assets that constitute IP Collateral or Shared IP;

(bb) any Investments in connection with a Permitted Bond Hedge Transaction; and

(cc) any Investment in connection with a Permitted Financing Transaction.

7.04 Fundamental Changes.

Merge, dissolve, liquidate, consolidate with or into another Person, or Dispose of (whether in one transaction or in a series of transactions) all or substantially all of its assets (whether now owned or hereafter acquired) to or in favor of any Person, except that, so long as no Default exists or would result therefrom:

(a) any Restricted Subsidiary may merge with (i) the Borrower; *provided* that the Borrower shall be the continuing or surviving Person, or (ii) any one or more other Restricted Subsidiaries, *provided* that when any Loan Party is merging with another Restricted Subsidiary (that is not also a Loan Party), such Loan Party shall be the continuing or surviving Person;

(b) any Loan Party may Dispose of all or substantially all of its assets (upon voluntary liquidation or otherwise) to the Borrower or to another Loan Party;

(c) any Restricted Subsidiary that is not a Loan Party may Dispose of all or substantially all its assets (including any Disposition that is in the nature of a liquidation) to (i) another Restricted Subsidiary that is not a Loan Party or (ii) to a Loan Party;

(d) any Restricted Subsidiary of the Borrower may merge into or consolidate with any other Person or permit any other Person to merge into or consolidate with it; *provided* that (i) the Person surviving such merger shall be a wholly-owned Restricted Subsidiary of the Borrower and (ii) in the case of any such merger to which any Loan Party (other than the Borrower) is a party, such Loan Party is the surviving Person;

(e) each of the Borrower and any of its Restricted Subsidiaries may merge into or consolidate with any other Person or permit any other Person to merge into or consolidate with it; *provided, however*, that in each case, immediately after giving effect thereto (i) in the case of any such merger to which the Borrower is a party, the Borrower is the surviving Person and (ii) in the case of any such merger to which any Loan Party (other than the Borrower) is a party, such Loan Party is the surviving Person;

(f) any Restricted Subsidiary (other than the Borrower) may merge, amalgamate or consolidate with, or dissolve into, any other Person in order to effect a permitted Investment; *provided* that (i) the continuing or surviving Person shall, to the extent subject to the terms hereof, have complied with the requirements of Section 6.13 and Section 6.14, (ii) to the extent constituting an Investment, such Investment must be a permitted Investment under Section 7.03, and (iii) to the extent constituting a Disposition, such Disposition must be permitted under Section 7.05;

(g) any Restricted Subsidiary may merge, dissolve, liquidate, amalgamate, consolidate with or into another Person or Dispose of its assets if (i) such transaction is undertaken in good faith to improve the tax efficiency of the Borrower and its Restricted Subsidiaries and (ii) after giving

effect to such transaction, each of the security interests of the Administrative Agent in the Collateral, taken as a whole, is not materially impaired; and

(h) Investments permitted under Section 7.03 may be structured as a merger, consolidation or amalgamation.

7.05 Dispositions.

Make any Disposition or enter into any agreement to make any Disposition, except:

(a) Permitted Transfers;

(b) Dispositions of obsolete or worn out property, whether now owned or hereafter acquired, in the ordinary course of business;

(c) Dispositions of equipment to the extent that (i) such property is exchanged for credit against the purchase price of similar replacement property or (ii) the proceeds of such Disposition are reasonably promptly applied to the purchase price of such replacement property;

(d) Dispositions permitted by Section 7.04;

(e) the settlement or early termination or cancellation of any Permitted Bond Hedge Transaction or any related Permitted Warrant Transaction;

(f) Permitted Licenses;

(g) Dispositions consisting of Permitted Liens;

(h) Dispositions in connection with any Permitted Financing Transaction;

(i) non-exclusive licenses of IP Rights granted in the ordinary course of business;

(j) other Dispositions so long as at least 75.0% of the consideration paid in connection therewith shall be cash or Cash Equivalents paid substantially concurrently with consummation of the transaction and shall be in an amount not less than the fair market value of the property disposed of; *provided that* for the purposes of this Section 7.05(j), the following shall be deemed to be cash (x) any securities received by the Loan Parties or any Restricted Subsidiary from such transferee that are converted by such Person into cash or Cash Equivalents upon the closing of the applicable Disposition, (y) any purchase price adjustment, milestone payment, royalty, earnout, contingent payment, back-end or other deferred payment of a similar nature, (z) any Designated Non-Cash Consideration received in respect of such Disposition having an aggregate fair market value, taken together with all other Designated Non-Cash Consideration received pursuant to this clause (z) that is at that time outstanding, not to exceed \$5,000,000, determined at the time of such Disposition; *provided, further that*, (1) immediately after giving effect to such Disposition, the Borrower would be in compliance with the financial covenant set forth in Section 7.11 and (2) the Net Cash Proceeds received in respect of a Disposition made in reliance on this Section 7.05(j) shall be applied in accordance with Section 2.03(b);

(k) Disposition of any real property that is not Material Real Property; and

(l) other Dispositions in an amount not to exceed \$10,000,000.

7.06 Restricted Payments.

Declare or make, directly or indirectly, any Restricted Payment, or incur any obligation (contingent or otherwise) to do so, except that:

(a) each Restricted Subsidiary may make Restricted Payments to any Person that owns Equity Interests in such Restricted Subsidiary, ratably according to their respective holdings of the type of Equity Interest in respect of which such Restricted Payment is being made;

(b) so long as no Event of Default has occurred and is continuing or would result therefrom (except to the extent made in connection with the death, disability, retirement or other termination of employment of employees, directors, officers or consultants of the Borrower or any Restricted Subsidiary), the Borrower and any Restricted Subsidiary may purchase, redeem or otherwise acquire the Equity Interests of the Borrower any such Restricted Subsidiary from employees, former employees, directors, former directors, officers, former officers, consultants or former consultants of the Borrower or such Restricted Subsidiary (or permitted transferees of such employees, former employees, directors, former directors, officers, former officers, consultants or former consultants) pursuant to any management equity plan or stock option plan or any other management or employment benefit plan or stock option plan or arrangement or sale bonus or similar agreement; *provided* that the aggregate amount of such Restricted Payments (excluding amounts representing cancellation of Indebtedness) shall not exceed \$10,000,000 in the aggregate in any fiscal year *plus* the proceeds of any key-person life insurance policies;

(c) the Borrower may make Restricted Payments to purchase, redeem or otherwise acquire Equity Interests of the Borrower in an aggregate amount during the term of this Agreement not to exceed \$50,000,000 *plus* the lesser of (x) \$50,000,000 and (y) 25% of the Net Cash Proceeds from the sale or issuance of Permitted Convertible Debt and Equity Interests (other than Disqualified Equity Interests) *plus* the proceeds of any key-person life insurance policies; *provided* that (1) no Event of Default has occurred and is continuing or would result from such Restricted Payments, (2) immediately prior to, and after giving effect to such Restricted Payments, the Borrower would be in compliance with the financial covenant set forth in Section 7.11;

(d) the Borrower may make Restricted Payments with or from the Net Cash Proceeds received by the Borrower from the sale of Equity Interests (other than Disqualified Equity Interests) of the Borrower so long as (i) any such Restricted Payments are made within 270 days after the receipt of such proceeds, (ii) no Event of Default has occurred and is continuing or would result from such Restricted Payments and (iii) immediately prior to, and after giving effect to such Restricted Payments, the Borrower would be in compliance with the financial covenant set forth in Section 7.11; *provided* that Restricted Payments made in reliance on this Section 7.06(d) shall not exceed \$175,000,000 during the term of this Agreement;

(e) any required payment with respect to, or required early unwind or settlement of, any Permitted Bond Hedge Transaction or Permitted Warrant Transaction, in each case, in accordance with the terms of the agreement governing such Permitted Bond Hedge Transaction or Permitted Warrant Transaction; *provided* that, in the case of this clause (e), to the extent cash is required to be paid under a Permitted Warrant Transaction as a result of the election of “cash settlement” (or substantially equivalent term) as the “settlement method” (or substantially equivalent term) thereunder by the Borrower (including in connection with the exercise and/or early unwind or settlement thereof), the payment of such cash shall not be permitted by this clause (e) other than to the extent such payment is offset against any payments received by the Borrower pursuant to the exercise, settlement, termination or unwind of any related Permitted Bond Hedge

Transaction substantially concurrently with, or a commercially reasonable period of time before or after, the unwind or settlement of the relevant Permitted Warrant Transaction;

(f) the Borrower may make other Restricted Payments in an aggregate amount during the term of this Agreement not to exceed the greater of (x) \$75,000,000 and (y) 3.75% of Consolidated Total Assets as of the last day of the most recently ended Measurement Period, so long as (1) no Event of Default has occurred and is continuing or would result from such Restricted Payments and (2) immediately prior to, and after giving effect to such Restricted Payments, the Borrower would be in compliance with the financial covenant set forth in Section 7.11;

(g) the payment of any dividend or distribution or consummation of any redemption within 60 days after the date of declaration thereof or the giving of a redemption notice related thereto, if at the date of declaration or notice such payment would have complied with the provisions of this Agreement;

(h) [reserved];

(i) (i) repurchases of Equity Interests of the Borrower deemed to occur upon exercise of stock options or warrants if such Equity Interests represent a portion of the exercise price of such options or warrants, (ii) payments made or expected to be made by any Loan Party in respect of withholding or similar taxes payable or expected to be payable by any future, present or former director, officer, employee, manager, consultant or independent contractor of the Borrower or any direct or indirect parent of the Borrower or any Restricted Subsidiary of the Borrower (or their respective Affiliates, estates or immediate family members) in connection with the exercise of stock options or the grant, vesting or delivery of Equity Interests of the Borrower or any direct or indirect parent of the Borrower; and (iii) loans or advances to officers, directors, employees, managers, consultants and independent contractors of the Borrower or any direct or indirect parent of the Borrower or any Restricted Subsidiary of the Borrower in connection with such Person's purchase of Equity Interests of the Borrower or any direct or indirect parent of the Borrower; *provided that* (1) no cash is actually advanced pursuant to this subclause (iii) other than to pay taxes due in connection with such purchase, unless immediately repaid and (2) such loan or advance is permitted under Section 7.03;

(j) [reserved];

(k) the payment of cash in lieu of the issuance of fractional shares of Equity Interests in connection with any merger, consolidation, amalgamation or other business combination, or in connection with any dividend, distribution or split of or upon exercise, conversion or exchange of Equity Interests, warrants, options or other securities exercisable or convertible into, Equity Interests of the Borrower or any direct or indirect parent of the Borrower; and

(l) Restricted Payments made using the Cumulative Credit so long as the Cumulative Credit Conditions are satisfied at such time.

7.07 Change in Nature of Business.

Engage in any material line of business substantially different from those lines of business conducted by the Borrower and its Restricted Subsidiaries on the date hereof or any business reasonably related, complementary, incidental, ancillary thereto or any reasonable extensions thereto.

7.08 Transactions with Affiliates.

Enter into or permit to exist any transaction or series of transactions with any officer, director or Affiliate of such Person with a value in excess of \$5,000,000 other than (a) advances of working capital to any Loan Party, (b) transfers of cash and assets to any Loan Party, (c) intercompany transactions expressly permitted by this Agreement, (d) compensation and reimbursement of expenses of officers and directors, (e) transactions that are on terms that are not less favorable to the Borrower or a Restricted Subsidiary in any material respect than would be obtainable by the Borrower or such Restricted Subsidiary at such time in a comparable arm's-length transaction with a Person other than an Affiliate (as determined in good faith by the senior management or the board of directors of the Borrower), (f) Restricted Payments permitted by Section 7.06, (g) any (i) employment, consulting, service or termination agreement, or customary indemnification arrangements, entered into by the Borrower or its Restricted Subsidiaries with current, former or future officers, directors, employees, managers, consultants and independent contractors, (ii) subscription agreement or similar agreement pertaining to the repurchase of Equity Interests pursuant to put/call rights or similar rights with current, former or future officers, directors, employees, managers, consultants and independent contractors of the Borrower or its Restricted Subsidiaries and (iii) payment of compensation or other employee compensation, benefit plan or arrangement, any health, disability or similar insurance plan which covers officers, directors, employees, managers, consultants and independent contractors of the Borrower or its Restricted Subsidiaries (including amounts paid pursuant to any management equity plan or any other management or employee benefit plan or agreement or any stock subscription or shareholder agreement, stock option or similar plans and any successor plan thereto and any supplemental executive retirement benefit plans or arrangements), in each case in the ordinary course of business or as otherwise approved in good faith by the board of directors of the Borrower or of a Restricted Subsidiary, (h) Permitted Licenses, (i) transactions existing on the Closing Date and described on Schedule 7.08 (j) transactions and payments required under the definitive agreement for any Permitted Acquisition or permitted Investment; *provided* that the transactions and payments were in existence or required, respectively, at the time such Permitted Acquisition or permitted Investment was consummated or did not arise in contemplation thereof and (k) transactions with a Receivables Subsidiary in connection with a Permitted Receivables Financing.

7.09 Burdensome Agreements.

Enter into, or permit to exist, any Contractual Obligation (except for this Agreement and the other Loan Documents) that encumbers or restricts the ability of any such Person to (i) make Restricted Payments to any Loan Party, (ii) pay any Obligations owed to any Loan Party, (iii) make loans or advances to any Loan Party, or (iv) create any Lien upon any of their properties or assets, whether now owned or hereafter acquired that constitute Collateral, except the preceding restrictions will not apply to encumbrances or restrictions existing under or by reason of:

(a) contractual encumbrances or restrictions of the Borrower or any Restricted Subsidiary in effect on the Closing Date, including pursuant to this Agreement and the other Loan Documents, related Swap Contracts and Indebtedness permitted pursuant to Section 7.02(b);

(b) Applicable Law or any applicable rule, regulation or order;

(c) any agreement or other instrument of a Person acquired by or merged, amalgamated or consolidated with or into Loan Party that was in existence at the time of such acquisition (or at the time it merges with or into any Loan Party in connection with the acquisition of assets from such Person (but, in each case, not created in contemplation thereof)), which encumbrance or restriction is not applicable to any Person, or the properties or assets of any Person, other than the Person, or the property or assets of the Person, so acquired or designated; *provided*

that in connection with a merger, amalgamation or consolidation under this clause (c), if a Person other than any Loan Party is the successor company with respect to such merger, amalgamation or consolidation, any agreement or instrument of such Person or any Restricted Subsidiary of such Person, shall be deemed acquired or assumed, as the case may be, by any Loan Party, as the case may be, at the time of such merger, amalgamation or consolidation;

(d) customary encumbrances or restrictions contained in contracts or agreements for the sale of assets applicable to such assets pending consummation of such sale, including customary restrictions with respect to a Restricted Subsidiary imposed pursuant to an agreement entered into for the sale or disposition of capital stock or assets of such Restricted Subsidiary;

(e) restrictions on cash or other deposits or net worth imposed by customers under contracts entered into in the ordinary course of business;

(f) customary provisions in operating or other similar agreements, asset sale agreements and stock sale agreements entered into in connection with the entering into of such transaction, which limitation is applicable only to the assets that are the subject of those agreements;

(g) purchase money obligations for property acquired and obligations in respect of Finance Leases, to the extent such obligations impose restrictions on the property so acquired, solely as permitted by, the terms of this Agreement;

(h) encumbrances or restrictions in connection with any Permitted Financing Transaction that, in the good faith determination of the Borrower, are reasonably necessary or advisable in connection with such Permitted Financing Transaction;

(i) customary provisions contained in leases, sub-leases, licenses, sublicenses, contracts and other similar agreements entered into in the ordinary course of business to the extent such obligations impose restrictions on the property subject to such lease;

(j) any encumbrance or restriction contained in other Indebtedness of the Borrower or any Restricted Subsidiary that is incurred subsequent to the Closing Date pursuant to Section 7.02, *provided* that (i) such encumbrances and restrictions contained in any agreement or instrument will not materially affect the Borrower's ability to make anticipated principal or interest payments under this Agreement (as determined by the Borrower in good faith) and (ii) such encumbrances and restrictions contained in any agreement or instrument taken as a whole are not materially less favorable to the Lenders than the encumbrances and restrictions contained in this Agreement (as determined by the Borrower in good faith);

(k) any encumbrance or restriction arising or agreed to in the ordinary course of business, not relating to any Indebtedness, and that do not, individually or in the aggregate, (x) detract from the value of the property or assets of the Borrower or any Restricted Subsidiary in any manner material to the Borrower or any Restricted Subsidiary or (y) materially affect the Borrower's ability to make future principal or interest payments under this Agreement, in each case, as determined by the Borrower in good faith;

(l) any encumbrance or restriction contained in secured Indebtedness otherwise permitted to be incurred pursuant to Sections 7.01 and 7.02 to the extent limiting the right of the debtor to dispose of the assets securing such Indebtedness;

(m) customary provisions in joint venture agreements or arrangements and other similar agreements or arrangements relating solely to the applicable joint venture;

(n) any encumbrances or restrictions contained in any agreements governing any Permitted License or Permitted Financing Transaction;

(o) any encumbrances or restrictions of the type referred to in the immediately preceding clauses (a) through (n) above imposed by any amendments, modifications, restatements, renewals, increases, supplements, refundings, replacements or refinancings of the contracts, instruments or obligations referred to such immediately preceding clauses (a) through (m) above; *provided* that such encumbrances and restrictions contained in any such amendment, modification, restatement, renewal, increase, supplement, refunding, replacement or refinancing are, in the good faith judgment of the Borrower, not materially more restrictive, taken as a whole, than the encumbrances and restrictions prior to such amendment, modification, restatement, renewal, increase, supplement, refunding, replacement or refinancing; and

(p) any encumbrances or restrictions pursuant to the Royalty Purchase Agreement (as in effect on the date hereof).

For purposes of determining compliance with this Section 7.09, the subordination of loans or advances made to the Borrower and its Restricted Subsidiaries to other Indebtedness incurred by the Borrower or any such Restricted Subsidiary shall not be deemed a restriction on the ability to make loans or advances.

7.10 Use of Proceeds.

Use the proceeds of any Borrowing, whether directly or indirectly, and whether immediately, incidentally or ultimately, to purchase or carry margin stock (within the meaning of Regulation U) or to extend credit to others for the purpose of purchasing or carrying margin stock or to refund indebtedness originally incurred for such purpose.

7.11 Financial Covenant.

Permit Liquidity as of the last day of any fiscal quarter of the Borrower to be less than \$100,000,000.

7.12 Fiscal Year; Legal Name, State of Formation; Form of Entity and Accounting Changes.

(a) Amend any of its Organization Documents in any manner materially adverse to the interests of the Lenders in their capacities as such (as reasonably determined by the Borrower);

(b) change its fiscal year without delivery of prior written notice to the Administrative Agent;

(c) without providing ten (10) days prior written notice to the Administrative Agent and the Lender Representative (or such extended period of time as agreed to by the Lender Representative), change its name, state of formation, form of organization or principal place of business; or

(d) make any material change in accounting policies or reporting practices without delivery of prior written notice to the Administrative Agent, except as required by GAAP.

7.13 Sale/Leaseback Transactions.

Enter into any Sale/Leaseback Transaction unless (a) the Disposition of the property thereunder is permitted by Section 7.05 and (b) any Liens arising in connection therewith (including Liens deemed to arise in connection with any such Capital Lease Obligations and Synthetic Lease Obligations) are permitted by Section 7.01.

7.14 Prepayments, Etc. of Certain Debt.

Prepay, redeem, purchase, defease or otherwise satisfy prior to the scheduled maturity thereof, or make any payment in violation of any subordination, standstill or collateral sharing terms of or governing any Subordinated Debt or Permitted Convertible Debt, except (a) the prepayment of the Loans in accordance with the terms of this Agreement, (b) regularly scheduled or required repayments or redemptions of Indebtedness under the Indebtedness set forth in Schedule 7.02 and refinancings and refundings of such Indebtedness in compliance with Section 7.02(b), (c) prepayments of Subordinated Debt or Permitted Convertible Debt made using the Cumulative Credit so long as the Cumulative Credit Conditions are satisfied at such time, (d) other prepayments of Subordinated Debt or Permitted Convertible Debt in an aggregate principal amount during the term of this Agreement not to exceed the greater of (x) \$30,000,000 and (y) 1.50% of Consolidated Total Assets as of the last day of the Measurement Period most recently ended prior to the date of such payment, so long no Event of Default has occurred and is continuing or would result from such prepayment, (e) issuance of Equity Interests (other than Disqualified Equity Interests) (and cash in lieu of fractional shares in connection with such issuance) of the Borrower in connection with any conversion, exercise, repurchase, exchange, redemption, settlement or early termination or cancellation of Permitted Convertible Debt or in connection with any Permitted Warrant Transaction, (f) the issuance of Permitted Convertible Debt permitted by Section 7.02(l) in exchange for other Permitted Convertible Debt, (g) the redemption, purchase, exchange, early termination or cancellation of Permitted Convertible Debt in an aggregate principal amount not to exceed the Net Cash Proceeds received by the Borrower from the issuance of additional Permitted Convertible Debt or Equity Interests (other than Disqualified Equity Interests) permitted by Section 7.02(l) in connection with a refinancing of the Permitted Convertible Debt being redeemed, purchased, exchanged, terminated or cancelled and (h) payments of the initial purchase price for each Swap Contract and Permitted Bond Hedge Transaction.

7.15 Amendment, Etc. of Debt Documents.

Amend, modify or change in any manner any term or condition of any Subordinated Debt if such amendment or modification would violate the terms of any subordination agreement in respect of such Subordinated Debt or amend, modify or change in any manner any term or condition of any Permitted Convertible Debt that would result in such Permitted Convertible Debt no longer constituting Permitted Convertible Debt.

7.16 Sanctions.

Directly or indirectly, use any Borrowing or the proceeds of any Borrowing, or lend, contribute or otherwise make available such Borrowing or the proceeds of any Borrowing to any Person, to unlawfully fund any activities of or business with any Person, that, at the time of such funding, is the subject of Sanctions, or in any other manner that will result in a violation by any Person (including any Person participating in the transaction, whether as Lender, Administrative Agent, or otherwise) of Sanctions.

7.17 Anti-Corruption Laws.

Directly or indirectly, use any Borrowing or the proceeds of any Borrowing for any purpose which would breach the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010 and other anti-corruption legislation in other jurisdictions.

7.18 MedCo Agreements and Material Product Agreements.

Without the Lender Representative's prior written consent:

(a) No Loan Party or any of its Restricted Subsidiaries shall agree to any set-off, counter-claim or other deduction under or with respect to any MedCo Agreement or any Material Product Agreement other than any such set-off, counter-claim or other deduction that is expressly required by the terms of such MedCo Agreement or Material Product Agreement as in effect on the date hereof, except for any such set-off, counter-claim or other deduction that would not reasonably be expected to result in a Material Impact; and

(b) No Loan Party or any of its Restricted Subsidiaries shall amend or permit the amendment of any provision of any MedCo Agreement or Material Product Agreement or waive any of their respective rights under any such MedCo Agreement or Material Product Agreement, except to the extent of any amendment which would not reasonably be expected to result in a Material Impact; and

(c) No Loan Party or any of its Restricted Subsidiaries shall permit any of its Subsidiaries that is not a Loan Party or a Restricted Subsidiary to register, or file an application to register, any Specified Product IP or any IP Rights that would constitute Specified Product IP if registered or filed by a Loan Party or any of its Restricted Subsidiaries (or take, or permit any such Subsidiaries to take, any act or omission that would permit any other Affiliate to generate, register, or file an application to register, any IP Rights relating to any Specified Product).

ARTICLE VIII

EVENTS OF DEFAULT AND REMEDIES

8.01 Events of Default.

Any of the following shall constitute an event of default (each, an "Event of Default"):

(a) Non-Payment. The Borrower or any other Loan Party fails to pay (i) when and as required to be paid herein, any amount of principal of any Loan, or (ii) within five (5) Business Days after the same becomes due, any interest on any Loan or any fee due hereunder, or (iii) within seven (7) days after the same becomes due, any other amount payable hereunder or under any other Loan Document; or

(b) Specific Covenants. Any Loan Party fails to perform or observe any term, covenant or agreement contained in any of Section 6.03(a), Section 6.05 (solely with respect to the Borrower), 6.08, 6.10, 6.11 or Article VII; or

(c) Other Defaults. Any Loan Party fails to perform or observe any other covenant or agreement (not specified in Section 8.01(a) or (b) above) contained in any Loan Document (other than the Nondisturbance Agreement) on its part to be performed or observed and such failure

continues for thirty (30) days after notice thereof by the Administrative Agent (given at the written direction of the Required Lenders) to the Borrower; or

(d) Representations and Warranties. Any representation, warranty, certification or statement of fact made or deemed made by or on behalf of the Borrower or any other Loan Party herein, in any other Loan Document, or in any document required to be delivered in connection herewith or therewith shall be incorrect or misleading in any material respect when made or deemed made; or

(e) Cross-Default. (i) Any Loan Party or any Restricted Subsidiary thereof (A) fails to make any payment beyond the applicable grace period with respect thereto, if any (whether by scheduled maturity, required prepayment, acceleration, demand, or otherwise) in respect of any Indebtedness or Guarantee (other than Indebtedness hereunder and Indebtedness under Swap Contracts) for borrowed money having an aggregate outstanding principal amount of more than the Threshold Amount, or (B) fails to observe or perform any other agreement or condition relating to any such Indebtedness or Guarantee or contained in any instrument or agreement evidencing, securing or relating thereto, or any other event occurs, the effect of which default or other event is to cause, or to permit the holder or holders of such Indebtedness or the beneficiary or beneficiaries of such Guarantee (or a trustee or agent on behalf of such holder or holders or beneficiary or beneficiaries) after the expiration of any applicable grace or cure period therefor to cause, with the giving of notice if required, such Indebtedness for borrowed money to be demanded or to become due or to be repurchased, prepaid, defeased or redeemed (automatically or otherwise), or an offer to repurchase, prepay, defease or redeem such Indebtedness to be made, prior to its stated maturity, or such Guarantee to become payable or cash collateral in respect thereof to be demanded; *provided* that it is understood that a conversion (or the occurrence of any customary “conversion triggers”), redemption or purchase of Permitted Convertible Debt shall not constitute an Event of Default under this Section 8.01(e)(i)(B); or (ii) there occurs under any Swap Contract an Early Termination Date (as defined in such Swap Contract) resulting from (A) any event of default under such Swap Contract as to which a Loan Party or any Restricted Subsidiary thereof is the Defaulting Party (as defined in such Swap Contract) or (B) any Termination Event (as so defined) under such Swap Contract as to which a Loan Party or any Restricted Subsidiary thereof is an Affected Party (as so defined) and, in either event, the Swap Termination Value owed by such Loan Party or such Restricted Subsidiary as a result thereof is greater than the Threshold Amount; *provided* that this clause (e)(ii) shall not apply to any early payment requirement or unwinding or termination with respect to any Permitted Bond Hedge Transaction or Permitted Warrant Transaction, or satisfaction of any condition giving rise to or permitting the foregoing, in accordance with the terms thereof, so long as, in any such case, Borrower is not the “defaulting party” (or substantially equivalent term) under the terms of such Permitted Bond Hedge Transaction or Permitted Warrant Transaction, as applicable; or

(f) Insolvency Proceedings, Etc. Any Loan Party or any Material Subsidiary institutes or consents to the institution of any proceeding under any Debtor Relief Law, or makes an assignment for the benefit of creditors; or applies for or consents to the appointment of any receiver, trustee, custodian, conservator, liquidator, rehabilitator or similar officer for it or for all or any material part of its property; or any receiver, trustee, custodian, conservator, liquidator, rehabilitator or similar officer is appointed without the application or consent of such Person and the appointment continues undischarged or unstayed for sixty (60) calendar days; or any proceeding under any Debtor Relief Law relating to any such Person or to all or any material part of its property is instituted without the consent of such Person and continues undismissed or unstayed for sixty (60) calendar days, or an order for relief is entered in any such proceeding; or

(g) Inability to Pay Debts; Attachment. (i) Any Loan Party or any Material Subsidiary becomes unable or admits in writing its inability or fails generally to pay its debts as they become due, or (ii) any writ or warrant of attachment or execution or similar process is issued or levied against all or any material part of the property of any such Person and is not released, vacated or fully bonded within sixty (60) days after its issue or levy; or

(h) Judgments. There is entered against any Loan Party or any Restricted Subsidiary thereof (i) one or more final judgments or orders for the payment of money in an aggregate amount (as to all such judgments and orders) exceeding the Threshold Amount (to the extent not covered by independent third-party insurance), or (ii) any one or more non-monetary final judgments that have, or would reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect and, in either case, (A) enforcement proceedings are commenced by any creditor upon such judgment or order, or (B) there is a period of sixty (60) consecutive days during which a stay of enforcement of such judgment, by reason of a pending appeal or otherwise, is not in effect; or

(i) ERISA. (i) An ERISA Event occurs with respect to a Pension Plan or Multiemployer Plan which has resulted or could reasonably be expected to result in liability of any Loan Party under Title IV of ERISA to the Pension Plan, Multiemployer Plan or the PBGC in an aggregate amount in excess of the Threshold Amount, or (ii) the Borrower or any ERISA Affiliate fails to pay when due, after the expiration of any applicable grace period, any installment payment with respect to its withdrawal liability under Section 4201 of ERISA under a Multiemployer Plan in an aggregate amount in excess of the Threshold Amount; or

(j) Invalidity of Loan Documents. In each case, except with respect to the Nondisturbance Agreement, any material provision of any Loan Document, at any time after its execution and delivery and for any reason other than as expressly permitted hereunder or thereunder or satisfaction in full of all Obligations arising under the Loan Documents, ceases to be in full force and effect; or any Loan Party or any other Person contests in writing the validity or enforceability of any provision of any Loan Document; or any Loan Party denies in writing that it has any or further liability or obligation under any provision of any Loan Document, or purports in writing to revoke or rescind any provision of any Loan Document; or it is or becomes unlawful for a Loan Party to perform any of its obligations under the Loan Documents; or

(k) Collateral Documents. Any Collateral Document after delivery thereof pursuant to the terms of the Loan Documents shall for any reason cease to create a valid and perfected first priority Lien (subject to Permitted Liens) on any material portion of the Collateral purported to be covered thereby, or any Loan Party shall assert the invalidity of such Liens; or

(l) Change of Control. There occurs any Change of Control.

Without limiting the provisions of Article IX, if a Default shall have occurred under the Loan Documents, then such Default will continue to exist until it either is cured (to the extent specifically permitted) in accordance with the Loan Documents or is otherwise expressly waived by the Lender Representative as determined in accordance with Section 11.01; and once an Event of Default occurs under the Loan Documents, then such Event of Default will continue to exist until it is expressly waived by the Lender Representative or by the Administrative Agent with the approval of the Required Lenders, as required hereunder in Section 11.01.

8.02 Remedies upon Event of Default.

If any Event of Default occurs and is continuing, the Administrative Agent shall, at the request of, or may, with the consent of, the Required Lenders, take any or all of the following actions:

(a) declare the Commitment of each Lender to make Loans to be terminated, whereupon such commitments and obligation shall be terminated;

(b) declare the unpaid principal amount of all outstanding Loans, all interest accrued and unpaid thereon, and all other amounts owing or payable hereunder (including the Applicable Premium) or under any other Loan Document to be immediately due and payable, without presentment, demand, protest or other notice of any kind, all of which are hereby expressly waived by the Borrower; and

(c) exercise on behalf of itself, the Lenders all rights and remedies available to it and the Lenders under the Loan Documents or Applicable Law or equity;

provided, however, that upon the occurrence of an event described in Section 8.01(f) with respect to the Borrower, the Commitment of each Lender to make Loans shall automatically terminate, the unpaid principal amount of all outstanding Loans and all interest and other amounts (including the Applicable Premium) as aforesaid shall automatically become due and payable, in each case without further act of the Lender Representative, the Administrative Agent or any Lender.

8.03 Application of Funds.

After the exercise of remedies provided for in Section 8.02 (or after the Loans have automatically become immediately due and payable as set forth in the proviso to Section 8.02) or if at any time insufficient funds are received by and available to the Administrative Agent to pay fully all Obligations then due hereunder, any amounts received on account of the Obligations shall, subject to the provisions of Section 2.12, be applied by the Administrative Agent in the following order:

First, to payment of that portion of the Obligations constituting fees, indemnities, expenses and other amounts (including fees, charges and disbursements of counsel to the Administrative Agent and amounts payable under Article III) payable to the Administrative Agent in its capacity as such;

Second, to payment of that portion of the Obligations constituting fees, indemnities and other amounts (other than principal and interest) payable to the Lenders (including fees, charges and disbursements of counsel to the respective Lenders (including fees and time charges for attorneys who may be employees of any Lender)) arising under the Loan Documents and amounts payable under Article III, ratably among them in proportion to the respective amounts described in this Second clause payable to them;

Third, to payment of that portion of the Obligations constituting accrued and unpaid interest on the Loans and other Obligations arising under the Loan Documents, ratably among the Lenders in proportion to the respective amounts described in this Third clause payable to them;

Fourth, to (i) payment of that portion of the Obligations constituting unpaid principal of the Loans and (ii) obligations then due from the Borrower or any Loan Party pursuant to Secured Swap Agreements in an amount not to exceed, in the case of this clause (ii), \$50,000,000, ratably among the Lenders and, in the case of obligations pursuant to Secured Swap Agreements, the parties

entitled thereto, in proportion to the respective amounts described in this Fourth clause held by them;

Fifth, to payment of obligations pursuant to Secured Swap Agreements that are in excess of \$50,000,000 then due from the Borrower or any Loan Party, ratably among the parties entitled thereto in accordance with the amounts of obligations under such Secured Swap Agreements then due to such parties; and

Last, the balance, if any, after all of the Obligations have been indefeasibly paid in full, to the Borrower or as otherwise required by Law.

ARTICLE IX

ADMINISTRATIVE AGENT

9.01 Appointment and Authority.

(a) Appointment. Each of the Lenders hereby irrevocably appoints, designates and authorizes Wilmington Trust, National Association to act on its behalf as the Administrative Agent hereunder and under the other Loan Documents and authorizes the Administrative Agent to take such actions on its behalf and to exercise such powers as are delegated to the Administrative Agent by the terms hereof or thereof, together with such actions and powers as are reasonably incidental thereto. The provisions of this Article IX are solely for the benefit of the Administrative Agent and the Lenders, and neither the Borrower nor any other Loan Party shall have rights as a third party beneficiary of any of such provisions. It is understood and agreed that the use of the term “agent” herein or in any other Loan Documents (or any other similar term) with reference to the Administrative Agent is not intended to connote any fiduciary or other implied (or express) obligations arising under agency doctrine of any Applicable Law. Instead such term is used as a matter of market custom, and is intended to create or reflect only an administrative relationship between contracting parties.

(b) Collateral Agent. The Administrative Agent shall also act as the “collateral agent” under the Loan Documents, and each of the Lenders hereby irrevocably appoints and authorizes the Administrative Agent to act as the agent of such Lender for purposes of acquiring, holding and enforcing any and all Liens on Collateral granted by any of the Loan Parties to secure any of the Obligations, together with such powers and discretion as are reasonably incidental thereto. In this connection, the Administrative Agent, as “collateral agent” and any co-agents, sub-agents and attorneys-in-fact appointed by the Administrative Agent pursuant to Section 9.05 for purposes of holding or enforcing any Lien on the Collateral (or any portion thereof) granted under the Collateral Documents, or for exercising any rights and remedies thereunder at the direction of the Administrative Agent, shall be entitled to the benefits of all provisions of this Article IX and Article XI (including Section 11.04(c)), as though such co-agents, sub-agents and attorneys-in-fact were the “collateral agent” under the Loan Documents) as if set forth in full herein with respect thereto. Without limiting the generality of the foregoing, the Lenders hereby expressly authorize the Administrative Agent to (i) execute any and all documents (including releases) with respect to the Collateral (including any intercreditor agreement and any amendment, supplement, modification or joinder with respect thereto) and the rights of the Secured Parties with respect thereto, as contemplated by and in accordance with the provisions of this Agreement and the Collateral Documents and acknowledge and agree that any such action by the Administrative Agent shall bind the Lenders and (ii) negotiate, enforce or settle any claim, action or proceeding affecting the

Lenders in their capacity as such, at the direction of the Required Lenders, which negotiation, enforcement or settlement will be binding upon each Lender.

(c) Lender Representative. Each of the Lenders hereby irrevocably appoints GSO to act on its behalf as the Lender Representative hereunder and under the other Loan Documents and authorizes the Lender Representative to take such actions on its behalf and to exercise such powers as are delegated to the Lender Representative by the terms hereof or thereof, together with such actions and powers as are reasonably incidental thereto. The Lender Representative shall be fully justified in failing or refusing to take any action hereunder, unless it shall first be indemnified to its satisfaction by the Lenders pro rata against any and all liabilities, losses, costs and expenses (including attorneys' fees and expenses) which may be incurred by it by reason of taking or continuing to take any such action. The Lender Representative shall in all cases be fully protected in acting, or in refraining from acting, hereunder in accordance with written instructions signed by the Required Lenders (or such greater percentage of Lenders expressly required hereunder), and such instructions and any action taken or failure to act pursuant thereto shall be binding on all of the Lenders. Notwithstanding the foregoing, the Lender Representative shall have authority, in its sole discretion, to take or not to take any action, unless this Agreement or any of the other Loan Documents specifically requires the consent of the Required Lenders, a greater percentage of Lenders or of all of the Lenders.

9.02 Rights as a Lender.

If a Lender or the Lender Representative is serving as the Administrative Agent hereunder, such Person shall have the same rights and powers in its capacity as a Lender as any other Lender and may exercise the same as though it were not the Administrative Agent and the term "Lender" or "Lenders" shall, unless otherwise expressly indicated or unless the context otherwise requires, include the Person serving as the Administrative Agent hereunder in its individual capacity. Such Person and its Affiliates may accept deposits from, lend money to, own securities of, act as the financial advisor or in any other advisory capacity for and generally engage in any kind of banking, trust, financial, advisory, underwriting or other business with any Loan Party or any Restricted Subsidiary or other Affiliate thereof as if such Person were not the Administrative Agent hereunder and without any duty to account therefor to the Lenders or to provide notice to or consent of the Lenders with respect thereto.

9.03 Exculpatory Provisions.

(a) Neither the Administrative Agent nor any of its officers, partners, directors, employees or agents shall have any duties or obligations except those expressly set forth herein and in the other Loan Documents, and its duties hereunder shall be administrative in nature. The Lender Representative shall have no duties or obligations hereunder or any other Loan Documents. Without limiting the generality of the foregoing, the Administrative Agent and the Lender Representative each of their officers, partners, directors, employees or agents:

(i) shall not be subject to any fiduciary or other implied duties, regardless of whether a Default or Event of Default has occurred and is continuing and without limiting the generality of the foregoing, the use of the term "agent" herein and in other Loan Documents with reference to the Administrative Agent is not intended to connote any fiduciary or other implied (or express) obligations arising under any agency doctrine of any applicable Law and instead, such term is used merely as a matter of market custom, and is intended to create or reflect only an administrative relationship between independent contracting parties;

(ii) shall not have any duty to take any discretionary action or exercise any discretionary powers, except discretionary rights and powers expressly contemplated hereby or by the other Loan Documents that the Administrative Agent is required to exercise as directed in writing by the Required Lenders (or such other number or percentage of the Lenders as shall be expressly provided for herein or in the other Loan Documents); *provided* that the Administrative Agent shall not be required to take any action that, in its opinion or the opinion of its counsel, may expose the Administrative Agent to liability or that is contrary to any Loan Document or Applicable Law, including for the avoidance of doubt refraining from any action that, in its respective opinion or the opinion of its respective counsel, may be a violation of the automatic stay under any Debtor Relief Law or that may effect a forfeiture, modification or termination of property of a Defaulting Lender in violation of any Debtor Relief Law;

(iii) shall not have any duty or responsibility to disclose, and shall not be liable for the failure to disclose, to any Lender any credit or other information concerning the business, prospects, operations, property, financial and other condition or creditworthiness of any of the Loan Parties or any of their Affiliates that is communicated to, or in the possession of, the Administrative Agent, the Lender Representative or any of their Related Parties in any capacity, except for notices, reports and other documents expressly required to be furnished to the Lenders by the Administrative Agent or the Lender Representative herein

(iv) shall not be liable for any action taken or not taken by it (i) with the consent or at the request of the Lender Representative, the Required Lenders (or such other number or percentage of the Lenders as shall be necessary, or as the Administrative Agent shall believe in good faith shall be necessary, under the circumstances as provided in Sections 8.02 and 11.01) or (ii) in the absence of its own gross negligence or willful misconduct as determined by the final and non-appealable judgment of a court of competent jurisdiction. Neither the Administrative Agent nor the Lender Representative shall be deemed to have knowledge of any Default or Event of Default unless and until written notice describing such Default or Event of Default is given to the Administrative Agent or the Lender Representative, respectively, by the Borrower or a Lender;

(v) shall not be responsible for or have any duty to ascertain or inquire into (A) any statement, warranty or representation made in or in connection with this Agreement or any other Loan Document, (B) the contents of any certificate, report or other document delivered hereunder or thereunder or in connection herewith or therewith, (C) the performance or observance of any of the covenants, agreements or other terms or conditions set forth herein or therein or the occurrence of any Default or Event of Default, (D) the validity, enforceability, effectiveness or genuineness of this Agreement, any other Loan Document or any other agreement, instrument or document, or the creation, perfection or priority of any Lien purported to be created by the Collateral Documents, (E) the value or the sufficiency of any Collateral, or (F) the satisfaction of any condition set forth in Article IV or elsewhere herein, other than to confirm receipt of items expressly required to be delivered to the Administrative Agent;

(vi) shall not be responsible for (A) perfecting, maintaining, monitoring, preserving or protecting the security interest or Lien granted under this Agreement, the Collateral Documents, any other Loan Document or any agreement or instrument contemplated hereby or thereby, (B) the filing, re-filing, recording, re-recording or continuing or any document, financing statement, mortgage, assignment, notice, instrument

of further assurance or other instrument in any public office at any time or times or (C) providing, maintaining, monitoring or preserving insurance on or the payment of taxes with respect to any of the Collateral. The actions described in items (A) through (C) shall be the sole responsibility of the Borrower;

(vii) shall not be responsible or liable for any failure or delay in the performance of its obligations under this Agreement or the other Loan Documents arising out of or caused, directly or indirectly, by circumstances beyond its reasonable control, including, without limitation, acts of God; earthquakes; fire; flood; terrorism; wars and other military disturbances; sabotage; epidemics; pandemics, riots; business interruptions; loss or malfunctions of utilities, computer (hardware or software) or communication services; accidents; labor disputes; acts of civil or military authority and governmental action;

(viii) shall not be (A) required to qualify in any jurisdiction in which it is not presently qualified to perform its obligations as such Administrative Agent or (B) required to take any enforcement action against a Loan Party or any other obligor outside of the United States;

(ix) shall not be responsible or have any liability for, or have any duty to ascertain, inquire into, monitor the list or identities of, or enforce, compliance with the provisions hereof relating to Disqualified Institutions. Without limiting the generality of the foregoing, the Administrative Agent shall not (A) be obligated to ascertain, monitor or inquire as to whether any Lender or Participant or prospective Lender or Participant is a Disqualified Institution or (B) have any liability with respect to or arising out of any assignment or participation of Loans, or disclosure of confidential information, to any Disqualified Institution;

(x) shall not be responsible for the negligence, misconduct or other action or inaction of any sub-agent that it selects as provided in Section 9.05 absent gross negligence or willful misconduct by the Administrative Agent (as determined in a final and non-appealable judgment by a court of competent jurisdictions) in the selection of such sub-agents;

(xi) shall neither be responsible for, nor chargeable with, knowledge of the terms and conditions of any other agreement, instrument, or document other than this Agreement and any other Loan Document to which Administrative Agent is a party, whether or not an original or a copy of such agreement has been provided to the Administrative Agent; and

(xii) shall not be responsible for nor have any duty to monitor the performance or any action of the Loan Parties, the Lenders, or any of their directors, members, officers, agents, affiliates or employee, nor shall they have any liability in connection with the malfeasance or nonfeasance by such party; the Administrative Agent and the Lender Representative may assume performance by all such Persons of their respective obligations.

(b) Each Lender acknowledges and agrees that neither such Lender, nor any of its Affiliates, participants or assignees, may rely on the Administrative Agent or the Lender Representative to carry out such Lender's, Affiliate's, participant's or assignee's customer identification program, or other obligations required or imposed under or pursuant to any anti-terrorism Law, including any programs involving any of the following items relating to or in

connection with the Loan Parties or their respective Subsidiaries, any of their respective Affiliates or agents, the Loan Documents or the transactions hereunder: (i) any identity verification procedures, (ii) any record keeping, (iii) any comparisons with government lists, (iv) any customer notices or (v) any other procedures required under any anti-terrorism Law.

(c) The delivery by the Borrower or any other Loan Party of any reports, information and documents to the Administrative Agent or the Lender Representative is for informational purposes only and the Administrative Agent's receipt of such shall not constitute constructive notice of any information contained therein or determinable from information contained therein. Each party to this Agreement acknowledges and agrees that the Administrative Agent may, but shall not be obligated to, from time to time use one or more outside service providers for the tracking of all UCC financing statements (and/or other collateral related filings and registrations from time to time) required to be filed or recorded pursuant to the Loan Documents and the notification to the Administrative Agent, of, among other things, the upcoming lapse or expiration thereof, and that each of such service providers will be deemed to be acting at the request and on behalf of Borrower and the other Loan Parties. The Administrative Agent shall not be liable for any action taken or not taken by any such service provider. Neither the Administrative Agent nor any of its officers, partners, directors, employees or agents shall be liable to the Lenders for any action taken or omitted by the Administrative Agent under or in connection with any of the Loan Documents.

9.04 Reliance by Administrative Agent.

The Administrative Agent and the Lender Representative shall each be entitled to rely upon, and shall be fully protected in relying and shall not incur any liability for relying upon, any notice, request, certificate, communication, consent, statement, instrument, document or other writing (including any electronic message, Internet or intranet website posting or other distribution) believed by it to be genuine and to have been signed, sent or otherwise authenticated by the proper Person. The Administrative Agent and the Lender Representative also may rely upon any statement made to it orally or by telephone and believed by it to have been made by the proper Person, and shall be fully protected in relying and shall not incur any liability for relying thereon. In determining compliance with any condition hereunder to the making of a Loan that by its terms must be fulfilled to the satisfaction of a Lender, the Administrative Agent and/or the Lender Representative may presume that such condition is satisfactory to such Lender unless the Administrative Agent or the Lender Representative, respectively, shall have received notice to the contrary from such Lender prior to the making of such Loan. The Administrative Agent and the Lender Representative may consult with legal counsel (who may be counsel for the Loan Parties), independent accountants and other experts selected by it, and shall not be liable for any action taken or not taken by it in accordance with the advice of any such counsel, accountants or experts. For purposes of determining compliance with the conditions specified in Section 4.01, each Lender that has signed this Agreement shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to a Lender unless the Administrative Agent or the Lender Representative shall have received written notice from such Lender prior to the proposed Closing Date specifying its objections.

9.05 Delegation of Duties.

The Administrative Agent may perform any and all of its duties and exercise its rights and powers hereunder or under any other Loan Document by or through any one or more sub-agents appointed by the Administrative Agent. The Lender Representative may perform any and all of its duties and exercise its rights and powers hereunder or under any other Loan Document by or through any one or more sub-agents appointed by the Administrative Agent. The Administrative Agent, the Lender Representative and any such

sub-agent may perform any and all of its duties and exercise its rights and powers by or through their respective Related Parties. The exculpatory provisions of this Article IX shall apply to any such sub-agent and to the Related Parties of the Administrative Agent or the Lender Representative and any such sub-agent, and shall apply to their respective activities in connection with the syndication of the credit facilities provided for herein as well as activities as Administrative Agent or Lender Representative. Neither the Administrative Agent nor the Lender Representative shall be responsible for the negligence or misconduct of any sub-agents except to the extent that a court of competent jurisdiction determines in a final and non-appealable judgment that the Administrative Agent or the Lender Representative, respectively, acted with gross negligence or willful misconduct in the selection of such sub-agents.

9.06 Resignation.

(a) Notice. The Administrative Agent may at any time give notice of its resignation to the Lender and the Borrower. Upon receipt of any such notice of resignation, the Lender Representative shall have the right to appoint a successor, which shall be a financial institution with an office in the United States, or an Affiliate of any such financial institution with an office in the United States. If no such successor shall have been so appointed by the Lender Representative and shall have accepted such appointment within thirty (30) days after the retiring Administrative Agent gives notice of its resignation (or such earlier day as shall be agreed by the Required Lenders) (the “Resignation Effective Date”), then the retiring Administrative Agent may (but shall not be obligated to) on behalf of the Lender Representative appoint a successor Administrative Agent meeting the qualifications set forth above; *provided* that in no event shall any successor Administrative Agent be a Defaulting Lender. Whether or not a successor has been appointed, such resignation shall become effective in accordance with such notice on the Resignation Effective Date. In addition, upon not less than ten (10) days prior written notice (the “Removal Effective Date”), the Administrative Agent may be removed (with or without cause) by the Lender Representative at any time in its sole discretion, but with the prior written consent of the Borrower (such consent not to be unreasonably withheld, conditioned or delayed).

(b) Effect of Resignation or Removal. With effect from the Resignation Effective Date or the Removal Effective Date, as applicable (i) the retiring or removed Administrative Agent shall be discharged from its duties and obligations hereunder and under the other Loan Documents and (ii) except for any indemnity payments or other amounts then owed to the retiring Administrative Agent, all payments, communications and determinations provided to be made by, to or through the Administrative Agent shall instead be made by or to each Lender directly, until such time, if any, as the Lender Representative appoints a successor Administrative Agent as provided for above. Upon the acceptance of a successor’s appointment as Administrative Agent hereunder, such successor shall succeed to and become vested with all of the rights, powers, privileges and duties of the retiring Administrative Agent (other than as provided in Section 3.01(g) and other than any rights to indemnity payments or other amounts owed to the retiring or removed Administrative Agent as of the Resignation Effective Date or the Removal Effective Date, as applicable), and the retiring or removed Administrative Agent shall be discharged from all of its duties and obligations hereunder or under the other Loan Documents (if not already discharged therefrom as provided above in this Section 9.06). The fees payable by the Borrower to a successor Administrative Agent shall be the same as those payable to its predecessor unless otherwise agreed between the Borrower and such successor. After the retiring or removed Administrative Agent’s resignation or removal hereunder and under the other Loan Documents, the provisions of this Article XI and Section 11.04 shall continue in effect for the benefit of such retiring or removed Administrative Agent, its sub[□]agents and their respective Related Parties in respect of any actions taken or omitted to be taken by any of them (A) while the retiring Administrative Agent was acting as Administrative Agent and (B) after such resignation for as long as any of them continues to act in any capacity hereunder or under the

other Loan Documents, including, without limitation, (1) acting as collateral agent or otherwise holding any collateral security on behalf of any of the Secured Parties and (2) in respect of any actions taken in connection with transferring the agency to any successor Administrative Agent.

(c) Lender Representative Resignation. The Lender Representative may at any time resign from its position as the Lender Representative hereunder by giving written notice of its resignation to the Administrative Agent, the Lenders and the Borrower, such resignation to become effective upon the date set forth in such notice of resignation.

9.07 Non-Reliance on Administrative Agent, the Lender Representative and the Other Lenders

Each Lender expressly acknowledges that none of the Administrative Agent nor the Lender Representative has made any representation or warranty to it, and that no act by the Administrative Agent or the Lender Representative hereafter taken, including any consent to, and acceptance of any assignment or review of the affairs of any Loan Party or any Affiliate thereof, shall be deemed to constitute any representation or warranty by the Administrative Agent or the Lender Representative to any Lender as to any matter, including whether the Administrative Agent or the Lender Representative have disclosed material information in their (or their Related Parties') possession. Each Lender represents to the Administrative Agent and the Lender Representative that it has, independently and without reliance upon the Administrative Agent, the Lender Representative, any other Lender or any of their Related Parties and based on such documents and information as it has deemed appropriate, made its own credit analysis of, appraisal of, and investigation into, the business, prospects, operations, property, financial and other condition and creditworthiness of the Loan Parties and their Subsidiaries, and all applicable bank or other regulatory Laws relating to the transactions contemplated hereby, and made its own decision to enter into this Agreement and to extend credit to the Borrower hereunder. Each Lender also acknowledges that it will, independently and without reliance upon the Administrative Agent, the Lender Representative, any other Lender or any of their Related Parties and based on such documents and information as it shall from time to time deem appropriate, continue to make its own credit analysis, appraisals and decisions in taking or not taking action under or based upon this Agreement, any other Loan Document or any related agreement or any document furnished hereunder or thereunder, and to make such investigations as it deems necessary to inform itself as to the business, prospects, operations, property, financial and other condition and creditworthiness of the Loan Parties. Each Lender represents and warrants that (i) the Loan Documents set forth the terms of a commercial lending facility and (ii) it is engaged in making, acquiring or holding commercial loans in the ordinary course and is entering into this Agreement as a Lender for the purpose of making, acquiring or holding commercial loans and providing other facilities set forth herein as may be applicable to such Lender, and not for the purpose of purchasing, acquiring or holding any other type of financial instrument, and each Lender agrees not to assert a claim in contravention of the foregoing. Each Lender represents and warrants that it is sophisticated with respect to decisions to make, acquire and/or hold commercial loans and to provide other facilities set forth herein, as may be applicable to such Lender, and either it, or the Person exercising discretion in making its decision to make, acquire and/or hold such commercial loans or to provide such other facilities, is experienced in making, acquiring or holding such commercial loans or providing such other facilities.

9.08 No Other Duties, Etc.

The Administrative Agent may at any time request instructions from the Lender Representative or the Lenders with respect to any actions or approvals which by the terms of this Agreement or of any of the Loan Documents the Administrative Agent is permitted or desires to take or to grant, and if such instructions are promptly requested, the Administrative Agent shall be absolutely entitled to refrain from taking any action or to withhold any approval and shall not be under any liability whatsoever to any Person

for refraining from any action or withholding any approval under any of the Loan Documents until it shall have received such instructions from the Lender Representative, the Required Lenders or all or such other portion of the Lenders as shall be prescribed by this Agreement. Without limiting the foregoing, no Person shall have any right of action whatsoever against the Administrative Agent as a result of the Administrative Agent acting or refraining from acting under this Agreement or any of the other Loan Documents in accordance with the instructions of the Lender Representative or the Required Lenders (or all or such other portion of the Lenders as shall be prescribed by this Agreement) and, notwithstanding the instructions of the Required Lenders (or such other applicable portion of the Lenders), the Administrative Agent shall have no obligation to take any action if it believes, in good faith, that such action would violate applicable law or exposes the Administrative Agent to any liability for which it is not entitled to satisfactory reimbursement and indemnification in accordance with the provisions of Section 11.04. Anything herein to the contrary notwithstanding, none of the titles listed on the cover page hereof shall have any powers, duties or responsibilities under this Agreement or any of the other Loan Documents, except in its capacity, as applicable, as the Administrative Agent or a Lender hereunder.

9.09 Administrative Agent May File Proofs of Claim; Credit Bidding.

(a) In case of the pendency of any proceeding under any Debtor Relief Law or any other judicial proceeding relative to any Loan Party, the Administrative Agent (irrespective of whether the principal of any Loan shall then be due and payable as herein expressed or by declaration or otherwise and irrespective of whether the Administrative Agent shall have made any demand on the Borrower) shall be entitled and empowered, by intervention in such proceeding or otherwise:

(i) to file and prove a claim for the whole amount of the principal and interest owing and unpaid in respect of the Loans and all other Obligations that are owing and unpaid and to file such other documents as may be necessary or advisable in order to have the claims of the Lenders and the Administrative Agent (including any claim for the reasonable compensation, expenses, disbursements and advances of the Lenders and the Administrative Agent and their respective agents and counsel to the extent provided for herein and all other amounts due the Lenders and the Administrative Agent under 2.09 and 11.04) allowed in such judicial proceeding; and

(ii) to collect and receive any monies or other property payable or deliverable on any such claims and to distribute the same;

and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such judicial proceeding is hereby authorized by each Lender to make such payments to the Administrative Agent and, in the event that the Administrative Agent shall consent to the making of such payments directly to the Lenders, to pay to the Administrative Agent any amount due for the reasonable compensation, expenses, disbursements and advances of the Administrative Agent and its agents and counsel, and any other amounts due the Administrative Agent under Sections 2.07 and 11.04.

(b) Nothing contained herein shall be deemed to authorize the Administrative Agent to authorize or consent to or accept or adopt on behalf of any Lender any plan of reorganization, arrangement, adjustment or composition affecting the Obligations or the rights of any to authorize the Administrative Agent to vote in respect of the claim of any Lender or in any such proceeding.

(c) The Secured Parties hereby irrevocably authorize the Administrative Agent or the Lender Representative, at the direction of the Required Lenders, to credit bid all or any portion of

the Obligations (including accepting some or all of the Collateral in satisfaction of some or all of the Obligations pursuant to a deed in lieu of foreclosure or otherwise) and in such manner purchase (either directly or through one or more acquisition vehicles) all or any portion of the Collateral (i) at any sale thereof conducted under the provisions of the Bankruptcy Code of the United States, including under Sections 363, 1123 or 1129 of the Bankruptcy Code of the United States, or any similar Laws in any other jurisdictions to which a Loan Party is subject, (ii) at any other sale or foreclosure or acceptance of collateral in lieu of debt conducted by (or with the consent or at the direction of) the Administrative Agent (whether by judicial action or otherwise) in accordance with any Applicable Law. In connection with any such credit bid and purchase, the Obligations owed to the Secured Parties shall be entitled to be, and shall be, credit bid on a ratable basis (with Obligations with respect to contingent or unliquidated claims receiving contingent interests in the acquired assets on a ratable basis that would vest upon the liquidation of such claims in an amount proportional to the liquidated portion of the contingent claim amount used in allocating the contingent interests) in the asset or assets so purchased (or in the Equity Interests or debt instruments of the acquisition vehicle or vehicles that are used to consummate such purchase). In connection with any such bid (A) the Administrative Agent and/or the Lender Representative shall be authorized to form one or more acquisition vehicles to make a bid, (B) to adopt documents providing for the governance of the acquisition vehicle or vehicles (*provided* that any actions by the Administrative Agent or the Lender Representative with respect to such acquisition vehicle or vehicles, including any disposition of the assets or Equity Interests thereof shall be governed, directly or indirectly, by the vote of the Required Lenders, irrespective of the termination of this Agreement), and (C) to the extent that Obligations that are assigned to an acquisition vehicle are not used to acquire Collateral for any reason (as a result of another bid being higher or better, because the amount of Obligations assigned to the acquisition vehicle exceeds the amount of debt credit bid by the acquisition vehicle or otherwise), such Obligations shall automatically be reassigned to the Lenders *pro rata* and the Equity Interests and/or debt instruments issued by any acquisition vehicle on account of the Obligations that had been assigned to the acquisition vehicle shall automatically be cancelled, without the need for any Secured Party or any acquisition vehicle to take any further action.

9.10 Collateral and Guaranty Matters.

(a) Each of the Lenders irrevocably authorize the Administrative Agent, at its option and in its discretion,

(i) to release any Lien on any property granted to or held by the Administrative Agent under any Loan Document (A) upon the Facility Termination Date, (B) that is sold or otherwise Disposed of or to be sold or otherwise Disposed of as part of or in connection with any sale or other Disposition permitted hereunder or under any other Loan Document, including, for the avoidance of doubt, in connection with any Permitted License, Permitted Financing Transaction or other transaction permitted hereunder or under any other Loan Document (it being understood and agreed with respect to release of Liens under this subsection that the Administrative Agent may conclusively rely without further inquiry on a certificate of a Responsible Officer as to the release of Liens being made in fully compliance with the provisions of the Loan Documents), (C) any assets becoming Excluded Property (it being understood and agreed with respect to release of Liens under this subsection that the Administrative Agent may conclusively rely without further inquiry on a certificate of a Responsible Officer as to the release of Liens being made in fully compliance with the provisions of the Loan Documents), or (D) if approved, authorized or ratified in writing by the Required Lenders in accordance with Section 11.01;

(ii) to subordinate any Lien on any property granted to or held by the Administrative Agent under any Loan Document to the holder of any Lien on such property that is permitted by Section 7.01(i); and

(iii) to release any Guarantor from its obligations under the Guaranty if such Person ceases to be a Subsidiary as a result of a transaction permitted under the Loan Documents (it being understood and agreed with respect to release of Liens under this subsection that the Administrative Agent may conclusively rely without further inquiry on a certificate of a Responsible Officer as to the release of Liens being made in fully compliance with the provisions of the Loan Documents).

(b) Upon request by the Administrative Agent at any time, the Required Lenders will confirm in writing the Administrative Agent's authority to release or subordinate its interest in particular types or items of property, or to release any Guarantor from its obligations under the Guaranty pursuant to this Section 9.10. In each case as specified in this Section 9.10, the Administrative Agent will, at the Borrower's expense, execute and deliver to the applicable Loan Party such documents as such Loan Party may reasonably request to evidence the release of such item of Collateral from the assignment and security interest granted under the Collateral Documents or to subordinate its interest in such item, or to release such Guarantor from its obligations under the Guaranty, in each case in accordance with the terms of the Loan Documents and this Section 9.10.

(c) The Administrative Agent shall not be responsible for or have a duty to ascertain or inquire into any representation or warranty regarding the existence, value or collectability of the Collateral, the existence, priority or perfection of the Administrative Agent's Lien thereon, or any certificate prepared by any Loan Party in connection therewith, nor shall the Administrative Agent be responsible or liable to the Lenders for any failure to monitor or maintain any portion of the Collateral.

9.11 Survival.

This Article IX shall survive the termination of this Agreement, the repayment, satisfaction or discharge of all Obligations and the resignation, removal or replacement of the Administrative Agent.

ARTICLE X

CONTINUING GUARANTY

10.01 Guaranty.

Each Guarantor hereby absolutely and unconditionally, jointly and severally guarantees, as primary obligor and as a guaranty of payment and performance and not merely as a guaranty of collection, prompt payment when due, whether at stated maturity, by required prepayment, upon acceleration, demand or otherwise, and at all times thereafter, of any and all Obligations, excluding, for the avoidance of doubt, all Excluded Swap Obligations (for each Guarantor, subject to the proviso in this sentence, its "Guaranteed Obligations"); *provided* that the liability of each Guarantor individually with respect to this Guaranty shall be limited to an aggregate amount equal to the largest amount that would not render its obligations hereunder subject to avoidance under Section 548 of the Bankruptcy Code of the United States or any comparable provisions of any applicable state law. Without limiting the generality of the foregoing, the Guaranteed Obligations shall include any such indebtedness, obligations, and liabilities, or portion thereof, which may be or hereafter become unenforceable or compromised or shall be an allowed or disallowed

claim under any proceeding or case commenced by or against any debtor under any Debtor Relief Laws. The Administrative Agent's books and records showing the amount of the Obligations shall be admissible in evidence in any action or proceeding, and shall be binding upon each Guarantor, and conclusive for the purpose of establishing the amount of the Obligations absent manifest error. This Guaranty shall not be affected by the genuineness, validity, regularity or enforceability of the Obligations or any instrument or agreement evidencing any Obligations, or by the existence, validity, enforceability, perfection, non-perfection or extent of any collateral therefor, or by any fact or circumstance relating to the Obligations which might otherwise constitute a defense to the obligations of the Guarantors, or any of them, under this Guaranty, and each Guarantor hereby irrevocably waives any defenses it may now have or hereafter acquire in any way relating to any or all of the foregoing (other than that the Obligations have been in paid in full).

10.02 Rights of Lenders.

Each Guarantor consents and agrees that the Secured Parties may, at any time and from time to time, without notice or demand, and without affecting the enforceability or continuing effectiveness hereof: (a) amend, extend, renew, compromise, discharge, accelerate or otherwise change the time for payment or the terms of the Obligations or any part thereof; (b) take, hold, exchange, enforce, waive, release, fail to perfect, sell, or otherwise dispose of any security for the payment of this Guaranty or any Obligations; (c) apply such security and direct the order or manner of sale thereof as the Lender Representative and the Lenders in their sole discretion may determine; and (d) release or substitute one or more of any endorsers or other guarantors of any of the Obligations. Without limiting the generality of the foregoing, each Guarantor consents to the taking of, or failure to take, any action which might in any manner or to any extent vary the risks of such Guarantor under this Guaranty or which, but for this provision, might operate as a discharge of such Guarantor.

10.03 Certain Waivers.

Each Guarantor waives (a) any defense arising by reason of any disability or other defense of the Borrower or any other guarantor, or the cessation from any cause whatsoever (including any act or omission of any Secured Party) of the liability of the Borrower or any other Loan Party; (b) any defense based on any claim that such Guarantor's obligations exceed or are more burdensome than those of the Borrower or any other Loan Party; (c) the benefit of any statute of limitations affecting any Guarantor's liability hereunder; (d) any right to proceed against the Borrower or any other Loan Party, proceed against or exhaust any security for the Obligations, or pursue any other remedy in the power of any Secured Party whatsoever; (e) any benefit of and any right to participate in any security now or hereafter held by any Secured Party; and (f) to the fullest extent permitted by law, any and all other defenses or benefits that may be derived from or afforded by Applicable Law limiting the liability of or exonerating guarantors or sureties. Each Guarantor expressly waives all setoffs and counterclaims and all presentments, demands for payment or performance, notices of nonpayment or nonperformance, protests, notices of protest, notices of dishonor and all other notices or demands of any kind or nature whatsoever with respect to the Obligations, and all notices of acceptance of this Guaranty or of the existence, creation or incurrence of new or additional Obligations.

10.04 Obligations Independent.

The obligations of each Guarantor hereunder are those of primary obligor, and not merely as surety, and are independent of the Obligations and the obligations of any other guarantor, and a separate action may be brought against each Guarantor to enforce this Guaranty whether or not the Borrower or any other person or entity is joined as a party.

10.05 Subrogation.

No Guarantor shall exercise any right of subrogation, contribution, indemnity, reimbursement or similar rights with respect to any payments it makes under this Guaranty until the Facility Termination Date. If any amounts are paid to a Guarantor in violation of the foregoing limitation, then such amounts shall be held in trust for the benefit of the Secured Parties and shall forthwith be paid to the Secured Parties to reduce the amount of the Obligations, whether matured or unmatured.

10.06 Termination; Reinstatement.

This Guaranty is a continuing and irrevocable guaranty of all Obligations now or hereafter existing and shall remain in full force and effect until the Facility Termination Date. Notwithstanding the foregoing, this Guaranty shall continue in full force and effect or be revived, as the case may be, if any payment by or on behalf of the Borrower or a Guarantor is made, or any of the Secured Parties exercises its right of setoff, in respect of the Obligations and such payment or the proceeds of such setoff or any part thereof is subsequently invalidated, declared to be fraudulent or preferential, set aside or required (including pursuant to any settlement entered into by any of the Secured Parties in their discretion) to be repaid to a trustee, receiver or any other party, in connection with any proceeding under any Debtor Relief Laws or otherwise, all as if such payment had not been made or such setoff had not occurred and whether or not the Secured Parties are in possession of or have released this Guaranty and regardless of any prior revocation, rescission, termination or reduction. The obligations of each Guarantor under this Section 10.06 shall survive termination of this Guaranty.

10.07 Stay of Acceleration.

If acceleration of the time for payment of any of the Obligations is stayed, in connection with any case commenced by or against a Guarantor or the Borrower under any Debtor Relief Laws, or otherwise, all such amounts shall nonetheless be payable by each Guarantor, jointly and severally, immediately upon demand by the Secured Parties.

10.08 Condition of Borrower.

Each Guarantor acknowledges and agrees that it has the sole responsibility for, and has adequate means of, obtaining from the Borrower and any other guarantor such information concerning the financial condition, business and operations of the Borrower and any such other guarantor as such Guarantor requires, and that none of the Secured Parties has any duty, and such Guarantor is not relying on the Secured Parties at any time, to disclose to it any information relating to the business, operations or financial condition of the Borrower or any other guarantor (each Guarantor waiving any duty on the part of the Secured Parties to disclose such information and any defense relating to the failure to provide the same).

10.09 Appointment of Borrower.

Each of the Loan Parties hereby appoints the Borrower to act as its agent for all purposes of this Agreement, the other Loan Documents and all other documents and electronic platforms entered into in

connection herewith and agrees that (a) the Borrower may execute such documents and provide such authorizations on behalf of such Loan Parties as the Borrower deems appropriate in its sole discretion and each Loan Party shall be obligated by all of the terms of any such document and/or authorization executed on its behalf, (b) any notice or communication delivered by the Administrative Agent or a Lender to the Borrower shall be deemed delivered to each Loan Party and (c) the Administrative Agent or the Lenders may accept, and be permitted to rely on, any document, authorization, instrument or agreement executed by the Borrower on behalf of each of the Loan Parties.

10.10 Right of Contribution.

The Guarantors agree among themselves that, in connection with payments made hereunder, each Guarantor shall have contribution rights against the other Guarantors as permitted under Applicable Law.

10.11 Keepwell.

Each Qualified ECP Guarantor hereby jointly and severally absolutely, unconditionally and irrevocably undertakes to provide such funds or other support as may be needed from time to time by each specified Loan Party to honor all of its obligations under this Agreement in respect of Swap Obligations (*provided, however*, that each Qualified ECP Guarantor shall only be liable under this Section 10.11 for the maximum amount of such liability that can be hereby incurred without rendering its obligations under this Section 10.11, or otherwise under this Agreement, as it relates to such specified Loan Party, voidable under applicable law relating to fraudulent conveyance or fraudulent transfer, and not for any greater amount). The obligations of each Qualified ECP Guarantor under this Section 10.11 shall remain in full force and effect until the Termination Conditions have been satisfied. Each Qualified ECP Guarantor intends that this Section 10.11 constitute, and this Section 10.11 shall be deemed to constitute, a “keepwell, support, or other agreement” for the benefit of each specified Loan Party for all purposes of Section 1a(18)(A)(v)(II) of the Commodity Exchange Act.

ARTICLE XI. MISCELLANEOUS

11.01 Amendments, Etc.

(a) Subject to Section 3.03(c) and the last paragraph of this Section 11.01, no amendment or waiver of any provision of this Agreement or any other Loan Document, and no consent to any departure by the Borrower or any other Loan Party therefrom, shall be effective unless in writing signed by the Required Lenders (or by the Administrative Agent with the consent of the Required Lenders) and the Borrower or the applicable Loan Party, as the case may be, and acknowledged by the Administrative Agent, and each such waiver or consent shall be effective only in the specific instance and for the specific purpose for which given; *provided, however*, that no such amendment, waiver or consent shall:

(i) waive any condition set forth in Article IV, without the written consent of each Lender;

(ii) extend or increase the Commitment of any Lender (or reinstate any Commitment terminated pursuant to Section 8.02) without the written consent of such Lender (it being understood and agreed that a waiver of any condition precedent in Section 4.02, 4.03, 4.04 or 4.05 or of any Default or a mandatory reduction in Commitments is not considered an extension or increase in Commitments of any Lender);

(iii) postpone any date fixed by this Agreement or any other Loan Document for any payment (excluding mandatory prepayments) of principal, interest, fees or other amounts due to the Lenders (or any of them) hereunder or under such other Loan Document without the written consent of each Lender entitled to such payment;

(iv) reduce the principal of, or the rate of interest specified herein (including, for the avoidance of doubt, the 1.00% floor with respect to the Eurodollar Rate) on, any Loan, or any fees or other amounts payable hereunder or under any other Loan Document without the written consent of each Lender entitled to such amount; *provided, however*, that only the consent of the Required Lenders shall be necessary to amend the definition of “Default Rate” or to waive any obligation of the Borrower to pay interest at the Default Rate;

(v) change (i) Section 8.03, Section 2.10 or Section 2.12 in a manner that would alter the pro rata sharing of payments required thereby without the written consent of each Lender or (ii) Section 2.10(f) in a manner that would alter the *pro rata* application required thereby without the written consent of each Lender directly affected thereby;

(vi) change any provision of this Section 11.01 or the definition of “Required Lenders” or any other provision of any Loan Document specifying the number or percentage of Lenders required to amend, waive or otherwise modify any rights hereunder or thereunder or make any determination or grant any consent hereunder, without the written consent of each Lender;

(vii) release all or substantially all of the Collateral in any transaction or series of related transactions, without the written consent of each Lender;

(viii) release all or substantially all of the value of the Guaranty, without the written consent of each Lender, except to the extent the release of any Subsidiary from the Guaranty is permitted pursuant to Section 9.10 (in which case such release may be made by the Administrative Agent acting alone); or

(ix) release the Borrower or permit the Borrower to assign or transfer any of its rights or obligations under this Agreement or the other Loan Documents without the consent of each Lender;

and *provided, further*, that (A) no amendment, waiver or consent shall, unless in writing and signed by the Administrative Agent in addition to the Lenders required above, affect the rights or duties of, or any fees or other amounts payable to, the Administrative Agent under this Agreement or any other Loan Document and (B) the Agency Fee Letter and the Fee Letter may be amended, or rights or privileges thereunder waived, in a writing executed only by the parties thereto.

(b) Notwithstanding anything to the contrary herein, (i) no Defaulting Lender shall have any right to approve or disapprove any amendment, waiver or consent hereunder (and any amendment, waiver or consent which by its terms requires the consent of all Lenders or each affected Lender, or all Lenders, may be effected with the consent of the applicable Lenders other than Defaulting Lenders), except that (A) the Commitment of any Defaulting Lender may not be increased or extended without the consent of such Lender and (B) any waiver, amendment or modification requiring the consent of all Lenders or each affected Lender that by its terms affects any Defaulting Lender disproportionately adversely relative to other affected Lenders shall require the consent of such Defaulting Lender; (ii) each Lender is entitled to vote as such Lender sees fit on

any bankruptcy reorganization plan that affects the Loans, and each Lender acknowledges that the provisions of Section 1126(c) of the Bankruptcy Code of the United States supersedes the unanimous consent provisions set forth herein and (iii) the Required Lenders shall determine whether or not to allow a Loan Party to use cash collateral in the context of a bankruptcy or insolvency proceeding and such determination shall be binding on all of the Lenders.

(c) Notwithstanding anything to the contrary herein, this Agreement may be amended and restated without the consent of any Lender (but with the consent of the Borrower, the Lender Representative and the Administrative Agent) if, upon giving effect to such amendment and restatement, such Lender shall no longer be a party to this Agreement (as so amended and restated), the Commitments of such Lender shall have terminated, such Lender shall have no other commitment or other obligation hereunder and shall have been paid in full all principal, interest and other amounts owing to it or accrued for its account under this Agreement.

(d) Notwithstanding any provision herein to the contrary, if the Administrative Agent, the Lender Representative and the Borrower acting together identify any ambiguity, omission, mistake, typographical error or other defect in any provision of this Agreement or any other Loan Document (including the schedules and exhibits thereto), then the Administrative Agent, the Lender Representative and the Borrower shall be permitted to amend, modify or supplement such provision to cure such ambiguity, omission, mistake, typographical error or other defect, and such amendment shall become effective without any further action or consent of any other party to this Agreement.

(e) Notwithstanding any provision herein to the contrary, no amendment, modification or waiver of this Agreement or any Loan Document altering Section 2.10(f)(v) or resulting in Obligations owing to any Hedge Bank becoming unsecured (other than releases of Liens permitted in accordance with the terms hereof), in each case in a manner materially adverse to any Hedge Bank, shall be effective without the written consent of such Hedge Bank.

11.02 Notices; Effectiveness; Electronic Communications.

(a) Notices Generally. Except in the case of notices and other communications expressly permitted to be given by telephone (and except as provided in clause (b) below), all notices and other communications provided for herein shall be in writing and shall be delivered by hand or overnight courier service, mailed by certified or registered mail or sent by fax transmission or e-mail transmission as follows, and all notices and other communications expressly permitted hereunder to be given by telephone shall be made to the applicable telephone number, as follows:

(i) if to the Borrower or any other Loan Party, the Administrative Agent, or the Lender Representative, to the address, fax number, e-mail address or telephone number specified for such Person on Schedule 1.01(a); and

(ii) if to any other Lender, to the address, fax number, e-mail address or telephone number specified in its Administrative Questionnaire (including, as appropriate, notices delivered solely to the Person designated by a Lender on its Administrative Questionnaire then in effect for the delivery of notices that may contain material non-public information relating to the Borrower).

Notices and other communications sent by hand or overnight courier service, or mailed by certified or registered mail, shall be deemed to have been given when received; notices and other communications sent by fax transmission shall be deemed to have been given when sent (except that, if not given during normal business hours for the recipient, shall be deemed to have been given

at the opening of business on the next Business Day for the recipient). Notices and other communications delivered through electronic communications to the extent provided in clause (b) below shall be effective as provided in such clause (b).

(b) Electronic Communications.

(i) Notices and other communications to the Administrative Agent, the Lenders and the Lender Representative hereunder may be delivered or furnished by electronic communication (including e-mail, FPML messaging, and Internet or intranet websites) pursuant to an electronic communications agreement (or such other procedures approved by the Administrative Agent in its sole discretion); *provided* that the foregoing shall not apply to notices to any Lender pursuant to Article II if such Lender has notified the Administrative Agent that it is incapable of receiving notices under such Article II by electronic communication. The Administrative Agent, the Lender Representative or the Borrower may each, in its discretion, agree to accept notices and other communications to it hereunder by electronic communications pursuant to procedures approved by it, *provided* that approval of such procedures may be limited to particular notices or communications.

(ii) Unless the Administrative Agent otherwise prescribes, (A) notices and other communications sent to an e-mail address shall be deemed received upon the sender's receipt of an acknowledgment from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail or other written acknowledgement) and (B) notices and other communications posted to an Internet or intranet website shall be deemed received by the intended recipient upon the sender's receipt of an acknowledgment from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail address or other written acknowledgement) indicating that such notice or communication is available and identifying the website address therefor; *provided* that for both clauses (A) and (B), if such notice or other communication is not sent during the normal business hours of the recipient, such notice, email or communication shall be deemed to have been sent at the opening of business on the next Business Day for the recipient.

(c) The Platform. THE PLATFORM IS PROVIDED "AS IS" AND "AS AVAILABLE." THE AGENT PARTIES (AS DEFINED BELOW) DO NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE BORROWER MATERIALS OR THE ADEQUACY OF THE PLATFORM, AND EXPRESSLY DISCLAIM LIABILITY FOR ERRORS IN OR OMISSIONS FROM THE BORROWER MATERIALS. NO WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY RIGHTS OR FREEDOM FROM VIRUSES OR OTHER CODE DEFECTS, IS MADE BY ANY AGENT PARTY IN CONNECTION WITH THE BORROWER MATERIALS OR THE PLATFORM. In no event shall the Administrative Agent, the Lender Representative or any of their Related Parties (collectively, the "Agent Parties") have any liability to the Borrower, any Lender or any other Person for losses, claims, damages, liabilities or expenses of any kind (whether in tort, contract or otherwise) arising out of the Borrower's, any Loan Party's or the Administrative Agent's transmission of Borrower Materials or notices through the Platform, any other electronic platform or electronic messaging service, or through the Internet.

(d) Change of Address, Etc. Each of the Borrower, the Administrative Agent, and the Lender Representative may change its address, fax number or telephone number or e-mail address for notices and other communications hereunder by notice to the other parties hereto. Each other

Lender may change its address, fax number or telephone number or e-mail address for notices and other communications hereunder by notice to the Borrower, the Administrative Agent and the Lender Representative. In addition, each Lender agrees to notify the Administrative Agent from time to time to ensure that the Administrative Agent has on record (i) an effective address, contact name, telephone number, fax number and e-mail address to which notices and other communications may be sent and (ii) accurate wire instructions for such Lender. Furthermore, each Public Lender agrees to cause at least one (1) individual at or on behalf of such Public Lender to at all times have selected the “Private Side Information” or similar designation on the content declaration screen of the Platform in order to enable such Public Lender or its delegate, in accordance with such Public Lender’s compliance procedures and Applicable Law, including United States federal and state securities Laws, to make reference to Borrower Materials that are not made available through the “Public Side Information” portion of the Platform and that may contain material non-public information with respect to the Borrower or its securities for purposes of United States federal or state securities laws.

(e) Reliance by Administrative Agent, the Lender Representative and Lenders. The Administrative Agent, the Lender Representative and the Lenders shall be entitled to rely and act upon any notices (including, without limitation, telephonic or electronic notices, Loan Notices and Notice of Loan Prepayment) purportedly given by or on behalf of any Loan Party even if (i) such notices were not made in a manner specified herein, were incomplete or were not preceded or followed by any other form of notice specified herein, or (ii) the terms thereof, as understood by the recipient, varied from any confirmation thereof. The Loan Parties shall indemnify the Administrative Agent, the Lender Representative, each Lender and the Related Parties of each of them from all losses, costs, expenses and liabilities resulting from the reliance by such Person on each notice purportedly given by or on behalf of a Loan Party. All telephonic notices to and other telephonic communications with the Administrative Agent may be recorded by the Administrative Agent, and each of the parties hereto hereby consents to such recording.

11.03 No Waiver; Cumulative Remedies; Enforcement.

(a) No failure by any Lender, the Lender Representative or the Administrative Agent to exercise, and no delay by any such Person in exercising, any right, remedy, power or privilege hereunder or under any other Loan Document shall operate as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder or under any other Loan Document preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege. The rights, remedies, powers and privileges herein provided, and provided under each other Loan Document, are cumulative and not exclusive of any rights, remedies, powers and privileges provided by law.

(b) Notwithstanding anything to the contrary contained herein or in any other Loan Document, the authority to enforce rights and remedies hereunder and under the other Loan Documents against the Loan Parties or any of them shall be vested exclusively in, and all actions and proceedings at law in connection with such enforcement shall be instituted and maintained exclusively by, the Administrative Agent in accordance with Section 8.02 for the benefit of all the Lenders; *provided, however*, that the foregoing shall not prohibit (a) the Administrative Agent from exercising on its own behalf the rights and remedies that inure to its benefit (solely in its capacity as Administrative Agent) hereunder and under the other Loan Documents, (b) any Lender from exercising setoff rights in accordance with Section 11.08 (subject to the terms of Section 2.12), or (c) any Lender from filing proofs of claim or appearing and filing pleadings on its own behalf during the pendency of a proceeding relative to any Loan Party under any Debtor Relief Law; and *provided, further*, that if at any time there is no Person acting as Administrative Agent hereunder

and under the other Loan Documents, then (i) the Required Lenders shall have the rights otherwise ascribed to the Administrative Agent pursuant to Section 8.02 and (ii) in addition to the matters set forth in clauses (b) and (c) of the preceding proviso, any Lender may, with the consent of the Required Lenders, enforce any rights and remedies available to it and as authorized by the Required Lenders.

11.04 Expenses; Indemnity; Damage Waiver.

(a) Costs and Expenses. The Loan Parties shall pay (i) all reasonable and documented out-of-pocket expenses incurred by the Administrative Agent and the Lender Representative (limited, in the case of legal counsel, to the reasonable and documented fees, charges and disbursements of one legal counsel to the Lender Representative and one legal counsel to the Administrative Agent), in connection with the preparation, negotiation, execution, delivery and administration of this Agreement and the other Loan Documents or any amendments, modifications or waivers of the provisions hereof or thereof (whether or not the transactions contemplated hereby or thereby shall be consummated) and (ii) all reasonable, documented out-of-pocket expenses incurred by the Administrative Agent, the Lender Representative or any Lender (limited to the reasonable fees, documented out-of-pocket disbursements and other charges of one legal counsel to the Administrative Agent and one legal counsel to the Lender Representative and the Lenders (taken as a whole), and, if reasonably necessary, of one local counsel to the Administrative Agent and one local counsel to the Lender Representative and the Lenders (taken as a whole), in each case, in each relevant jurisdiction (which may include a single special counsel acting in multiple jurisdictions, in each case, in relevant jurisdictions material to the interests of the Lenders), in connection with the enforcement or protection of its rights (A) in connection with this Agreement and the other Loan Documents, including its rights under this Section 11.04, or (B) in connection with Loans made hereunder, including all such out-of-pocket expenses incurred during any workout, restructuring or negotiations in respect of such Loans.

(b) Indemnification by the Loan Parties. The Loan Parties shall indemnify the Administrative Agent (and any sub-agent thereof), each Lender and the Lender Representative, and each Related Party of any of the foregoing Persons (each such Person being called an "Indemnitee") against, and hold each Indemnitee harmless from, any and all losses, claims, damages, liabilities and related expenses (including the fees, charges and disbursements of any counsel for any Indemnitee) incurred by any Indemnitee or asserted against any Indemnitee by any Person (including the Borrower or any other Loan Party) arising out of, in connection with, or as a result of (i) the execution or delivery of this Agreement, any other Loan Document or any agreement or instrument contemplated hereby or thereby, the performance by the parties hereto of their respective obligations hereunder or thereunder or the consummation of the transactions contemplated hereby or thereby, or, in the case of the Administrative Agent (and any sub-agent thereof) and its Related Parties only, the administration of this Agreement and the other Loan Documents (including in respect of any matters addressed in Section 3.01), (ii) any Loan or the use or proposed use of the proceeds therefrom, (iii) any actual or alleged presence or Release of Hazardous Materials on or from any property owned, leased or operated by a Loan Party or any of its Restricted Subsidiaries, or any Environmental Liability related in any way to a Loan Party or any of its Restricted Subsidiaries, or (iv) any actual or prospective claim, litigation, investigation or proceeding relating to any of the foregoing, whether based on contract, tort or any other theory, whether brought by a third party or by the Borrower or any other Loan Party, and regardless of whether any Indemnitee is a party thereto; *provided* that such indemnity shall not, as to any Indemnitee, be available to the extent that such losses, claims, damages, liabilities or related expenses (x) are determined by a court of competent jurisdiction by final and non-appealable judgment to have resulted from the gross negligence or willful misconduct of such Indemnitee, (y) other than Administrative Agent and its

Related Parties, result from a claim brought by the Borrower or any other Loan Party against an Indemnitee for a material breach of such Indemnitee's obligations hereunder or under any other Loan Document, if the Borrower or such Loan Party has obtained a final and non-appealable judgment in its favor on such claim as determined by a court of competent jurisdiction or (z) result from a claim not involving an act or omission of the Borrower and that is brought by an Indemnitee against another Indemnitee (other than against the Administrative Agent, any sub-agents and their Related Parties, in their capacities as such). Without limiting the provisions of Section 3.01(c), this Section 11.04(b) shall not apply with respect to Taxes other than any Taxes that represent losses, claims, damages, etc. arising from any non-Tax claim.

(c) Reimbursement by Lenders. To the extent that the Loan Parties for any reason fail to indefeasibly pay any amount required under clauses (a) or (b) of this Section 11.04 to be paid by it to the Administrative Agent (or any sub-agent thereof) or any Related Party of any of the foregoing, each Lender severally agrees to pay to the Administrative Agent (or any such sub-agent) or such Related Party such Lender's pro rata share (determined as of the time that the applicable unreimbursed expense or indemnity payment is sought based on each Lender's share of the Total Credit Exposure at such time) of such unpaid amount (including any such unpaid amount in respect of a claim asserted by such Lender), such payment to be made severally among them based on such Lender's Applicable Percentage (determined as of the time that the applicable unreimbursed expense or indemnity payment is sought), *provided*, that the unreimbursed expense or indemnified loss, claim, damage, liability or related expense, as the case may be, was incurred by or asserted against the Administrative Agent (or any such sub-agent) in its capacity as such, or against its Related Party acting for the Administrative Agent (or any such sub-agent) in connection with such capacity. The obligations of the Lenders under this clause (c) are subject to the provisions of Section 2.10(d).

(d) Waiver of Consequential Damages, Etc. To the fullest extent permitted by Applicable Law, no Loan Party shall assert, and each Loan Party hereby waives, and acknowledges that no other Person shall have, any claim against any Indemnitee, on any theory of liability, for special, indirect, consequential or punitive damages (as opposed to direct or actual damages) arising out of, in connection with, or as a result of, this Agreement, any other Loan Document or any agreement or instrument contemplated hereby, the transactions contemplated hereby or thereby, any Loan or the use of the proceeds thereof. No Indemnitee referred to in clause (b) above shall be liable for any damages arising from the use by unintended recipients of any information or other materials distributed to such unintended recipients by such Indemnitee through telecommunications, electronic or other information transmission systems in connection with this Agreement or the other Loan Documents or the transactions contemplated hereby or thereby.

(e) Payments. All amounts due under this Section 11.04 shall be payable not later than fifteen (15) Business Days after demand therefor together with a reasonably detailed invoice with respect thereto.

(f) Survival. The agreements in this Section 11.04 and the indemnity provisions of Section 11.02(e) shall survive the resignation or removal of the Administrative Agent or the Lender Representative, the replacement of any Lender, the termination of the Aggregate Commitments and the repayment, satisfaction or discharge of all the other Obligations.

11.05 Payments Set Aside.

To the extent that any payment by or on behalf of the Borrower is made to the Administrative Agent or any Lender, or the Administrative Agent or any Lender exercises its right of setoff, and such payment or the proceeds of such setoff or any part thereof is subsequently invalidated, declared to be fraudulent or preferential, set aside or required (including pursuant to any settlement entered into by the Administrative Agent or such Lender in its discretion) to be repaid to a trustee, receiver or any other party, in connection with any proceeding under any Debtor Relief Law or otherwise, then (a) to the extent of such recovery, the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such setoff had not occurred, and (b) each Lender severally agrees to pay to the Administrative Agent upon demand its applicable share (without duplication) of any amount so recovered from or repaid by the Administrative Agent, plus interest thereon from the date of such demand to the date such payment is made at a rate per annum equal to the Federal Funds Rate from time to time in effect. The obligations of the Lenders under clause (b) of the preceding sentence shall survive the payment in full of the Obligations and the termination of this Agreement.

11.06 Successors and Assigns.

(a) Successors and Assigns Generally. The provisions of this Agreement and the other Loan Documents shall be binding upon and inure to the benefit of the parties hereto and thereto and their respective successors and assigns permitted hereby, except neither the Borrower nor any other Loan Party may assign or otherwise transfer any of its rights or obligations hereunder without the prior written consent of the Administrative Agent and each Lender and no Lender may assign or otherwise transfer any of its rights or obligations hereunder except (i) to an assignee in accordance with the provisions of Section 11.06(b), (ii) by way of participation in accordance with the provisions of Section 11.06(d), or (iii) by way of pledge or assignment of a security interest subject to the restrictions of Section 11.06(e) (and any other attempted assignment or transfer by any party hereto shall be null and void). Nothing in this Agreement, expressed or implied, shall be construed to confer upon any Person (other than the parties hereto, their respective successors and assigns permitted hereby, Participants to the extent provided in Section 11.06(d) and, to the extent expressly contemplated hereby, the Related Parties of each of the Administrative Agent and the Lenders) any legal or equitable right, remedy or claim under or by reason of this Agreement.

(b) Assignments by Lenders. Any Lender may at any time assign to one or more assignees all or a portion of its rights and obligations under this Agreement and the other Loan Documents (including all or a portion of its Commitment and the Loans at the time owing to it); *provided that* any such assignment shall be subject to the following conditions:

(i) Minimum Amounts.

(A) in the case of an assignment of the entire remaining amount of the assigning Lender's Commitment and/or the Loans at the time owing to it or contemporaneous assignments to related Approved Funds (determined after giving effect to such assignments) that equal at least the amount specified in clause (b)(i)(B) of this Section 11.06 in the aggregate or in the case of an assignment to a Lender, an Affiliate of a Lender or an Approved Fund, no minimum amount need be assigned; and

(B) in any case not described in clause (b)(i)(A) of this Section 11.06, the aggregate amount of the Commitment (which for this purpose includes Loans outstanding thereunder) or, if the Commitment is not then in effect, the principal

outstanding balance of the Loans of the assigning Lender subject to each such assignment, determined as of the date the Assignment and Assumption with respect to such assignment is delivered to the Administrative Agent or, if "Trade Date" is specified in the Assignment and Assumption, as of the Trade Date, shall not be less than \$5,000,000, unless each of the Administrative Agent and, so long as no Event of Default has occurred and is continuing, the Borrower otherwise consents (each such consent not to be unreasonably withheld or delayed).

(ii) Proportionate Amounts. Each partial assignment shall be made as an assignment of a proportionate part of all the assigning Lender's rights and obligations under this Agreement and the other Loan Documents with respect to the Loans and/or the Commitment assigned.

(iii) Required Consents. No consent shall be required for any assignment except to the extent required by clause (b)(i) (B) of this Section 11.06 and, in addition, the consent of the Borrower (such consent not to be unreasonably withheld or delayed) shall be required unless (1) an Event of Default has occurred and is continuing at the time of such assignment or (2) such assignment is to a Lender, an Affiliate of a Lender or an Approved Fund; *provided* that the Borrower shall be deemed to have consented to any such assignment unless it shall object thereto by written notice to the Administrative Agent within five (5) Business Days after having received notice thereof.

(iv) Assignment and Assumption. The parties to each assignment shall execute and deliver to the Administrative Agent an Assignment and Assumption, together with a processing and recordation fee in the amount of \$3,500; *provided, however*, that the Administrative Agent may, in its sole discretion, elect to waive such processing and recordation fee in the case of any assignment; *provided further*, that such fee will be waived for any assignment from a Lender to an Affiliate of a Lender or an Approved Fund. The assignee, if it is not a Lender, shall deliver to the Administrative Agent an Administrative Questionnaire.

(v) No Assignment to Certain Persons. No such assignment shall be made (A) to the Borrower or any of the Borrower's Affiliates or Subsidiaries, (B) to any Defaulting Lender or any of its Subsidiaries, or any Person who, upon becoming a Lender hereunder, would constitute any of the foregoing Persons described in this clause (B), (C) to a natural Person (or a holding company, investment vehicle or trust for, or owned and operated by or for the primary benefit of one or more natural Persons) or (D) any Disqualified Institution.

(vi) Certain Additional Payments. In connection with any assignment of rights and obligations of any Defaulting Lender hereunder, no such assignment shall be effective unless and until, in addition to the other conditions thereto set forth herein, the parties to the assignment shall make such additional payments to the Administrative Agent in an aggregate amount sufficient, upon distribution thereof as appropriate (which may be outright payment, purchases by the assignee of participations or sub-participations, or other compensating actions, including funding, with the consent of the Borrower and the Administrative Agent, the applicable pro rata share of Loans previously requested but not funded by the Defaulting Lender, to each of which the applicable assignee and assignor hereby irrevocably consent), to (A) pay and satisfy in full all payment liabilities then owed by such Defaulting Lender to the Administrative Agent or any Lender hereunder (and interest accrued thereon) and (B) acquire (and fund as appropriate) its full pro rata share of

all Loans in accordance with its Applicable Percentage. Notwithstanding the foregoing, in the event that any assignment of rights and obligations of any Defaulting Lender hereunder shall become effective under Applicable Law without compliance with the provisions of this clause (b)(vi), then the assignee of such interest shall be deemed to be a Defaulting Lender for all purposes of this Agreement until such compliance occurs.

(vii) Subject to acceptance and recording thereof by the Administrative Agent pursuant to Section 11.06(c), from and after the effective date specified in each Assignment and Assumption, the assignee thereunder shall be a party to this Agreement and, to the extent of the interest assigned by such Assignment and Assumption, have the rights and obligations of a Lender under this Agreement, and the assigning Lender thereunder shall, to the extent of the interest assigned by such Assignment and Assumption, be released from its obligations under this Agreement (and, in the case of an Assignment and Assumption covering all of the assigning Lender's rights and obligations under this Agreement, such Lender shall cease to be a party hereto but shall continue to be entitled to the benefits of Sections 3.01, 3.04, 3.05 and 11.04 with respect to facts and circumstances occurring prior to the effective date of such assignment); *provided*, that except to the extent otherwise expressly agreed by the affected parties, no assignment by a Defaulting Lender will constitute a waiver or release of any claim of any party hereunder arising from that Lender's having been a Defaulting Lender. Upon request, the Borrower (at its expense) shall execute and deliver a Note to the assignee Lender. Any assignment or transfer by a Lender of rights or obligations under this Agreement that does not comply with this clause (b) shall be treated for purposes of this Agreement as a sale by such Lender of a participation in such rights and obligations in accordance with Section 11.06(d).

(c) Register. The Administrative Agent, acting solely for this purpose as a non-fiduciary agent of the Borrower (and such agency being solely for Tax purposes), shall maintain at the Administrative Agent's Office a copy of each Assignment and Assumption delivered to it (or the equivalent thereof in electronic form) and a register for the recordation of the names and addresses of the Lenders, and the Commitments of, and principal amounts (and interest amounts) of the Loans owing to, each Lender pursuant to the terms hereof from time to time (the "Register"). The entries in the Register shall be conclusive, absent manifest error, and the Borrower, the Administrative Agent and the Lenders shall treat each Person whose name is recorded in the Register pursuant to the terms hereof as a Lender hereunder for all purposes of this Agreement. The Register shall be available for inspection by the Borrower and any Lender (with respect to such Lender's interest only), at any reasonable time and from time to time upon reasonable prior notice.

(d) Participations.

(i) Any Lender may at any time, without the consent of, or notice to, the Borrower or the Administrative Agent, sell participations to any Person (other than a natural Person, or a holding company, investment vehicle or trust for, or owned and operated for the primary benefit of one or more natural Persons, a Defaulting Lender, a Disqualified Institution or the Borrower or any of the Borrower's Affiliates or Subsidiaries) (each, a "Participant") in all or a portion of such Lender's rights and/or obligations under this Agreement (including all or a portion of its Commitment and/or the Loans owing to it); *provided* that (i) such Lender's obligations under this Agreement shall remain unchanged, (ii) such Lender shall remain solely responsible to the other parties hereto for the performance of such obligations and (iii) the Borrower, the Administrative Agent and the Lenders shall continue to deal solely and directly with such Lender in connection with such Lender's rights and obligations under this Agreement. For the avoidance of doubt, each

Lender shall be responsible for the indemnity under Section 11.04(c) without regard to the existence of any participations.

(ii) Any agreement or instrument pursuant to which a Lender sells such a participation shall provide that such Lender shall retain the sole right to enforce this Agreement and to approve any amendment, modification or waiver of any provision of this Agreement; *provided* that such agreement or instrument may provide that such Lender will not, without the consent of the Participant, agree to any amendment, waiver or other modification described in the first proviso to Section 11.01 that affects such Participant. The Borrower agrees that each Participant shall be entitled to the benefits of Sections 3.01, 3.04 and 3.05 (subject to the requirements and limitations therein, including the requirements under Section 3.01(f) (it being understood that the documentation required under Section 3.01(e) shall be delivered to the Lender who sells the participation)) to the same extent as if it were a Lender and had acquired its interest by assignment pursuant to clause (b) of this Section 11.06; *provided* that such Participant (A) shall be subject to the provisions of Sections 3.06 and 11.13 as if it were an assignee under clause (b) of this Section 11.06 and (B) shall not be entitled to receive any greater payment under Sections 3.01 or 3.04, with respect to any participation, than the Lender from whom it acquired the applicable participation would have been entitled to receive, except to the extent such entitlement to receive a greater payment results from a Change in Law that occurs after the Participant acquired the applicable participation. Each Lender that sells a participation agrees, at the Borrower's request and expense, to use reasonable efforts to cooperate with the Borrower to effectuate the provisions of Section 3.06 with respect to any Participant. To the extent permitted by law, each Participant also shall be entitled to the benefits of Section 11.08 as though it were a Lender; *provided* that such Participant agrees to be subject to Section 2.12 as though it were a Lender. Each Lender that sells a participation shall, acting solely for this purpose as a non-fiduciary agent of the Borrower, maintain a register on which it enters the name and address of each Participant and the principal amounts (and interest amounts) of each Participant's interest in the Loans or other obligations under the Loan Documents (the "Participant Register"); *provided* that no Lender shall have any obligation to disclose all or any portion of the Participant Register (including the identity of any Participant or any information relating to a Participant's interest in any commitments, loans, letters of credit or its other obligations under any Loan Document) to any Person except to the extent that such disclosure is necessary to establish that such commitment, loan, letter of credit or other obligation is in registered form under Section 5f.103-1(c) of the United States Treasury Regulations. The entries in the Participant Register shall be conclusive absent manifest error, and such Lender shall treat each Person whose name is recorded in the Participant Register as the owner of such participation for all purposes of this Agreement notwithstanding any notice to the contrary. For the avoidance of doubt, the Administrative Agent (in its capacity as Administrative Agent) shall have no responsibility for maintaining a Participant Register.

(e) Certain Pledges. Any Lender may at any time pledge or assign a security interest in all or any portion of its rights under this Agreement (including under its Note or Notes, if any) to secure obligations of such Lender, including any pledge or assignment to secure obligations to a Federal Reserve Bank; *provided* that no such pledge or assignment shall release such Lender from any of its obligations hereunder or substitute any such pledgee or assignee for such Lender as a party hereto.

11.07 Treatment of Certain Information; Confidentiality.

(a) Treatment of Certain Information. Each of the Administrative Agent and the Lenders agrees to maintain the confidentiality of the Information (as defined below), except that Information may be disclosed (i) to its respective Affiliates, its auditors and its and their respective Related Parties (and, if such Person is a member of the GSO Group, then it may make disclosures to any other member of the GSO Group) (it being understood that the Persons to whom such disclosure is made will be informed of the confidential nature of such Information and instructed to keep such Information confidential), (ii) to the extent required or requested by any regulatory authority purporting to have jurisdiction over such Person or its Related Parties (including any self-regulatory authority, such as the National Association of Insurance Commissioners), (iii) to the extent required by Applicable Laws or regulations or by any subpoena or similar legal process, in each case based upon the reasonable advice of the disclosing Administrative Agent's or Lender's legal counsel (in which case the disclosing Administrative Agent or Lender, as applicable, agrees (except with respect to any audit or examination conducted by bank accountants or any governmental bank regulatory authority or self-regulatory authorities exercising examination or regulatory authority), to the extent not prohibited by Applicable Law, to promptly notify the Borrower of such disclosure); (iv) to any other party hereto, (v) in connection with the exercise of any remedies hereunder or under any other Loan Document or any action or proceeding relating to this Agreement or any other Loan Document or the enforcement of rights hereunder or thereunder, (vi) subject to an agreement containing provisions substantially the same (or at least as restrictive) as those of this Section 11.07 (or as may otherwise be reasonably acceptable to the Borrower), to (A) any assignee of or Participant in, or any prospective assignee of or Participant in, any of its rights and obligations under this Agreement; *provided* that no such disclosure shall be made by such Lender or any of its respective Affiliates to any such Person that is a Disqualified Institution or that does not agree to be bound by the provisions of this Section 11.07(a); or (B) any actual or prospective party (or its Related Parties) to any swap, derivative or other transaction under which payments are to be made by reference to the Borrower and its obligations, this Agreement or payments hereunder, (vii) on a confidential basis to (A) any rating agency in connection with rating the Borrower or its Restricted Subsidiaries or the credit facilities provided hereunder or (B) the provider of any Platform or other electronic delivery service used by the Administrative Agent to deliver Borrower Materials or notices to the Lenders or (viii) with the consent of the Borrower or to the extent such Information (ix) becomes publicly available other than as a result of a breach of this Section 11.07, (x) becomes available to the Administrative Agent, any Lender or any of their respective Affiliates on a nonconfidential basis from a source other than the Borrower or on the Borrower's behalf and not in violation of any confidentiality agreement or obligation owed to the Borrower or (xi) is already in the possession of or is independently discovered or developed by a party hereto without utilizing any Information received from the Borrower or violating the terms of this Section 11.07. For purposes of this Section 11.07, "Information" means all information received from the Borrower or any Restricted Subsidiary relating to the Borrower or any Restricted Subsidiary or any of their respective businesses, other than any such information that is available to the Administrative Agent or any Lender on a nonconfidential basis prior to disclosure by the Borrower or any Restricted Subsidiary. Any Person required to maintain the confidentiality of Information as provided in this Section 11.07 shall be considered to have complied with its obligation to do so if such Person has exercised the same degree of care to maintain the confidentiality of such Information as such Person would accord to its own confidential information. In addition, the Administrative Agent and the Lenders may disclose the existence of this Agreement and information about this Agreement to market data collectors, similar service providers to the lending industry and service providers to the Administrative Agent and the Lenders in connection with the administration of this Agreement, the other Loan Documents and the

Commitments; *provided* that such Person is advised of their obligation to keep information of this type confidential.

(b) Non-Public Information. Each of the Administrative Agent and the Lenders acknowledges that (i) the Information may include material non-public information concerning a Loan Party or a Subsidiary, as the case may be, (ii) it has developed compliance procedures regarding the use of material non-public information and (iii) it will handle such material non-public information in accordance with Applicable Law, including United States federal and state securities Laws.

(c) Press Releases. The Loan Parties and their Affiliates agree that they will not in the future issue any press releases or other public disclosure using the name of the Administrative Agent, the Lender Representative or any Lender or their respective Affiliates or referring to this Agreement or any of the Loan Documents without the prior written consent of the Administrative Agent and the Lender Representative, unless (and only to the extent that) the Loan Parties or such Affiliate reasonably determine that it is necessary or desirable for them to do so under Applicable Law and then, in any event the Loan Parties or such Affiliate will consult with such Person before issuing such press release or other public disclosure.

11.08 Right of Setoff.

If an Event of Default shall have occurred and be continuing, each Lender and each of its respective Affiliates is hereby authorized at any time and from time to time, after obtaining the prior written consent of the Required Lenders, to the fullest extent permitted by Applicable Law to set off and apply any and all deposits (general or special, time or demand, provisional or final, in whatever currency) at any time held and other obligations (in whatever currency) at any time owing by such Lender or any such Affiliate to or for the credit or the account of the Borrower against any and all of the obligations of the Borrower now or hereafter existing under this Agreement or any other Loan Document to such Lender or such Affiliates, irrespective of whether or not such Lender or Affiliate shall have made any demand under this Agreement or any other Loan Document and although such obligations of the Borrower may be contingent or unmatured, secured or unsecured, or are owed to a branch, office or Affiliate of such Lender different from the branch, office or Affiliate holding such deposit or obligated on such indebtedness; *provided* that in the event that any Defaulting Lender shall exercise any such right of setoff, (a) all amounts so set off shall be paid over immediately to the Administrative Agent for further application in accordance with the provisions of Section 2.12 and, pending such payment, shall be segregated by such Defaulting Lender from its other funds and deemed held in trust for the benefit of the Administrative Agent and the Lenders, and (b) the Defaulting Lender shall provide promptly to the Administrative Agent a statement describing in reasonable detail the Obligations owing to such Defaulting Lender as to which it exercised such right of setoff. The rights of each Lender and its respective Affiliates under this Section 11.08 are in addition to other rights and remedies (including other rights of setoff) that such Lender or its respective Affiliates may have under Applicable Law. Each Lender agrees to notify the Borrower and the Administrative Agent promptly after any such setoff and application, *provided* that the failure to give such notice shall not affect the validity of such setoff and application.

11.09 Interest Rate Limitation.

Notwithstanding anything to the contrary contained in any Loan Document, the interest paid or agreed to be paid under the Loan Documents shall not exceed the maximum rate of non-usurious interest permitted by Applicable Law (the "Maximum Rate"). If the Administrative Agent or any Lender shall receive interest in an amount that exceeds the Maximum Rate, the excess interest shall be applied to the principal of the Loans or, if it exceeds such unpaid principal, refunded to the Borrower. In determining

whether the interest contracted for, charged, or received by the Administrative Agent or a Lender exceeds the Maximum Rate, such Person may, to the extent permitted by Applicable Law, (a) characterize any payment that is not principal as an expense, fee, or premium rather than interest, (b) exclude voluntary prepayments and the effects thereof, and (c) amortize, prorate, allocate, and spread in equal or unequal parts the total amount of interest throughout the contemplated term of the Obligations hereunder.

11.10 Counterparts; Integration; Effectiveness.

This Agreement and each of the other Loan Documents may be executed in counterparts (and by different parties hereto in different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. This Agreement, the other Loan Documents, and any separate letter agreements with respect to fees payable to the Administrative Agent constitute the entire contract among the parties relating to the subject matter hereof and supersede any and all previous agreements and understandings, oral or written, relating to the subject matter hereof. Except as provided in Section 4.01, this Agreement shall become effective when it shall have been executed by the Administrative Agent and when the Administrative Agent shall have received counterparts hereof that, when taken together, bear the signatures of each of the other parties hereto. Delivery of an executed counterpart of a signature page of this Agreement or any other Loan Document, or any certificate delivered thereunder, by fax transmission or e-mail transmission (e.g., “pdf” or “tif”) shall be effective as delivery of a manually executed counterpart of this Agreement or such other Loan Document or certificate. Without limiting the foregoing, to the extent a manually executed counterpart is not specifically required to be delivered under the terms of any Loan Document, upon the request of any party, such fax transmission or e-mail transmission shall be promptly followed by such manually executed counterpart.

11.11 Survival of Representations and Warranties.

All representations and warranties made hereunder and in any other Loan Document or other document delivered pursuant hereto or thereto or in connection herewith or therewith shall survive the execution and delivery hereof and thereof. Such representations and warranties have been or will be relied upon by the Administrative Agent and each Lender, regardless of any investigation made by the Administrative Agent or any Lender or on their behalf and notwithstanding that the Administrative Agent or any Lender may have had notice or knowledge of any Default at the time of any Borrowing, and shall continue in full force and effect as long as any Loan or any other Obligation hereunder shall remain unpaid or unsatisfied.

11.12 Severability.

If any provision of this Agreement or the other Loan Documents is held to be illegal, invalid or unenforceable, (a) the legality, validity and enforceability of the remaining provisions of this Agreement and the other Loan Documents shall not be affected or impaired thereby and (b) the parties shall endeavor in good faith negotiations to replace the illegal, invalid or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the illegal, invalid or unenforceable provisions. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction. Without limiting the foregoing provisions of this Section 11.12, if and to the extent that the enforceability of any provisions in this Agreement relating to Defaulting Lenders shall be limited by Debtor Relief Laws, as determined in good faith by the Administrative Agent, then such provisions shall be deemed to be in effect only to the extent not so limited.

11.13 Replacement of Lenders.

(a) If the Borrower is entitled to replace a Lender pursuant to the provisions of Section 3.06, or if any Lender is a Defaulting Lender or a Non-Consenting Lender, then the Borrower may, at its sole expense and effort, upon written notice to such Lender and the Administrative Agent, require such Lender to assign and delegate, without recourse (in accordance with and subject to the restrictions contained in, and consents required by, Section 11.06), all of its interests, rights (other than its existing rights to payments pursuant to Sections 3.01 and 3.04) and obligations under this Agreement and the related Loan Documents to an Eligible Assignee that shall assume such obligations (which assignee may be another Lender, if a Lender accepts such assignment), *provided* that:

(i) the Borrower shall have paid to the Administrative Agent the assignment fee (if any) specified in Section 11.06(b);

(ii) such Lender shall have received payment of an amount equal to 100% of the outstanding principal of its Loans, accrued interest thereon, accrued fees and all other amounts payable to it hereunder and under the other Loan Documents (including any amounts under Section 3.05) from the assignee (to the extent of such outstanding principal and accrued interest and fees) or the Borrower (in the case of all other amounts);

(iii) in the case of any such assignment resulting from a claim for compensation under Section 3.04 or payments required to be made pursuant to Section 3.01, such assignment will result in a reduction in such compensation or payments thereafter;

(iv) such assignment does not conflict with Applicable Laws; and

(v) in the case of an assignment resulting from a Lender becoming a Non-Consenting Lender, the applicable assignee shall have consented to the applicable amendment, waiver or consent.

(b) A Lender shall not be required to make any such assignment or delegation if, prior thereto, as a result of a waiver by such Lender or otherwise, the circumstances entitling the Borrower to require such assignment and delegation cease to apply.

(c) Each party hereto agrees that (i) an assignment required pursuant to this Section 11.13 may be effected pursuant to an Assignment and Assumption executed by the Borrower, the Administrative Agent and the assignee and (ii) the Lender required to make such assignment need not be a party thereto in order for such assignment to be effective and shall be deemed to have consented to and be bound by the terms thereof; *provided*, that, following the effectiveness of any such assignment, the other parties to such assignment agree to execute and deliver such documents necessary to evidence such assignment as reasonably requested by the applicable Lender, *provided further* that any such documents shall be without recourse to or warranty by the parties thereto.

11.14 Governing Law; Jurisdiction; Etc.

(a) **GOVERNING LAW.** THIS AGREEMENT AND THE OTHER LOAN DOCUMENTS (EXCEPT, AS TO ANY OTHER LOAN DOCUMENT, AS EXPRESSLY SET FORTH THEREIN) AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING

OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT (EXCEPT, AS TO ANY OTHER LOAN DOCUMENT, AS EXPRESSLY SET FORTH THEREIN) AND THE TRANSACTIONS CONTEMPLATED HEREBY AND THEREBY SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

(b) SUBMISSION TO JURISDICTION. THE BORROWER AND EACH OTHER LOAN PARTY IRREVOCABLY AND UNCONDITIONALLY AGREES THAT IT WILL NOT COMMENCE ANY ACTION, LITIGATION OR PROCEEDING OF ANY KIND OR DESCRIPTION, WHETHER IN LAW OR EQUITY, WHETHER IN CONTRACT OR IN TORT OR OTHERWISE, AGAINST THE ADMINISTRATIVE AGENT, THE LENDER REPRESENTATIVE, ANY LENDER, OR ANY RELATED PARTY OF THE FOREGOING IN ANY WAY RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT OR THE TRANSACTIONS RELATING HERETO OR THERETO, IN ANY FORUM OTHER THAN THE COURTS OF THE STATE OF NEW YORK SITTING IN NEW YORK COUNTY AND OF THE UNITED STATES DISTRICT COURT OF THE SOUTHERN DISTRICT OF NEW YORK, AND ANY APPELLATE COURT FROM ANY THEREOF, AND EACH OF THE PARTIES HERETO IRREVOCABLY AND UNCONDITIONALLY SUBMITS TO THE JURISDICTION OF SUCH COURTS AND AGREES THAT ALL CLAIMS IN RESPECT OF ANY SUCH ACTION, LITIGATION OR PROCEEDING MAY BE HEARD AND DETERMINED IN SUCH NEW YORK STATE COURT OR, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, IN SUCH FEDERAL COURT. EACH OF THE PARTIES HERETO AGREES THAT A FINAL JUDGMENT IN ANY SUCH ACTION, LITIGATION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. NOTHING IN THIS AGREEMENT OR IN ANY OTHER LOAN DOCUMENT SHALL AFFECT ANY RIGHT THAT THE ADMINISTRATIVE AGENT, THE LENDER REPRESENTATIVE OR ANY LENDER MAY OTHERWISE HAVE TO BRING ANY ACTION OR PROCEEDING RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT AGAINST THE BORROWER OR ANY OTHER LOAN PARTY OR ITS PROPERTIES IN THE COURTS OF ANY JURISDICTION.

(c) WAIVER OF VENUE. THE BORROWER AND EACH OTHER LOAN PARTY IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY OBJECTION THAT IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF VENUE OF ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT IN ANY COURT REFERRED TO IN CLAUSE (b) OF THIS SECTION 11.14. THE BORROWER AND EACH OTHER LOAN PARTY IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING IN ANY SUCH COURT.

(d) SERVICE OF PROCESS. EACH PARTY HERETO IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 11.02. NOTHING IN THIS AGREEMENT WILL AFFECT THE RIGHT OF ANY PARTY HERETO TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY APPLICABLE LAW.

11.15 Waiver of Jury Trial.

EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY (WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY). EACH PARTY HERETO (a) CERTIFIES THAT NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PERSON HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PERSON WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER AND (b) ACKNOWLEDGES THAT IT AND THE OTHER PARTIES HERETO HAVE BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE OTHER LOAN DOCUMENTS BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 11.15.

11.16 Subordination.

Each Loan Party (a "*Subordinating Loan Party*") hereby subordinates the payment of all obligations and indebtedness of any other Loan Party owing to it, whether now existing or hereafter arising, including but not limited to any obligation of any such other Loan Party to the Subordinating Loan Party as subrogee of the Secured Parties or resulting from such Subordinating Loan Party's performance under this Guaranty, to the indefeasible payment in full in cash of all Obligations. If the Secured Parties so request, any such obligation or indebtedness of any such other Loan Party to the Subordinating Loan Party shall be enforced and performance received by the Subordinating Loan Party as trustee for the Secured Parties and the proceeds thereof shall be paid over to the Secured Parties on account of the Obligations, but without reducing or affecting in any manner the liability of the Subordinating Loan Party under this Agreement. Without limitation of the foregoing, so long as no Default has occurred and is continuing, the Loan Parties may make and receive payments with respect to Intercompany Debt; *provided*, that in the event that any Loan Party receives any payment of any Intercompany Debt at a time when such payment is prohibited by this Section 11.16, such payment shall be held by such Loan Party, in trust for the benefit of, and shall be paid forthwith over and delivered, upon written request, to the Administrative Agent.

11.17 No Advisory or Fiduciary Responsibility.

(a) In connection with all aspects of each transaction contemplated hereby (including in connection with any amendment, waiver or other modification hereof or of any other Loan Document), the Borrower and each other Loan Party acknowledges and agrees, and acknowledges its Affiliates' understanding, that: (a) (i) the arranging and other services regarding this Agreement provided by the Administrative Agent, the Lender Representative and the Lenders and their respective Affiliates are arm's-length commercial transactions between the Borrower each other Loan Party and their respective Affiliates, on the one hand, and the Administrative Agent, the Lender Representative and the Lenders and their respective Affiliates, on the other hand, (ii) each of the Borrower and the other Loan Parties has consulted its own legal, accounting, regulatory and tax advisors to the extent it has deemed appropriate, and (iii) the Borrower and each other Loan Party is capable of evaluating, and understands and accepts, the terms, risks and conditions of the transactions contemplated hereby and by the other Loan Documents; (b) (i) the Administrative Agent, the Lender Representative and each Lender and each of their respective Affiliates each is and has been acting solely as a principal and, except as expressly agreed in writing by the relevant parties, has not been, is not, and will not be acting as an advisor, agent or fiduciary, for the Borrower any other Loan Party or any of their respective Affiliates, or any other Person and (ii) neither the Administrative Agent, the Lender Representative, nor any Lender nor any of their

respective Affiliates has any obligation to the Borrower any other Loan Party or any of their respective Affiliates with respect to the transactions contemplated hereby except those obligations expressly set forth herein and in the other Loan Documents; and (c) the Administrative Agent, the Lender Representative and the Lenders and their respective Affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Borrower the other Loan Parties and their respective Affiliates, and neither the Administrative Agent, the Lender Representative, nor any Lender nor any of their respective Affiliates has any obligation to disclose any of such interests to the Borrower any other Loan Party or any of their respective Affiliates. To the fullest extent permitted by law, each of the Borrower and each other Loan Party hereby waives and releases any claims that it may have against the Administrative Agent, the Lender Representative, the Lenders and their respective Affiliates with respect to any breach or alleged breach of agency or fiduciary duty in connection with any aspect of any transactions contemplated hereby.

(b) The Borrower further acknowledges that the Lender Representative, the Lenders and their respective Affiliates may acquire, hold or sell, for their own accounts and the accounts of investors, the equity, debt and other securities and financial instruments (including, common equity, bank loans and other obligations) of, the Borrower and other companies with which the Borrower may have commercial or other relationships. With respect to any securities and/or financial instruments so held by the Lender Representative, the Lenders or their respective Affiliates or any of their respective investors, all rights in respect of such securities and financial instruments, including any voting rights, will be exercised by the holder of the rights, in its sole discretion.

11.18 Electronic Execution; Electronic Records.

(a) The words “delivery,” “execute,” “execution,” “signed,” “signature,” and words of like import in any Loan Document or any other document executed in connection herewith shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by the Administrative Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature, physical delivery thereof or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any Applicable Law, including the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act, or any other similar state laws based on the Uniform Electronic Transactions Act; *provided* that notwithstanding anything contained herein to the contrary, the Administrative Agent is under no obligation to agree to accept electronic signatures in any form or in any format unless expressly agreed to by the Administrative Agent pursuant to procedures approved by it; *provided, further*, without limiting the foregoing, upon the reasonable request of the Administrative Agent, any electronic signature shall be promptly followed by such manually executed counterpart. For the avoidance of doubt, the authorization under this paragraph may include, without limitation, use or acceptance by the Administrative Agent and each of the Lenders of a manually signed paper document, amendment, approval, consent, information, notice, certificate, request, statement, disclosure or authorization related to this Agreement (each a “Communication”) which has been converted into electronic form (such as scanned into PDF format), or an electronically signed Communication converted into another format, for transmission, delivery and/or retention.

(b) The Borrower hereby acknowledges the receipt of a copy of this Agreement and all other Loan Documents. The Administrative Agent, the Lender Representative and each Lender may, on behalf of the Borrower, create a microfilm or optical disk or other electronic image of this Agreement and any or all of the other Loan Documents. The Administrative Agent, the Lender

Representative and each Lender may store the electronic image of this Agreement and the other Loan Documents in its electronic form and then destroy the paper original as part of the Administrative Agent's, the Lender Representative's and each Lender's normal business practices, with the electronic image deemed to be an original and of the same legal effect, validity and enforceability as the paper originals.

11.19 USA Patriot Act Notice.

Each Lender that is subject to the Patriot Act and the Administrative Agent (for itself and not on behalf of any Lender) hereby notifies the Borrower and the other Loan Parties that pursuant to the requirements of the USA PATRIOT Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)) (the "Patriot Act"), it is required to obtain, verify and record information that identifies the Borrower and each other Loan Party, which information includes the name and address of the Borrower and each other Loan Party and other information that will allow such Lender or the Administrative Agent, as applicable, to identify the Borrower and each other Loan Party in accordance with the Patriot Act. The Borrower and each other Loan Party shall, promptly following a request by the Administrative Agent or any Lender, provide all such other documentation and information that the Administrative Agent or such Lender requests in order to comply with its ongoing obligations under applicable "know your customer" and anti-money laundering rules and regulations, including the Patriot Act.

11.20 Acknowledgement and Consent to Bail-In of EEA and UK Financial Institutions.

Notwithstanding anything to the contrary in any Loan Document or in any other agreement, arrangement or understanding among any such parties, each party hereto acknowledges that any liability of any Lender that is an Affected Financial Institution arising under any Loan Document, to the extent such liability is unsecured, may be subject to the write-down and conversion powers of the applicable Resolution Authority and agrees and consents to, and acknowledges and agrees to be bound by (a) the application of any Write-Down and Conversion Powers by the applicable Resolution Authority to any such liabilities arising hereunder which may be payable to it by any party hereto that is an Affected Financial Institution; and (b) the effects of any Bail-In Action on any such liability, including, if applicable: (i) a reduction in full or in part or cancellation of any such liability; (ii) a conversion of all, or a portion of, such liability into shares or other instruments of ownership in such Affected Financial Institution, its parent undertaking, or a bridge institution that may be issued to it or otherwise conferred on it, and that such shares or other instruments of ownership will be accepted by it in lieu of any rights with respect to any such liability under this Agreement or any other Loan Document; or (iii) the variation of the terms of such liability in connection with the exercise of the write-down and conversion powers of the applicable Resolution Authority.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the date first above written.

BORROWER:

ALNYLAM PHARMACEUTICALS, INC.

By: /s/ John Maraganore

Name: John Maraganore, Ph.D.

Title: Chief Executive Officer

GUARANTORS:

SIRNA THERAPEUTICS, INC.

By: /s/ Mary Beth Delena

Name: Mary Beth Delena

Title: Secretary

ALNYLAM U.S., INC.

By: /s/ Mary Beth Delena

Name: Mary Beth Delena

Title: Secretary

WILMINGTON TRUST, NATIONAL ASSOCIATION,
as Administrative Agent

By: /s/ Jessica A. Jankiewicz
Name: Jessica A. Jankiewicz
Title: Assistant Vice President

LENDERS:

GSO COF III AIV-1 LP

By: GSO Capital Opportunities Associates III LLC, its general partner
as a Lender

By: /s/ Marisa J. Beeney
Name: Marisa J. Beeney
Title: Authorized Person

GSO COF III AIV-1 LP

By: GSO Capital Opportunities Associates III LP, its general partner
By: GSO Capital Solutions Associates III (Delaware) LLC, its general partner
as a Lender

By: /s/ Marisa J. Beeney
Name: Marisa J. Beeney
Title: Authorized Person

BSOF BODYGUARD HOLDINGS L.P.

By: Blackstone Alternative Solutions L.L.C., as investment manager
as a Lender

By: /s/ Peter Koffler
Name: Peter Koffler
Title: Authorized Person

BLACKSTONE HOLDINGS FINANCE CO. L.L.C.,

By: Blackstone Holdings I L.P., as Sole Member
By: Blackstone Holdings I/II GP., Inc., as General Partner
as a Lender

By: /s/ Matthew Skurbe
Name: Matthew Skurbe
Title: Authorized Person

**SECOND AMENDMENT
TO
ALNYLAM PHARMACEUTICALS, INC.
2018 STOCK INCENTIVE PLAN**

A. The Alnylam Pharmaceuticals, Inc. 2018 Stock Incentive Plan (the “Plan”) is hereby amended by the Board of Directors of Alnylam Pharmaceuticals, Inc. (the “Company”), subject to approval of the Company’s stockholders, to, among other things, increase the aggregate number of shares authorized for issuance under the Plan by 7,000,000 shares of common stock, par value \$0.01 per share, of the Company, and to amend the director grant limits, as follows:

1. Section 4(a)(1) of the Plan is hereby amended and restated in its entirety as follows:

“(1) Authorized Number of Shares. Subject to adjustment under Section 10, Awards may be made under the Plan for up to the sum of (i) 13,790,000 shares of common stock, \$0.01 par value per share, of the Company (the “**Common Stock**”), (ii) the number of shares that remain available for grants under the Company’s Second Amended and Restated 2009 Stock Incentive Plan (the “**2009 Plan**”) immediately prior to the Effective Date and (iii) shares of Common Stock underlying any awards granted under the 2009 Plan that expire, or are terminated, surrendered or canceled without having been fully exercised or are forfeited in whole or in part after the Effective Date and become available for issuance under the Plan in accordance with Section 4(a)(3). No more than 29,270,000 shares may be issued in the form of Incentive Stock Options (as hereinafter defined). Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares.”

2. Section 4(a)(2) of the Plan is hereby amended by deleting “and 4(b)(1)” in each place where it appears.

3. Section 4(a)(3) of the Plan is hereby amended by deleting the phrase “and under the sub limits contained in Section 4(b)(1)”.

4. Section 4(b) of the Plan is hereby amended and restated in its entirety as follows:

“(b) Limits on Awards to Non-Employee Directors. The maximum value of all compensation, including Awards hereunder, granted or paid to an individual in connection with such individual’s initial appointment or election as a Non-employee Director shall be \$1,500,000. The maximum value of all compensation, including Awards hereunder, granted or paid to a Non-employee Director in any calendar year in connection with such individual’s service on the Board (excluding for this purpose the value of any compensation, including Awards hereunder, granted under the preceding sentence) shall be \$1,000,000. For the purpose of these limitations, the value of any Award shall be its grant date fair value, as determined in accordance with ASC 718 or successor provision but excluding the impact of estimated forfeitures related to service-based vesting provisions.”

5. Section 6(a) of the Plan is hereby amended and restated in its entirety as follows:

“(a) Board Discretion. The Board retains the specific authority to, from time to time, determine the number of shares subject to Options granted to Non-employee Directors under this Section 6, subject to the limitations contained in Section 4(b). All Options granted to Non-employee Directors shall be Nonstatutory Stock Options. The Board also retains the specific authority to

issue SARs, Restricted Stock Awards or Other Stock-Based Awards in lieu of Options, subject to the limitations contained in Section 4(b).”

6. Section 10(a) of the Plan is hereby amended by deleting “and 4(b)”.

B. Except as amended herein, the Plan is confirmed in all other respects.

Approved by the Board of Directors on March 1, 2020.

**AMENDMENT
TO
ALNYLAM PHARMACEUTICALS, INC.
AMENDED AND RESTATED 2004 EMPLOYEE STOCK PURCHASE PLAN**

C. The Alnylam Pharmaceuticals, Inc. Amended and Restated 2004 Employee Stock Purchase Plan (as amended, the “Plan”) is hereby amended by the Board of Directors of Alnylam Pharmaceuticals, Inc. (the “Company”), subject to approval of the Company’s stockholders, to, among other things, increase the aggregate number of shares authorized for issuance under the Plan by 750,000 shares of common stock, par value \$0.01 per share, of the Company:

1. The second sentence of the second paragraph of the Plan is hereby amended and restated in its entirety as follows:

“An aggregate of 1,965,789 shares of Common Stock have been approved for this Plan.”

D. Except as amended herein, the Plan is confirmed in all other respects.

Approved by the Board of Directors on March 1, 2020.

CERTIFICATION

I, John M. Maraganore, Ph.D., certify that:

- 1) I have reviewed this Quarterly Report on Form 10-Q of Alnylam Pharmaceuticals, Inc.;
- 2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4) The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5) The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 6, 2020

/s/ John M. Maraganore

John M. Maraganore, Ph.D.
Chief Executive Officer

CERTIFICATION

I, Jeffrey V. Poulton, certify that:

- 1) I have reviewed this Quarterly Report on Form 10-Q of Alnylam Pharmaceuticals, Inc.;
- 2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4) The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5) The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 6, 2020

/s/ Jeffrey V. Poulton

Jeffrey V. Poulton
Executive Vice President, Chief Financial Officer

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

In connection with the Quarterly Report on Form 10-Q of Alnylam Pharmaceuticals, Inc. (the “Company”) for the quarter ended June 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned, John M. Maraganore, Ph.D., Chief Executive Officer of the Company, hereby certifies, pursuant to Section 1350 of Chapter 63 of Title 18, United States Code, that to his knowledge:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: August 6, 2020

/s/ John M. Maraganore

John M. Maraganore, Ph.D.

Chief Executive Officer

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

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

In connection with the Quarterly Report on Form 10-Q of Alnylam Pharmaceuticals, Inc. (the “Company”) for the quarter ended June 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned, Jeffrey V. Poulton, Executive Vice President, Chief Financial Officer, hereby certifies, pursuant to Section 1350 of Chapter 63 of Title 18, United States Code, that to his knowledge:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: August 6, 2020

/s/ Jeffrey V. Poulton

Jeffrey V. Poulton

Executive Vice President, Chief Financial Officer

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