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, 2022

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: 001-37766

INTELLIA THERAPEUTICS, INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware **(State or Other Jurisdiction of Incorporation or Organization)**	**36-4785571** **(I.R.S. Employer Identification No.)**
40 Erie Street, Suite 130, Cambridge, Massachusetts **(Address of Principal Executive Offices)**	**02139** **(Zip Code)**

857-285-6200
(Registrant's Telephone Number, Including Area Code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of each Class	Trade Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	NTLA	The Nasdaq Global Market

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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

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

The number of shares outstanding of the registrant's common stock as of August 1, 2022: 76,011,784 shares.

PART I - FINANCIAL INFORMATION

PART II - OTHER INFORMATION

PART I – FINANCIAL INFORMATION

Item 1. Financial Statements

INTELLIA THERAPEUTICS, INC.
Condensed Consolidated Balance Sheets (unaudited)
(Amounts in thousands except share and per share data)

	June 30, 2022	December 31, 2021
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 147,781	$ 123,406
Marketable securities	726,494	625,282
Accounts receivable ($0 million and $0.1 million, respectively, from related party)	2,854	2,031
Prepaid expenses and other current assets	18,304	18,584
Total current assets	895,433	769,303
Marketable securities - noncurrent	32,604	337,361
Property and equipment, net	25,868	20,968
Operating lease right-of-use assets	73,775	79,143
Equity method investment	45,616	58,131
Investments and other assets ($10.0 million at the end of each period from related party)	37,128	29,558
Total Assets	$ 1,110,424	$ 1,294,464
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts payable	$ 7,515	$ 9,653
Accrued expenses ($0.1 million and $0 million, respectively, from related party)	44,871	43,309
Current portion of operating lease liability	9,568	9,112
Current portion of deferred revenue ($39.3 million and $41.2 million, respectively, from related party)	61,806	63,759
Total current liabilities	123,760	125,833
Deferred revenue, net of current portion ($2.9 million and $19.9 million, respectively, from related party)	35,330	63,476
Long-term operating lease liability	59,997	64,911
Other long-term liabilities	10,790	-
Commitments and contingencies (Note 6)		
Stockholders' Equity:		
Common stock, $0.0001 par value; 120,000,000 shares authorized; 76,000,745 and 74,485,883 shares issued and outstanding at June 30, 2022 and December 31, 2021, respectively	8	7
Additional paid-in capital	1,840,644	1,745,870
Accumulated other comprehensive loss	(9,554)	(2,632)
Accumulated deficit	(950,551)	(703,001)
Total stockholders' equity	880,547	1,040,244
Total Liabilities and Stockholders' Equity	$ 1,110,424	$ 1,294,464

See notes to condensed consolidated financial statements.

INTELLIA THERAPEUTICS, INC.
Condensed Consolidated Statements of Operations and Comprehensive Loss (unaudited)
(Amounts in thousands except per share data)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Collaboration revenue (1)	$ 14,030	$ 6,550	$ 25,282	$ 12,995
Operating expenses:				
Research and development	90,199	58,884	223,294	98,160
General and administrative	22,132	16,683	44,535	30,277
Total operating expenses	112,331	75,567	267,829	128,437
Operating loss	(98,301)	(69,017)	(242,547)	(115,442)
Other (expense) income, net:				
Interest income	703	211	1,243	431
Loss from equity method investment	(3,252)	-	(5,997)	-
Change in fair value of contingent consideration	172	-	(249)	-
Total other (expense) income, net	(2,377)	211	(5,003)	431
Net loss	$ (100,678)	$ (68,806)	$ (247,550)	$ (115,011)
Net loss per share, basic and diluted	$ (1.33)	$ (1.01)	$ (3.29)	$ (1.70)
Weighted average shares outstanding, basic and diluted	75,823	68,164	75,282	67,675
Other comprehensive loss:				
Unrealized loss on marketable securities	(932)	(1)	(6,060)	(14)
Other comprehensive loss from equity method investment	(560)	-	(862)	-
Comprehensive loss	$ (102,170)	$ (68,807)	$ (254,472)	$ (115,025)
(1) Including the following revenue from related party (see Notes 7 and 8):	$ 7,767	$ -	$ 13,151	$ -

See notes to condensed consolidated financial statements.

INTELLIA THERAPEUTICS, INC.
Condensed Consolidated Statements of Cash Flows (unaudited)
(Amounts in thousands)

	Six Months Ended June 30, 2022	Six Months Ended June 30, 2021
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (247,550)	$ (115,011)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	3,591	3,225
Equity-based compensation	41,559	17,038
Amortization of investment premiums	4,428	2,868
Loss from equity method investment	5,997	-
Deferral of equity method investment intra-entity profit on sales	5,656	-
Change in fair value of contingent consideration	249	-
In-process research and development charge	55,990	-
Changes in operating assets and liabilities:		
Accounts receivable	(824)	137
Prepaid expenses and other current assets	434	(8,703)
Operating lease right-of-use assets	5,368	4,018
Other assets	(802)	(229)
Accounts payable	(3,710)	(2,606)
Accrued expenses	(721)	10,135
Deferred revenue	(30,099)	(11,179)
Operating lease liabilities	(4,458)	(5,050)
Net cash used in operating activities	(164,892)	(105,357)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(5,409)	(5,350)
Purchases of marketable securities	(31,524)	(185,431)
Maturities of marketable securities	224,583	198,499
Acquired in-process research and development, net of cash acquired of $287	(44,832)	-
Net cash provided by investing activities	142,818	7,718
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from issuance of common stock through at-the-market offerings, net of issuance costs	38,885	45,255
Proceeds from options exercised	13,262	19,503
Issuance of shares through employee stock purchase plan	1,068	970
Net cash provided by financing activities	53,215	65,728
Net increase (decrease) in cash and cash equivalents and restricted cash equivalents	31,141	(31,911)
Cash and cash equivalents and restricted cash equivalents, beginning of period	125,486	164,606
Cash and cash equivalents and restricted cash equivalents, end of period	$ 156,627	$ 132,695
Reconciliation of cash and cash equivalents and restricted cash equivalents to condensed consolidated balance sheet:		
Cash and cash equivalents	$ 147,781	$ 129,879
Restricted cash equivalents, included in investments and other assets	8,846	2,816
Total cash and cash equivalents and restricted cash equivalents	$ 156,627	$ 132,695
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:		
Purchases of property and equipment unpaid at period end	$ 3,750	$ 1,969
Right-of-use assets acquired under operating leases	-	41,974
Contingent consideration liability assumed in asset acquisition	10,541	-
Offering costs unpaid at period end	-	208

See notes to condensed consolidated financial statements.

1. Overview and Basis of Presentation

Intellia Therapeutics, Inc. (“Intellia” or the “Company”) is a leading clinical-stage genome editing company, focused on developing novel, potentially curative therapeutics leveraging CRISPR/Cas9-based technologies. CRISPR/Cas9, an acronym for Clustered, Regularly Interspaced Short Palindromic Repeats (“CRISPR”)/CRISPR associated 9 (“Cas9”), is a technology for genome editing, the process of altering selected sequences of genomic deoxyribonucleic acid (“DNA”). To fully realize the transformative potential of CRISPR/Cas9-based technologies, Intellia is building a full-spectrum genome editing company, by leveraging its modular platform, to advance *in vivo* and *ex vivo* therapies for diseases with high unmet need by pursuing two primary approaches. The Company's *in vivo* programs use intravenously administered CRISPR as the therapy, in which proprietary delivery technology enables highly precise editing of disease-causing genes directly within specific target tissues. The Company's *ex vivo* programs use CRISPR to create the therapy by using engineered human cells to treat cancer and autoimmune diseases. The Company's deep scientific, technical and clinical development experience, along with its robust intellectual property (“IP”) portfolio, have enabled it to take a leadership role in harnessing the full potential of genome editing to create new classes of genetic medicine.

The condensed consolidated financial statements of the Company included herein have been prepared, without audit, pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”). Certain information and footnote disclosures normally included in annual financial statements prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) have been condensed or omitted from this report, as is permitted by such rules and regulations. Accordingly, these condensed consolidated financial statements should be read in conjunction with the financial statements and notes thereto included in the Company’s Annual Report on Form 10-K (“Annual Report”) for the year ended December 31, 2021.

On February 2, 2022, the Company entered into an Agreement and Plan of Merger (the “Merger Agreement”) with RW Acquisition Corp., a Delaware corporation and a wholly-owned subsidiary of the Company (“Merger Sub”), Rewrite Therapeutics, Inc., a Delaware corporation (“Rewrite”) and Shareholder Representative Services LLC, a Colorado limited liability company, solely in its capacity as the representative of the Rewrite Holders (as defined below). On the effective date of the Merger Agreement, Merger Sub merged with and into Rewrite, with Rewrite surviving as a wholly-owned subsidiary of the Company. Pursuant to the Merger Agreement, and subject to the terms and conditions thereof, the Company paid Rewrite’s former stockholders and optionholders (the “Rewrite Holders”) upfront consideration in an aggregate amount of approximately $45.0 million payable in cash, excluding customary purchase price adjustments. In addition, the Rewrite Holders will be eligible to receive up to an additional $155.0 million in milestone payments upon the achievement of certain pre-specified research and regulatory approval milestones, payable through a mixture of $130.0 million in cash and $25.0 million in shares of common stock, par value $0.0001 per share (“Common Stock”) of the Company. The shares of Common Stock will be valued using the volume-weighted average price of Common Stock of the Company over the ten consecutive trading day period ending on and including the trading day that is two trading days immediately prior to the issuance of the consideration issued in connection with the applicable milestone.

The unaudited condensed consolidated financial statements include the accounts of Intellia Therapeutics, Inc. and its wholly- owned subsidiaries, Intellia Securities Corp. and Rewrite Therapeutics, Inc. All intercompany balances and transactions have been eliminated in consolidation. Comprehensive loss is comprised of net loss, unrealized gain/loss on marketable securities and other comprehensive loss from equity method investment.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, judgments and assumptions that affect the amounts reported in the financial statements and accompanying notes. Significant estimates in these condensed consolidated financial statements have been made in connection with the calculation of revenues, research and development expenses, valuation of equity and fair value method investments, contingent consideration and equity-based compensation expense. The Company bases its estimates on historical experience and various other assumptions that management believes to be reasonable under the circumstances at the time such estimates are made. Actual results could differ from those estimates. The Company periodically reviews its estimates in light of changes in circumstances, facts and experience. The extent of the impact of the coronavirus disease 19 (“COVID-19”) pandemic on the Company’s operational and financial performance will depend on certain developments, including the length and severity of this pandemic, as well as its effect on the

Company’s employees, collaborators and vendors, all of which are uncertain and cannot be predicted. The Company cannot reasonably estimate the extent to which the disruption may materially impact its consolidated results of operations or financial position.

The effects of material revisions in estimates are reflected in the condensed consolidated financial statements prospectively from the date of the change in estimate.

In the opinion of management, the information furnished reflects all adjustments, all of which are of a normal and recurring nature, necessary for a fair presentation of the results for the reported interim periods. The Company considers events or transactions that occur after the balance sheet date but before the financial statements are issued to provide additional evidence relative to certain estimates or to identify matters that require additional disclosure. The results of operations for interim periods are not necessarily indicative of results to be expected for the full year or any other interim period.

Liquidity

Since its inception through June 30, 2022, the Company has raised an aggregate of approximately $1,861.1 million to fund its operations through its initial public offering (“IPO”) and concurrent private placements, follow-on public offerings, at-the-market offerings and the sale of convertible preferred stock, as well as through its collaboration agreements. The Company expects that its cash, cash equivalents and marketable securities as of June 30, 2022 will enable the Company to fund its ongoing operating expenses and capital expenditure requirements for at least the twelve-month period following the issuance of these condensed consolidated financial statements.

2. Summary of Significant Accounting Policies

The Company’s significant accounting policies are described in Note 2, “Summary of Significant Accounting Policies” to the consolidated financial statements included in the Annual Report for the year ended December 31, 2021. There have been no material changes during the six months ended June 30, 2022 except for the following.

Asset acquisitions

At the time of acquisition, the Company determines if a transaction should be accounted for as a business combination or acquisition of assets. The Company measures and recognizes asset acquisitions that are not deemed to be business combinations based on the cost to acquire the assets, which includes transaction costs, and the consideration is allocated to the items acquired based on a relative fair value methodology. Goodwill is not recognized in asset acquisitions. In an asset acquisition, the cost allocated to acquire in-process research and development with no alternative future use is charged to research and development expense at the acquisition date.

Contingent consideration

The Company accounts for contingent consideration identified in an asset acquisition, that is payable in cash and does not meet the definition of a derivative under Accounting Standard Codification (“ASC”) 815, *Derivatives and Hedging*, when the contingency is resolved and the consideration is paid or becomes payable.

The Company accounts for contingent consideration identified in an asset acquisition that is settled in shares of common stock under ASC 480, *Distinguishing Liabilities from Equity* (“ASC 480”). The contingent consideration liability will be recorded at fair value at the end of each reporting period with changes in estimated fair values recorded in other (expense) income in the condensed consolidated statements of operations and comprehensive loss.

The estimated fair value of the contingent consideration liability related to the Rewrite acquisition (see Notes 4 and 9) is determined based on a probability adjusted discounted cash flow model that includes significant estimates and assumptions pertaining to research and development. Significant changes in any of the probabilities of success or in the probabilities as to the periods in which the milestone would be achieved would result in a significantly higher or lower fair value measurement. The Company will continue to adjust the liability for changes in fair value until the obligation is settled or the research is abandoned.

3. Marketable Securities

The following table summarizes the Company's available-for-sale marketable securities as of June 30, 2022 and December 31, 2021 at net book value:

	June 30, 2022			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
	(In thousands)			
Marketable securities:				
U.S. Treasury and other government securities	$ 295,742	$ -	$ (4,454)	$ 291,288
Financial institution debt securities	303,294	-	(2,296)	300,998
Corporate debt securities	52,575	-	(724)	51,851
Other asset-backed securities	115,671	-	(710)	114,961
Total	$ 767,282	$ -	$ (8,184)	$ 759,098

	December 31, 2021			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
	(In thousands)			
Marketable securities:				
U.S. Treasury and other government securities	$ 301,493	$ -	$ (1,016)	$ 300,477
Financial institution debt securities	441,068	-	(652)	440,416
Corporate debt securities	62,500	-	(151)	62,349
Other asset-backed securities	159,707	-	(306)	159,401
Total	$ 964,768	$ -	$ (2,125)	$ 962,643

The amortized cost of available-for-sale securities is adjusted for amortization of premiums and accretion of discounts to maturity. At June 30, 2022 and December 31, 2021, the balance in the Company's accumulated other comprehensive loss was composed of activity related to the Company's available-for-sale marketable securities and equity method investment. There were no realized gains or losses in the six months ended June 30, 2022 or for the year ended December 31, 2021. The Company did not reclassify any amounts out of accumulated other comprehensive loss during this period. The Company generally does not intend to sell any investments prior to recovery of their amortized cost basis for any investment in an unrealized loss position. As such, the Company has classified these losses as temporary in nature.

The Company's available-for-sale securities that are classified as short-term marketable securities in the condensed consolidated balance sheet mature within one year or less as of the balance sheet date. Available-for-sale securities that are classified as noncurrent in the condensed consolidated balance sheet are those that mature after one year but within five years from the balance sheet date and that the Company does not intend to dispose of within the next twelve months. At June 30, 2022 and December 31, 2021, the Company did not hold any investments that matured beyond five years of the balance sheet date.

4. Fair Value Measurements

The Company classifies fair value-based measurements using a three-level hierarchy that prioritizes the inputs used to measure fair value. This hierarchy requires entities to maximize the use of observable inputs and minimize the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows: Level 1, quoted market prices (unadjusted) in active markets for identical assets or liabilities; Level 2, observable inputs other than quoted market prices included in Level 1, such as quoted market prices for markets that are not active or other inputs that are observable or can be corroborated by observable market data; and Level 3, unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities, including certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

As of June 30, 2022 and December 31, 2021, the Company's financial assets and liabilities recognized at fair value on a recurring basis consisted of the following:

	Fair Value as of June 30, 2022			
	Total	Level 1	Level 2	Level 3
	(In thousands)			
Assets				
Cash equivalents and restricted cash equivalents	$ 156,323	$ 156,323	$ -	$ -
Marketable securities:				
U.S. Treasury and other government securities	291,288	276,278	15,010	-
Financial institution debt securities	300,998	-	300,998	-
Corporate debt securities	51,851	-	51,851	-
Other asset-backed securities	114,961	-	114,961	-
Total marketable securities	759,098	276,278	482,820	-
Total Assets	$ 915,421	$ 432,601	$ 482,820	$ -
Liabilities				
Contingent consideration liability - research	$ 10,790	$ -	$ -	$ 10,790
Total Liabilities	$ 10,790	$ -	$ -	$ 10,790

	Fair Value as of December 31, 2021			
	Total	Level 1	Level 2	Level 3
	(In thousands)			
Assets				
Cash equivalents and restricted cash equivalents	$ 124,636	$ 124,636	$ -	$ -
Marketable securities:				
U.S. Treasury and other government securities	300,477	280,085	20,392	-
Financial institution debt securities	440,416	-	440,416	-
Corporate debt securities	62,349	-	62,349	-
Other asset-backed securities	159,401	-	159,401	-
Total marketable securities	962,643	280,085	682,558	-
Total Assets	$ 1,087,279	$ 404,721	$ 682,558	$ -

Certain of the Company's financial assets, including cash equivalents, restricted cash equivalents and marketable securities, have been initially valued at the transaction price, and subsequently revalued at the end of each reporting period, utilizing third party pricing services or other observable market data. The pricing services utilize industry standard valuation models and observable market inputs to determine value. After completing its validation procedures, the Company did not adjust or override any fair value measurements provided by the pricing services as of June 30, 2022 or December 31, 2021.

Other financial instruments, including accounts receivable, accounts payable and accrued expense, are carried at cost, which approximates fair value due to the short duration and term to maturity.

The Company's investment in AvenCell Therapeutics, Inc. ("AvenCell") was initially recorded at fair value, determined according to Level 3 inputs in the fair value hierarchy described above. Refer to Note 8 for further details.

The Company's investment in SparingVision SAS ("SparingVision") was initially recorded at fair value, determined according to Level 3 inputs in the fair value hierarchy described above. The Company's investment in Kyverna Therapeutics, Inc. ("Kyverna") was recorded at cost, which is representative of fair value. Refer to Note 8 for further details. The SparingVision and Kyverna investments (the "investments") are included in "Investments and other assets" on the condensed consolidated balance sheet. There were no changes in observable prices of these investments as of June 30, 2022.

As discussed further in Note 9, *Rewrite Acquisition*, under the Merger Agreement, the Rewrite Holders are eligible to receive up to an additional $25.0 million in research milestone payments, payable in the Company's common stock valued using the volume-weighted average price of the Company's stock over the ten-day trading period ending two trading days prior to the date on which the applicable milestone is achieved. As such research milestone is payable in the Company's common stock, the milestone payment results in liability classification under ASC 480. This contingent consideration liability is carried at fair value which was estimated by applying a probability-based model, which utilized inputs based on timing of achievement that were unobservable in the market. The contingent consideration liability, which is recorded in "Other long-term liabilities" on the condensed consolidated balance sheet, is classified within Level 3 of the fair value hierarchy.

The following table reconciles the change in fair value of the contingent consideration liability based on the level 3 inputs listed below (in thousands):

	For the six months ended June 30, 2022
Balance at February 2, 2022 (at inception)	$ 10,541
Change in fair value	249
Balance at June 30, 2022	$ 10,790

	As of inception (February 2, 2022)	As of June 30, 2022
Discount rate	7%	11%
Probability of achievement	50%	50%
Projected year of achievement	2023-2024	2023-2024

5. Accrued Expenses

Accrued expenses consisted of the following:

	June 30, 2022	December 31, 2021
	(In thousands)	
Accrued research and development	$ 25,278	$ 16,979
Employee compensation and benefits	12,879	20,359
Accrued legal and professional expenses	1,955	3,100
Accrued other	4,759	2,871
Total accrued expenses	$ 44,871	$ 43,309

6. Commitments and Contingencies

Litigation

There have been no material changes to any of the outstanding litigation, nor is the Company a party to any new litigation, since December 31, 2021. For further information please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

License Agreements

The Company is party to license agreements, which include contingent payments. These payments will become payable if and when certain development, regulatory and commercial milestones are achieved. As of June 30, 2022, the satisfaction and timing of the contingent payments is uncertain and not reasonably estimable.

7. Collaborations and Other Arrangements

To accelerate the development and commercialization of CRISPR/Cas9-based products in multiple therapeutic areas, the Company has formed, and intends to seek other opportunities to form, strategic alliances with collaborators who can augment its leadership in CRISPR/Cas9 therapeutic development. As of June 30, 2022, the Company's accounts receivable were related to its collaboration with Regeneron Pharmaceuticals, Inc. ("Regeneron"), and the Company's contract liabilities were related to its collaborations with Regeneron, AvenCell, SparingVision and Kyverna. As of December 31, 2021, the Company's accounts receivable were related to its collaborations with Regeneron and AvenCell and the Company's contract liabilities were related to its collaborations with Regeneron, AvenCell, SparingVision and Kyverna.

The following table presents changes in the Company's accounts receivable and contract liabilities during the six months ended June 30, 2022 and 2021 (in thousands):

	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
Six Months Ended June 30, 2022				
Accounts receivable	$ 2,031	$ 4,655	$ (3,832)	$ 2,854
Contract liabilities - deferred revenue	$ 127,235	$ -	$ (30,099)	$ 97,136

	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
Six Months Ended June 30, 2021				
Accounts receivable	$ 2,130	$ 3,079	$ (3,216)	$ 1,993
Contract liabilities - deferred revenue	$ 73,931	$ -	$ (11,179)	$ 62,752

During the six months ended June 30, 2022 and 2021, the Company recognized the following revenues as a result of changes in the contract liability balance (in thousands):

	Six Months Ended June 30,	
Revenue recognized in the period from:	2022	2021
Amounts included in the contract liability at the beginning of the period	$ 24,443	$ 11,179

Costs to obtain and fulfill a contract

The Company did not incur any expenses to obtain collaboration agreements and costs to fulfill those contracts do not generate or enhance resources of the Company. As such, no costs to obtain or fulfill a contract have been capitalized in any period.

Regeneron Pharmaceuticals, Inc.

License and Collaboration Agreement

In April 2016, the Company entered into a license and collaboration agreement with Regeneron (the "2016 Regeneron Agreement"). The 2016 Regeneron Agreement has two principal components: i) a product development component under which the parties will research, develop and commercialize CRISPR/Cas-based therapeutic products primarily focused on genome editing in the liver, and ii) a technology collaboration component, pursuant to which the Company and Regeneron will engage in research-related activities aimed at discovering and developing novel technologies and improvements to CRISPR/Cas technology to enhance the Company's genome editing platform. Under this agreement, the Company also may access the Regeneron Genetics Center and proprietary mouse models to be provided by Regeneron for a limited number of the Company's liver programs. At the inception of the 2016 Regeneron Agreement, Regeneron selected the first of its 10 targets, transthyretin ("ATTR") amyloidosis, which is subject to a co-development and co-promotion agreement between the Company and Regeneron (the "ATTR Co/Co").

On May 30, 2020, the Company entered into (i) amendment no. 1 (the "2020 Regeneron Amendment") to the 2016 Regeneron Agreement, (ii) co-development and co-funding agreements for the treatment of hemophilia A and hemophilia B (the "Hemophilia Co/Co") agreements and (iii) a stock purchase agreement. The collaboration expansion builds upon the jointly developed targeted transgene insertion capabilities designed to durably restore missing therapeutic protein, and to overcome the limitations of traditional gene therapy. The collaboration was extended until April 2024, at which point Regeneron has an option to renew for an additional two years. The 2020 Regeneron Amendment also grants Regeneron exclusive rights to develop products for five additional *in vivo* CRISPR/Cas-based therapeutic liver targets and non-exclusive rights to independently develop and commercialize up to 10 *ex vivo* gene edited products made using certain defined cell types.

Since December 31, 2021, there have been no material changes to the key terms of the 2016 Regeneron Agreement and the 2020 Regeneron Amendment (the "Amended Agreements"). For further information on the terms and conditions of these agreements, please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

Revenue Recognition – Collaboration Revenue. Through June 30, 2022, excluding amounts allocated to Regeneron's purchase of the Company's common stock, the Company recorded $145.0 million in upfront payments under the Amended Agreements and $38.9 million for research and development services, primarily under the ATTR Co/Co agreement. Through June 30, 2022, the Company has recognized $161.1 million of collaboration revenue under all arrangements, including $6.3 million and $12.1 million during the three and six months ended June 30, 2022, respectively, and $5.5 million and $12.0 million during the three and six months ended June 30, 2021, respectively, in the condensed consolidated statements of operations and comprehensive loss. This includes $2.9 million and $4.7 million during the three and six months ended June 30, 2022, respectively, and $1.0 million and $1.8 million during the three and six months ended June 30, 2021, respectively, primarily representing payments due from Regeneron pursuant to the ATTR Co/Co agreement. These revenues are offset in part by contra-revenue related to the Hemophilia Co/Co agreements amounting to $2.2 million and $3.7 million during the three and six months ended June 30, 2022, respectively, and $1.0 million during the three and six months ended June 30, 2021.

As of June 30, 2022, there was approximately $40.2 million of the aggregate transaction price of the Amended Agreements remaining to be recognized, which the Company expects to be recognized during the research term through April 2024.

As of June 30, 2022 and December 31, 2021, the Company had accounts receivable of $2.9 million and $2.0 million, respectively, related to the Amended Agreements. The Company had deferred revenue of $40.2 million and $51.4 million as of June 30, 2022 and December 31, 2021, respectively, related to the Amended Agreements.

AvenCell Therapeutics, Inc.

On July 30, 2021 (the "Effective Date"), the Company entered into two agreements with AvenCell, a privately held chimeric antigen receptor T ("CAR-T") cell therapy company formed on that date in a joint venture between the Company, Cellex Cell Professionals GmbH ("Cellex") and funds managed by Blackstone Life Sciences Advisors L.L.C. ("BXLS"): (i) a license and collaboration agreement (the "AvenCell LCA"), under which the Company will collaborate to develop allogeneic universal CAR-T cell therapies and which granted AvenCell a license to develop and commercialize genome edited universal CAR-T cell therapies (limited to its use with their switchable, universal CAR-T cell UniCAR and RevCAR platforms); and (ii) a co-development and co-funding agreement (the "AvenCell Co/Co"), under which the Company will co-develop and co-commercialize allogeneic universal CAR-T cell products for an immuno-oncology indication.

Since December 31, 2021, there have been no material changes to the key terms of the AvenCell LCA and AvenCell Co/Co agreements. For further information on the terms and conditions of these agreements, please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

Revenue Recognition – Collaboration Revenue. The Company recognized $5.7 million and $11.3 million in revenue related to the AvenCell LCA for the three and six months ended June 30, 2022, respectively, after eliminating $2.8 million and $5.7 million during those respective periods in intra-entity profits, which will be deferred and recognized if and when AvenCell commercializes a product with the Company's license or abandons the related project. Until such time, the $5.7 million of revenue is indefinitely deferred and excluded from the results of operations of the Company. The Company recognized $0.1 million in revenue in the three months ended June 30, 2022 and $0.1 million in contra-revenue in the six months ended June 30, 2022 related to the AvenCell Co/Co agreement.

As of June 30, 2022, there was approximately $37.1 million of the aggregate transaction price of the AvenCell LCA remaining to be recognized, which the Company expects to recognize through July 2023.

As of June 30, 2022, the Company did not have accounts receivable related to the AvenCell Co/Co or AvenCell LCA agreements. As of December 31, 2021, the Company had $0.1 million in accounts receivable related to the AvenCell Co/Co agreement. The Company had deferred revenue of $37.1 million and $54.1 million as of June 30, 2022 and December 31, 2021, respectively, related to the AvenCell LCA.

SparingVision SAS

In October 2021, the Company and SparingVision, a genomic medicine company developing vision saving treatments for ocular diseases, entered into a license and collaboration agreement (the "SparingVision LCA") to develop novel genomic medicines utilizing CRISPR/Cas9 technology for the treatment of ocular diseases.

Since December 31, 2021, there have been no material changes to the key terms of the SparingVision LCA agreement. For further information on the terms and conditions of these agreements, please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

The Company did not recognize collaboration revenue in the three or six months ended June 30, 2022 and 2021 related to the SparingVision LCA. As of June 30, 2022 and December 31, 2021, the Company did not have accounts receivable related to the SparingVision LCA. As of June 30, 2022 and December 31, 2021, the Company had deferred revenue of $14.8 million related to the SparingVision LCA, which is expected to be recognized over a three to five year period.

Kyverna Therapeutics, Inc.

In December 2021, the Company and Kyverna, a cell therapy company engineering a new class of therapies for autoimmune and inflammatory diseases, entered into a licensing and collaboration agreement (the "Kyverna LCA"), for the development of an allogeneic CD19 CAR-T cell therapy for the treatment of a variety of B cell-mediated autoimmune diseases.

Since December 31, 2021, there have been no material changes to the key terms of the Kyverna LCA agreement. For further information on the terms and conditions of this agreement, please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

The Company recognized $2.0 million in revenue for the three and six months ended June 30, 2022, related to the Kyverna LCA. As of June 30, 2022 and December 31, 2021, the Company did not have accounts receivable related to the Kyverna LCA. As of June 30, 2022 and December 31, 2021 the Company had deferred revenue of $5.0 million and $7.0 million, respectively, related to the Kyverna LCA, which is expected to be recognized through January 2023.

ONK Therapeutics, Ltd.

On February 12, 2022 the Company entered into a license, collaboration and option agreement (the "ONK LCA") with ONK Therapeutics, Ltd. ("ONK"), an innovative company dedicated to developing optimally engineered natural killer ("NK") cell therapies to cure patients with cancer.

Scope: The agreement grants ONK a non-exclusive license to the Company's proprietary *ex vivo* CRISPR/Cas9-based genome editing platform and its Lipid Nanoparticle ("LNP")-based delivery technologies for development of up to five allogeneic NK cell therapy products, which license is exclusive with respect to certain guide ribonucleic acids ("gRNAs").

Responsibilities in the earlier stage of the license and collaboration agreement (the "evaluation program") will be shared between the two parties, with each party bearing their own cost burden. Upon completion of the evaluation program, ONK will identify up to five allogeneic targets for further development under a development program. Once these allogeneic targets have been selected by ONK, any further development costs incurred by the Company are eligible for reimbursement. ONK will be responsible for preclinical and clinical development for the engineered NK cell therapies enabled by the agreement.

Financial Terms: The Company will be eligible to receive up to $184 million per product in future development and commercial milestone payments as achieved, as well as up to mid-single digit royalties on potential future sales. In addition, the agreement grants the Company options to co-develop and co-commercialize up to two products developed through the collaboration worldwide with rights to lead commercialization in the U.S. There is no fee related to the exercise of these co-development and co-commercialization options.

Governance: The parties formed a joint steering committee, which is responsible for monitoring and managing the collaboration prior to program completion.

ONK LCA – Accounting Analysis: The Company determined that the accounting for the ONK LCA is within the scope of Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers (Topic 606)* and its related amendments (collectively known as ASC 606). The Company identified one combined performance obligation related to the license, evaluation and development programs. The LCA did not include an exchange of upfront consideration between the parties. As the ONK LCA progresses, the Company will incur certain expenses. Expenses incurred under the evaluation program will be accounted for under ASC 730, *Research and Development*. Reimbursements under the development programs represent variable constrained consideration, whereas the Company is acting as the principal, and revenue will be recognized as expenses are incurred. Milestone payments and royalties are constrained consideration and will be recorded as revenue upon achievement. There was no revenue recognized in the three or six months ended June 30, 2022 related to the ONK LCA.

Novartis Institutes for BioMedical Research, Inc.

In December 2014, the Company entered into a strategic collaboration agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis") (the "2014 Novartis Agreement"), primarily focused on the research of new *ex vivo* CRISPR/Cas9-edited therapies using CAR-T cells and hematopoietic stem cells ("HSCs"). The agreement was amended in December 2018 (the "Novartis Amendment") to also include research on ocular stem cells ("OSCs"). In December 2019, per the terms of the 2014 Novartis Agreement, the research term ended, although the 2014 Novartis Agreement remains in effect, for which the Company will be eligible to receive milestone and royalty payments in the future. In June 2021, the Company entered into Amendment No. 3 (the "Amendment") to the 2014 Novartis Agreement. The Amendment amends Novartis' rights with respect to all of the CAR-T Therapeutic Targets (as defined in the 2014 Novartis Agreement) that Novartis selected under the 2014 Novartis Agreement, including (a) making Novartis' license non-exclusive for such CAR-T Therapeutic Targets, (b) removing Novartis' diligence and related reporting obligations for such CAR-T Therapeutic Targets, and (c) refining the scope of Novartis' sublicense rights for such CAR-T Therapeutic Targets. The Company made a one-time payment to Novartis of $10.0 million within 30 days after the effective date of the Amendment, which was recorded as research and development expense in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2021. Since December 31, 2021, there have been no other material changes to the key terms of the 2014 Novartis Agreement and the Novartis Amendments. For further information on the terms and conditions of these agreements, please see the notes to the consolidated financial statements included in the Company's Annual Report for the year ended December 31, 2021.

Revenue Recognition – Milestone: No milestones under the 2014 Novartis Agreement and the Novartis Amendments were achieved during the three or six months ended June 30, 2022 and 2021. The Company is eligible to receive additional downstream success-based milestones and royalties.

As of June 30, 2022 and December 31, 2021, the Company had no accounts receivable or deferred revenue related to the 2014 Novartis Agreement and the Novartis Amendments.

8. Equity-Method Investment and Other Investments

On July 30, 2021, the Company finalized a transaction in which the Company, Cellex and BXLS established AvenCell, a joint venture and privately held company. In exchange for contributing an exclusive license to the joint venture, the Company entered into a Preferred Stock Purchase Agreement with AvenCell for a 33.33% equity interest in AvenCell at the time of the initial closing. Cellex and BXLS each equally owned the remaining 66.67% at that time.

The Company has significant influence over, but does not control, AvenCell through its noncontrolling representation on AvenCell's Board of Directors and the Company's equity interest in AvenCell. The Company has determined that the preferred stock it owns is in-substance common stock. The Company is not the primary beneficiary as it does not have the power to direct the activities of AvenCell that most significantly impact AvenCell's economic performance. Accordingly, the Company does not consolidate the financial statements of AvenCell and accounts for its investment using the equity method of accounting.

As of the closing date, the fair value of the Company's investment in AvenCell was $62.9 million which represented the fair value of the preferred stock received in exchange for the exclusive license to the Company's CRISPR/Cas9 allogeneic platform (see Note 7). In determining the fair value of the Company's investment, the Company used an option pricing model which requires the input of certain subjective assumptions. The key assumptions used in the option pricing model, which are level 3 inputs, include the anticipated holding period to an exit and liquidity event, the volatility of market participants (76%), the probability of AvenCell achieving certain milestones to obtain subsequent financings (75%) and the discount for lack of marketability (11%).

The Company recorded the initial investment in AvenCell of $62.9 million in “Equity method investments” on its condensed consolidated balance sheet. Due to the timing and availability of AvenCell's financial information, the Company is recording its share of losses from AvenCell on a quarterly basis on a one-quarter lag. During the second quarter of 2022, the Company recorded its share of the three months of AvenCell's losses generated in the first quarter of 2022 in the Company's operating results and other comprehensive loss, resulting in a reduction of the Company's investment by $3.8 million and $6.9 million for the three and six months ended June 30, 2022, respectively. The elimination of the intra-entity profit component of $2.8 million and $5.7 million (see Note 7) in the three and six months ended June 30, 2022, respectively, resulted in a further reduction in the balance of the investment in AvenCell, bringing the carrying value of the investment to $45.6 million as of June 30, 2022. The Company is not aware of any material events or transactions during the quarter ended June 30, 2022 that would warrant additional disclosure or recognition in the financial statements.

At June 30, 2022, the maximum exposure to loss is limited to the Company’s equity investment in the joint venture.

SparingVision SAS

In connection with the SparingVision LCA (see Note 7), the Company received 83,316 shares of SparingVision Series A2 Preferred Stock (“Series A2”). Attached to each share of Series A2, the Company received three warrants for the right to purchase additional Series A2 shares at designated prices that are subject to certain vesting conditions (collectively referred to as the “SparingVision investments”). The Company accounts for the SparingVision investments using the measurement alternative as SparingVision is a private company and there is no readily observable transaction price. In determining the fair value of the SparingVision investments, the Company used an option pricing model which requires the input of certain subjective assumptions. The key assumptions used in the option pricing model, which are level 3 inputs, include the anticipated holding period to an exit and liquidity event, the volatility of market participants (90%), and the rate of return (65%). The Company recorded the initial investment in SparingVision of $14.8 million in “Investments and other assets” on its condensed consolidated balance sheet. There was no change in the observable price or impairment of the SparingVision investment as of June 30, 2022.

Kyverna Therapeutics, Inc.

In connection with the Kyverna LCA (see Note 7), the Company received 3,739,515 shares of Kyverna Series B Preferred Stock (“Series B”) with a fair value of $7.0 million. The Company separately made an additional investment in Kyverna, purchasing 1,602,649 shares of Series B in exchange for $3.0 million in cash (collectively referred to as the “Kyverna investments”). The Company accounts for the Kyverna investments using the measurement alternative as Kyverna is a private company and there is no readily observable transaction price. The Company recorded the initial investment in Kyverna of $10.0 million in “Investments and other assets” on its condensed consolidated balance sheet. There was no change in the observable price or impairment of the Kyverna investment as of June 30, 2022.

9. Rewrite Acquisition

On February 2, 2022, the Company entered into the Rewrite Merger Agreement. Under the Rewrite Merger Agreement, the Company paid the Rewrite Holders upfront consideration in an aggregate amount of $45.0 million, excluding customary purchase price adjustments and closing costs, payable in cash. Pursuant to the Rewrite Merger Agreement, the Company acquired all of the issued and outstanding shares of Rewrite. The Rewrite transaction resulted in the acquisition of certain know-how and IP assets related to Rewrite’s proprietary DNA writing technology. The Company's management determined that the acquired assets do not meet the definition of a business pursuant to ASC 805, *Business Combinations*, as substantially all of the fair value of the acquired assets is concentrated into one identifiable asset, the DNA writing technology. As of the date of closing of the transactions contemplated by the Rewrite Merger Agreement (the “Rewrite Merger Agreement Date”), the asset acquired had no alternative future use and had not reached a stage of technological feasibility. As a result, all payment obligations have been recorded as research and development expense in the condensed consolidated statements of operations and other comprehensive loss in the amount of $56.0 million. The total transaction price was allocated to the assets acquired and liabilities assumed on a relative fair value basis.

In addition, the Rewrite Holders are eligible to receive up to an additional $155.0 million in milestone payments upon the achievement of certain pre-specified research and regulatory approval milestones, payable through a mixture of $130.0 million in cash and $25.0 million in the Company’s common stock which will be valued using the volume-weighted average price of the

Company’s Common Stock over the ten consecutive trading day period ending on and including the trading day that is two trading days immediately prior to the issuance of the consideration issued in connection with the applicable milestone.

The Company determined that the research milestone settled in the Company’s common stock is classified as a contingent consideration liability under ASC 480 and therefore the Company recorded a liability for this milestone payment as of the Rewrite Merger Agreement Date at its fair value of $10.5 million. The contingent consideration liability is remeasured at fair value each financial reporting period, with the resulting impact reflected in the Company’s condensed consolidated statements of operations and other comprehensive loss, presented within other (expense) income. The milestones that will be settled in cash will be recorded when the contingency is resolved and the consideration is paid or becomes payable. As of June 30, 2022, none of the milestones that will be settled in cash were resolved.

The transaction price was determined and allocated as follows (in thousands):

Transaction Price		
Upfront cash consideration	$	43,730
Research contingent consideration liabilities		10,541
Transaction costs		1,838
Total transaction price	$	56,109
Transaction Price Allocated		
In-process research and development	$	55,990
Cash acquired		287
Other current assets acquired		153
Other liabilities assumed		(321)
Total transaction price	$	56,109

10. Leases

In January 2022, the Company entered into an agreement to lease approximately 38,000 square feet of office and laboratory space at 730 Main Street, Cambridge, Massachusetts under an operating lease agreement (the “730 Main Lease”). The 730 Main Lease, including the obligation to pay rent, is expected to commence in October 2022 for an initial term of ten years. During the six months ended June 30, 2022 the Company did not record a right of use asset or liability related to the 730 Main Lease under ASC 842, *Leases (Topic 842)*(“ASC 842”) as the Company had not taken control of the premises. The base rent under the 730 Main Lease is $130.00 per square foot per year during the first year of the term, which is subject to scheduled annual increases up to $169.62 per square foot per year during the last year of the initial term, plus certain operating expenses and taxes. In accordance with the 730 Main Lease, the Company is required to maintain a letter of credit in the amount of $2.4 million that is restricted for the term of the lease. The restricted cash equivalents are reported in “Investments and other assets” on the Company's condensed consolidated balance sheet. The Company has the option to extend the 730 Main Lease for one five-year term.

In February 2022, the Company entered into an agreement to lease approximately 140,000 square feet of manufacturing space located at 840 Winter Street, Waltham, Massachusetts (the “840 Winter Lease”), which will provide the Company with the ability to manufacture its own products in a good manufacturing practice (“GMP”) compliant facility as well as to supplement the Company’s current leased premises in Cambridge, Massachusetts. The 840 Winter Lease, including the obligation to pay rent, is expected to commence in February 2024 for an initial term of twelve years. The Company did not record a right of use asset or liability related to the 840 Winter Lease under ASC 842 during the six months ended June 30, 2022, as the Company had not taken control of the premises. The base rent under the 840 Winter Lease is $73.50 per square foot per year during the first year of the term, which is subject to scheduled 3% annual increases, plus certain operating expenses and taxes. In accordance with the 840 Winter Lease, the Company is required to maintain an initial letter of credit in the amount of $2.6 million. On or before January 1, 2023, the Company will replace the initial letter of credit with a replacement letter of credit in the amount of $6.0 million. As of June 30, 2022, the restricted cash equivalents related to the initial letter of credit are reported in “Investments and other assets” on the Company's condensed consolidated balance sheet. The Company has the option to extend the 840 Winter Lease for two five-year terms.

In June 2022, the Company entered into an agreement to lease approximately 62,000 square feet of office and laboratory space located at 640 Memorial Drive, Cambridge, Massachusetts under an operating lease agreement (the “640 Memorial Drive

Lease”). The 640 Memorial Drive Lease, including the obligation to pay rent, is expected to commence in September 2022 for a term of five years. During the period ended June 30, 2022 the Company did not record a right of use asset or liability related to the 640 Memorial Drive Lease under ASC 842 as the Company had not taken control of the premises. The base rent under the 640 Memorial Drive Lease is approximately $97 per square foot per year during the first year of the term, which is subject to scheduled annual increases up to approximately $138 per square foot per year during the last year of the term, plus certain operating expenses and taxes. The landlord will also contribute approximately $1.2 million toward the cost of tenant improvements for the premises. In accordance with the 640 Memorial Drive Lease, the Company is required to maintain a letter of credit in the amount of $1.8 million that is restricted for the term of the lease. The restricted cash equivalents are reported in “Investments and other assets” on the Company's condensed consolidated balance sheet. The Company does not have an option to extend the 640 Memorial Drive Lease.

11. Equity-Based Compensation

Equity-based compensation expense is classified in the condensed consolidated statements of operations and comprehensive loss as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
	(In thousands)			
Research and development	$ 14,079	$ 6,135	$ 24,353	$ 9,626
General and administrative	8,989	4,479	17,206	7,412
Total	$ 23,068	$ 10,614	$ 41,559	$ 17,038

Amended and Restated 2015 Stock Option and Incentive Plan

In April 2016, the Company adopted the Amended and Restated 2015 Stock Option and Incentive Plan (the “2015 Plan”). The 2015 Plan provides for the grant of incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock awards (“RSAs”), restricted stock units (“RSUs”) and other stock-based awards. Recipients of incentive stock options and non-qualified stock options are eligible to purchase shares of the Company’s common stock at an exercise price equal to the fair value of such stock on the grant date. Stock options granted under the 2015 Plan generally vest 25% on the first anniversary of the original vesting date, with the balance vesting monthly over the remaining three years, unless they contain specific performance-based vesting provisions. The maximum term of stock options granted under the 2015 Plan is ten years.

Effective July 1, 2022, the Company adopted a retirement policy for equity awards granted to all employees other than the Company’s CEO (the “Policy”). The Policy applies to all equity awards granted to employees who meet certain retirement eligibility criteria set forth in the Policy (the “Retirees”). Pursuant to the terms of the Policy, upon a Retiree’s eligible retirement: (i) all stock options held by the Retiree will continue to vest following the Retiree’s retirement date according to the original vesting schedule of the option until fully vested and all vested stock options held by such Retiree will remain exercisable until the earlier of the five-year anniversary of the Retiree’s retirement date or the original expiration date of the option, (ii) all unvested time-based RSUs held by the Retiree will vest in full on the Retiree’s retirement date and (iii) all unvested performance-based awards held by the Retiree will remain outstanding following the Retiree’s retirement date and the Retiree will remain eligible to earn a pro-rated portion of such performance-based awards at the end of the performance period based on actual performance during the performance period.

As of June 30, 2022, there were 3,803,557 shares available for future issuance under the 2015 Plan. The number of shares reserved for issuance under the 2015 Plan will be cumulatively increased on each January 1st by four percent of the number of shares of stock issued and outstanding on the immediately preceding December 31 or such lesser number of shares of stock as determined by the board of directors.

Restricted Stock Units

RSUs are measured at fair value based on the quoted price of the Company’s common stock.

The following table summarizes the Company’s RSU activity for the six months ended June 30, 2022:

	Number of Shares	Weighted Average Grant Date Fair Value per Share
Unvested restricted stock units as of December 31, 2021	453,026	$ 71.03
Granted	1,327,420	76.57
Vested	(91,181)	66.23
Cancelled	(54,137)	74.32
Unvested restricted stock units as of June 30, 2022	1,635,128	$ 75.69

In March 2022, the Company granted 794,424 RSUs with a service condition to employees as part of their annual grant, which vest over a period of three years. The weighted average grant date fair value of these RSUs was $79.85 and the vesting start date for these RSUs was January 1, 2022.

Also in March 2022, 55,144 RSUs were granted to senior executives as part of their annual grant. These RSUs have the potential to vest after a period of 3 years, with a vesting start date of January 1, 2022, and the number of shares to be delivered will depend on the Company's Total Shareholder Return (“TSR”), a market condition, over that period relative to a defined group of biotechnology companies. The grant date fair value for these RSUs, calculated using a Monte Carlo valuation model, was $126.49. The following assumptions were used to determine the grant date fair value: Risk free interest rate: 1.44%; expected dividend yield: 0.0%; expected volatility: 82.53%; expected term (in years): 2.84.

The Company also granted 66,296 performance-based RSUs in March 2022 to certain non-executive employees that would vest upon obtaining certain scientific milestones. As of June 30, 2022 these performance milestones were considered not probable of achievement and, therefore, no stock-based compensation was recorded during the period then ending.

The weighted-average grant date fair value of RSUs granted during the three and six months ended June 30, 2022 was $55.16 and $76.57, respectively. The total fair value of RSUs vested (measured on the date of vesting) for the three and six months ended June 30, 2022 was $1.5 million and $8.0 million, respectively. The weighted-average grant date fair value of RSUs granted during the three and six months ended June 30, 2021 was $77.07 and $62.82, respectively. The total fair value of RSUs vested (measured on the date of vesting) for the three and six months ended June 30, 2021 was $1.9 million.

As of June 30, 2022, there was $105.1 million of unrecognized equity-based compensation expense related to RSUs that are expected to vest. These costs are expected to be recognized over a weighted average remaining vesting period of 2.5 years.

Stock Options

The weighted average grant date fair value of options, estimated as of the grant date using the Black-Scholes option pricing model, was $28.76 and $57.23 per option for those options granted during the three and six months ended June 30, 2022 and $48.44 and $38.70 per option for those options granted during the three and six months ended June 30, 2021, respectively. The total intrinsic value (the amount by which the fair market value exceeded the exercise price) of stock options exercised during the three and six months ended June 30, 2022 was $10.5 million and $40.4 million, respectively, and during the three and six months ended June 30, 2021 was $29.7 million and $84.5 million, respectively. Weighted average assumptions used to apply this pricing model were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Risk-free interest rate	3.4%	1.1%	1.9%	0.9%
Expected life of options	5.6 years	6.0 years	5.9 years	6.0 years
Expected volatility of underlying stock	77.9%	73.0%	76.2%	72.2%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%

Risk-free Interest Rate. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant with maturities approximately equal to the option's expected term.

Expected Dividend Yield. The expected dividend yield assumption is based on the fact that the Company has never paid cash dividends and has no present intention to pay cash dividends.

Expected Volatility. The expected volatility was derived from a blend of the Company's historical volatility and an average of the historical stock volatilities of several peer companies within the Company's industry, both over a period equivalent to the expected term of the stock option grants.

Expected Term. The expected term represents the period that stock option awards are expected to be outstanding. For option grants that are considered to be "plain vanilla," the Company determines the expected term using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual life of the options. The Company uses the simplified method because it does not have sufficient historical option exercise data to provide a reasonable basis upon which to estimate the expected term.

The Company uses the market closing price of its common stock as reported on the Nasdaq Global Select Market to determine the fair value of the shares of common stock underlying stock options. The following is a summary of stock option activity for the six months ended June 30, 2022:

	Number of Options	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
			(In years)	(In thousands)
Outstanding at December 31, 2021	6,305,156	$ 43.57		
Granted	391,910	86.08		
Exercised	(819,577)	16.18		
Forfeited	(240,948)	51.76		
Outstanding at June 30, 2022	5,636,541	$ 50.15	7.90	$ 105,931
Exercisable at June 30, 2022	2,523,936	$ 30.36		

As of June 30, 2022, there was $120.9 million of unrecognized compensation cost related to stock options that have not yet vested. These costs are expected to be recognized over a weighted average remaining vesting period of 2.7 years.

2016 Employee Stock Purchase Plan

In May 2016, the Company adopted the 2016 Employee Stock Purchase Plan (the "2016 Plan"). The 2016 Plan allows eligible employees to purchase shares of the Company's common stock on the last day of each predetermined six-month offering period at 85% of the lower of the fair market value per share at the beginning or end of the applicable offering period. The 2016 Plan provides for six-month offering periods beginning in January and July of each year.

As of June 30, 2022, there were 1,272,886 shares available for future issuance under the 2016 Plan. The number of shares reserved for issuance under the 2016 Plan will be cumulatively increased on each January 1st by the lesser of a) one percent of the number of shares of common stock issued and outstanding on the immediately preceding December 31, b) 500,000 shares of common stock, or c) such lesser number of shares of common stock as determined by the board of directors.

During the six months ended June 30, 2022 and 2021 the Company issued 24,316 and 20,410 shares of common stock under the 2016 Plan, respectively. The weighted-average purchase prices of shares issued under the 2016 Plan were $44.00 and $47.52 per share for the six-month periods ended June 30, 2022 and 2021, respectively.

The fair value of the awards issued under the 2016 Plan to employees was estimated at the beginning of the offering period using a Black-Scholes option-pricing model with the following assumptions:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Risk-free interest rate	0.22%	0.09%	0.22%	0.09%
Expected term (in years)	0.5 years	0.5 years	0.5 years	0.5 years
Expected volatility of underlying stock	63.6%	77.5%	63.6%	77.5%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%

12. Loss Per Share

The Company calculates basic loss per share by dividing net loss for each respective period by the weighted average number of common shares outstanding for each respective period. The Company computes diluted loss per share after giving consideration to the dilutive effect of stock options and unvested restricted stock that are outstanding during the period, except where such securities would be anti-dilutive.

Basic and diluted loss per share was calculated as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
	(In thousands)			
Net loss	$ (100,678)	$ (68,806)	$ (247,550)	$ (115,011)
Weighted average shares outstanding, basic and diluted	75,823	68,164	75,282	67,675
Net loss per share, basic and diluted	$ (1.33)	$ (1.01)	$ (3.29)	$ (1.70)

The following common stock equivalents were excluded from the calculation of diluted loss per share because their inclusion would have been anti-dilutive:

	Three and Six Months Ended June 30,	
	2022	2021
	(In thousands)	
Unvested restricted stock units	1,635	497
Stock options	5,637	7,264
	7,272	7,761

13. Stockholders' Equity

The following tables present changes in stockholders' equity for the six-month periods ended June 30, 2022 and 2021 (in thousands, except share data):

	Common Shares	Common Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2021	74,485,883	$ 7	$ 1,745,870	$ (2,632)	$ (703,001)	$ 1,040,244
Issuance of common stock through at-the-market offerings, net of issuance costs of $164	579,788	1	38,885	-	-	38,886
Exercise of stock options	503,830	-	8,435	-	-	8,435
Vesting of restricted stock units	54,666	-	-	-	-	
Equity-based compensation	-	-	18,491	-	-	18,491
Other comprehensive loss - unrealized loss on marketable securities	-	-	-	(5,128)	-	(5,128)
Other comprehensive loss - equity method investment	-	-	-	(302)	-	(302)
Net loss	-	-	-	-	(146,872)	(146,872)
Balance at March 31, 2022	75,624,167	8	1,811,681	(8,062)	(849,873)	953,754
Exercise of stock options	315,747	-	4,827	-	-	4,827
Vesting of restricted stock units	36,515	-	-	-	-	-
Issuance of shares under employee stock purchase plan	24,316	-	1,068	-	-	1,068
Equity-based compensation	-	-	23,068	-	-	23,068
Other comprehensive loss - unrealized loss on marketable securities	-	-	-	(932)	-	(932)
Other comprehensive loss - equity method investment	-	-	-	(560)	-	(560)
Net loss	-	-	-	-	(100,678)	(100,678)
Balance at June 30, 2022	76,000,745	$ 8	$ 1,840,644	$ (9,554)	$ (950,551)	$ 880,547

	Common Shares	Common Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2020	66,234,056	$ 7	$ 962,173	$ 1	$ (435,109)	$ 527,072
Issuance of common stock through at-the-market offerings, net of issuance costs of $52	641,709	-	45,255	-	-	45,255
Exercise of stock options	1,014,569	-	13,340	-	-	13,340
Equity-based compensation	-	-	6,424	-	-	6,424
Other comprehensive loss - unrealized loss on marketable securities	-	-	-	(13)	-	(13)
Net loss	-	-	-	-	(46,205)	(46,205)
Balance at March 31, 2021	67,890,334	7	1,027,192	(12)	(481,314)	545,873
Exercise of stock options	394,801	-	6,163	-	-	6,163
Vesting of restricted stock units	26,235	-	-	-	-	-
Issuance of shares under employee stock purchase plan	20,410	-	970	-	-	970
Equity-based compensation	-	-	10,614	-	-	10,614
Other comprehensive loss - unrealized loss on marketable securities	-	-	-	(1)	-	(1)
Net loss	-	-	-	-	(68,806)	(68,806)
Balance at June 30, 2021	68,331,780	$ 7	$ 1,044,939	$ (13)	$ (550,120)	$ 494,813

Follow-on Offering

On June 29, 2021, the Company entered into an underwriting agreement related to a public offering of 4,758,620 shares of its common stock (inclusive of shares sold pursuant to the exercise of the underwriters' option to purchase additional shares) at a public offering price of $145.00 per share. The offering closed on July 2, 2021, for aggregated net proceeds of $648.3 million after deducting $41.7 million in underwriting discounts and offering costs.

At-the-Market Offering Programs

In August 2019, the Company entered into an Open Market Sale Agreement (the "2019 Sale Agreement") with Jefferies LLC ("Jefferies"), under which Jefferies was able to offer and sell, from time to time in "at-the-market" offerings, common stock having aggregate gross proceeds of up to $150.0 million. The Company agreed to pay Jefferies cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2019 Sale Agreement.

During the six months ended June 30, 2022, the Company issued 579,788 shares of its common stock, in a series of sales, at an average price of $69.43 per share, in accordance with the 2019 Sale Agreement for aggregate net proceeds of $38.9 million, after payment of cash commissions to Jefferies and approximately $0.2 million related to legal, accounting and other fees in connection with the sales. As of June 30, 2022, $7.2 million in shares of common stock remain eligible for sale under the 2019 Sale Agreement.

In February 2022, the Company entered into an Open Market Sale Agreement (the "2022 Sale Agreement") with Jefferies, under which Jefferies will be able to offer and sell, from time to time in "at-the-market" offerings, common stock having aggregate gross proceeds of up to $400.0 million. The Company agreed to pay Jefferies cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2022 Sale Agreement. No shares of common stock were sold in the six months ended June 30, 2022 under the 2022 Sale Agreement.

14. Related Party Transactions

In the ordinary course of business, the Company may purchase materials or supplies from entities that are associated with a party that meets the criteria of a related party of the Company. These transactions are reviewed quarterly and to date have not been material to the Company's condensed consolidated financial statements.

The Company and AvenCell are parties to the AvenCell LCA and AvenCell Co/Co, as described in Note 7. The Company's relationship with AvenCell is considered to be as a related party due to the Company's 33.33% investment in AvenCell being accounted for under the equity method. The Company recognized $5.7 million and $11.3 million in revenue related to the AvenCell LCA for the three and six months ended June 30, 2022, respectively, after eliminating $2.8 million and $5.7 million during those respective periods in intra-entity profits, which will be deferred and recognized if and when AvenCell commercializes a product with the Company's license or abandons the related project. Until such time, the $5.7 million of revenue is indefinitely deferred and excluded from the results of operations of the Company. The Company recognized $0.1 million in revenue in the three months ended June 30, 2022 and $0.1 million in contra-revenue in the six months ended June 30, 2022 related to the AvenCell Co/Co agreement. As of June 30, 2022 the Company had deferred revenue of $37.1 million, comprised of $34.2 million in current deferred revenue and $2.9 million in non-current deferred revenue, related to the AvenCell LCA.

The Company and Kyverna are parties to the Kyverna LCA and are considered to be related parties because they have a common board member (see Note 7). The Company owns preferred stock of Kyverna, the value of which is included in "Investments and other assets" in the condensed consolidated balance sheets. The value of this investment was $10.0 million as of June 30, 2022. The Company recognized $2.0 million in revenue during the three and six months ended June 30, 2022 related to the Kyverna LCA. As of June 30, 2022, the Company had deferred revenue of $5.0 million related to the Kyverna LCA.

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

Forward-looking Information

This Quarterly Report on Form 10-Q contains forward-looking statements which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements may be identified by such forward-looking terminology as "may," "should," "expects," "intends," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "continue" or the negative of these terms or other comparable terminology. Our forward-looking statements are based on a series of expectations, assumptions, estimates and projections about our company, are not guarantees of future results or performance and involve substantial risks and uncertainty. We may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements. Our business and our forward-looking statements involve substantial known and unknown risks and uncertainties, including the risks and uncertainties inherent in our statements regarding:

- our ability to execute our clinical study strategy for NTLA-2001, our program for the treatment of transthyretin ("ATTR") amyloidosis, including the ability to successfully complete our Phase 1 study and determine a recommended dose in our ongoing Phase 1 study that can be advanced into later-stage studies, or the success of such program;
- our ability to execute our clinical study strategy for NTLA-2002, our program for the treatment of hereditary angioedema ("HAE"), including the ability to successfully complete our Phase 1/2 study and determine a recommended dose that can be advanced into later-stage studies, or the success of such program;
- the anticipated timing of our Investigational New Drug ("IND") or IND-equivalent filing for NTLA-3001, our program for the treatment of alpha-1 antitrypsin deficiency ("AATD")-associated lung disease, or the success of such program;
- our ability to successfully execute our development plans for our preclinical programs, including NTLA-2003 and NTLA-6001;
- our ability to use a modular platform capability or other strategies to efficiently discover and develop product candidates, including by applying learnings from one program to other programs;
- our ability to research, develop or maintain a pipeline of product candidates, including *in vivo* and allogeneic *ex vivo* product candidates;
- our ability to manufacture or obtain materials for our preclinical and clinical studies, and our product candidates;
- our ability to advance any product candidates into, and successfully complete, clinical studies, including clinical studies necessary for regulatory approval and commercialization, and to demonstrate to the regulators that the product candidates are safe, effective, pure and potent and that their benefits outweigh known and potential risks for the intended patient population;
- our ability to advance our genome editing and therapeutic delivery capabilities;
- the scope of protection we are able to develop, establish and maintain for intellectual property rights, including patents and license rights, covering our product candidates and technology;
- our ability to operate, including commercializing products, without infringing or breaching the proprietary or contractual rights of others;
- the issuance or enforcement of, and compliance with, regulatory requirements and guidance regarding preclinical and clinical studies relevant to genome editing and our product candidates;
- the market acceptance, pricing and reimbursement of our product candidates, if approved;
- estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- the potential benefits of strategic agreements, such as collaborations, co-development and co-commercialization, acquisitions, dispositions, mergers, joint ventures, and investment agreements, and our ability to establish and maintain strategic arrangements under favorable terms;

- our ability to acquire and maintain relevant intellectual property licenses and rights, and the scope and terms of such rights;
- developments relating to our licensors, licensees, third parties and ventures from which we derive or license rights, as well as collaborators, competitors and our industry;
- the effect of the ongoing COVID-19 pandemic, including mitigation efforts and economic effects, on any of the foregoing or other aspects of our business operations; and
- other risks and uncertainties, including those listed under the caption "Risk Factors."

All of our express or implied forward-looking statements are as of the date of this Quarterly Report on Form 10-Q only. In each case, actual results may differ materially from such forward-looking information. We can give no assurance that such expectations or forward-looking statements will prove to be correct. An occurrence of or any material adverse change in one or more of the risk factors or risks and uncertainties referred to in this Quarterly Report on Form 10-Q or included in our other public disclosures or our other periodic reports or other documents or filings filed with or furnished to the Securities and Exchange Commission (the "SEC") could materially and adversely affect our business, prospects, financial condition and results of operations. Except as required by law, we do not undertake or plan to update or revise any such forward-looking statements to reflect actual results, changes in plans, assumptions, estimates or projections or other circumstances affecting such forward-looking statements occurring after the date of this Quarterly Report on Form 10-Q, even if such results, changes or circumstances make it clear that any forward-looking information will not be realized. Any public statements or disclosures by us following this Quarterly Report on Form 10-Q that modify or impact any of the forward-looking statements contained in this Quarterly Report on Form 10-Q will be deemed to modify or supersede such statements in this Quarterly Report on Form 10-Q.

Management Overview

Intellia Therapeutics, Inc. ("we," "us," "our," "Intellia," or the "Company") is a leading clinical-stage genome editing company, focused on developing novel, potentially curative therapeutics leveraging CRISPR/Cas9-based technologies. CRISPR/Cas9, an acronym for Clustered, Regularly Interspaced Short Palindromic Repeats ("CRISPR")/CRISPR associated 9 ("Cas9"), is a technology for genome editing, the process of altering selected sequences of genomic deoxyribonucleic acid ("DNA"). To fully realize the transformative potential of CRISPR/Cas9-based technologies, we are building a full-spectrum genome editing company, by leveraging our modular platform, to advance *in vivo* and *ex vivo* therapies for diseases with high unmet need by pursuing two primary approaches. Our *in vivo* programs use intravenously administered CRISPR as the therapy, in which proprietary delivery technology enables highly precise editing of disease-causing genes directly within specific target tissues. Our *ex vivo* programs use CRISPR to create the therapy by using engineered human cells. Our deep scientific, technical and clinical development experience, along with our robust intellectual property ("IP") portfolio, have enabled us to take a leadership role in harnessing the full potential of genome editing to create new classes of genetic medicine.

Our management's discussion and analysis of our financial condition and results of operations are based upon our unaudited condensed consolidated financial statements included in this Quarterly Report on Form 10-Q, which have been prepared by us in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim periods and with Regulation S-X, promulgated under the Securities Exchange Act of 1934, as amended. This discussion and analysis should be read in conjunction with the unaudited condensed consolidated financial statements and the notes thereto included elsewhere in this Quarterly Report on Form 10-Q as well as in conjunction with the audited financial statements and notes thereto included in our Annual Report on Form 10-K ("Annual Report") for the year ended December 31, 2021.

Treating—and potentially curing—a broad range of severe diseases will require multiple gene editing approaches. With proprietary CRISPR/Cas9-based technology at the core of our platform, we continue to add new capabilities to expand our current solutions for addressing a multitude of life-threatening diseases. These additions include our proprietary base editor, as well as novel CRISPR enzymes, which provide us with the capabilities to achieve multiple editing strategies.

We continue to advance our platform's modular solutions and research efforts on genome editing technologies as well as delivery and cell engineering capabilities to generate additional development candidates.

Our mission is to transform the lives of people with severe diseases by developing curative genome editing treatments. We believe we can deliver on our mission and provide long-term benefits for all of our stakeholders by focusing on four key elements:

- Develop curative CRISPR/Cas9-based medicines;

- Advance our science;
- Be the best place to make therapies; and
- Focus on long-term sustainability.

Our strategy is to build a full-spectrum genome editing company, by leveraging our modular platform, to advance *in vivo* and *ex vivo* therapies for diseases with high unmet need. For *in vivo* applications to address genetic diseases, we deploy CRISPR/Cas9 as the therapy that targets cells within the body. In parallel, we are developing *ex vivo* applications to address immuno-oncology and autoimmune diseases, where CRISPR/Cas9 is the tool that creates the engineered cell therapy. All of our revenue to date has been collaboration revenue. Since our inception and through June 30, 2022, we have raised an aggregate of approximately $1,861.1 million to fund our operations through our initial public offering ("IPO") and concurrent private placements, follow-on public offerings, at-the-market offerings, and the sale of convertible preferred stock, as well as through our collaboration agreements.

Our lead *in vivo* candidate, NTLA-2001 for the treatment of transthyretin ("ATTR") amyloidosis, is the first CRISPR/Cas9-based therapy candidate to be administered systemically, via intravenous infusion, for precision editing of a gene in a target tissue in humans. In parallel, we are developing *ex vivo* applications to address immuno-oncology and autoimmune diseases, where CRISPR/Cas9 is the tool that creates the engineered cell therapy. For NTLA-5001, a wholly-owned, autologous T cell receptor ("TCR")-T cell candidate for the treatment of acute myeloid leukemia ("AML"), we are pivoting towards an allogeneic version of this program currently in preclinical development. In addition, Novartis Institutes for BioMedical Research, Inc. ("Novartis") is advancing a clinical program using our *ex vivo* technology to engineer hematopoietic stem cells ("HSCs") for the treatment of sickle cell disease.

Our Pipeline

In Vivo *Programs*

Our selection criteria include identifying diseases that originate in the liver; have well-defined mutations that can be addressed by a knockout or insertion approach; have readily measurable therapeutic endpoints with observable clinical responses; and for which effective treatments are absent, limited or unduly burdensome. Our initial *in vivo* indications target genetic liver diseases, including our ATTR amyloidosis, hereditary angioedema ("HAE") and alpha-1 antitrypsin deficiency ("AATD") development programs. Our current efforts on *in vivo* delivery focus on the use of lipid nanoparticles ("LNPs") for delivery of the CRISPR/Cas9 complex to the liver.

Transthyretin ("ATTR") Amyloidosis Program

NTLA-2001 is the first investigational CRISPR-based therapy to be systemically delivered to edit genes inside the human body and has the potential to be the first single-dose treatment for ATTR amyloidosis. Delivered with our *in vivo* LNP technology, NTLA-2001 offers the possibility of halting and reversing the disease by driving a deep, potentially lifelong reduction in transthyretin ("TTR") protein after a single dose. NTLA-2001 is being evaluated in a Phase 1, two-part, open-label study in adults with hereditary transthyretin amyloidosis with polyneuropathy ("ATTRv-PN") or transthyretin amyloidosis with cardiomyopathy ("ATTR-CM"). To date, over 30 patients have been treated across the polyneuropathy and cardiomyopathy arms. The growing body of data, particularly at the two highest doses tested, demonstrated treatment with NTLA-2001 resulted in rapid, deep and highly consistent reductions of serum TTR.

In the ATTR-CM arm, in August 2022, we announced the completion of the dose-escalation portion of the study. We are finalizing selection of a fixed dose, at or near the fixed-dose equivalent of the 0.7 mg/kg dose, for evaluation in the dose-expansion portion of the study, subject to regulatory approval. The selection is based on clinical data from patients with ATTR-CM dosed at the 0.7 mg/kg and 1.0 mg/kg doses which yielded similar TTR reductions. Additionally, both doses were generally well-tolerated. We remain on track to present interim data from the cardiomyopathy arm later this year.

In the ATTRv-PN arm, in August 2022, subject to regulatory approval, we announced plans to add a second cohort to the dose-expansion portion of the polyneuropathy arm, which will evaluate the same fixed dose selected for the dose-expansion portion of the cardiomyopathy arm cohort. The decision to study a second dose is based on the following: (1) the emerging data from the dose-escalation portion of the cardiomyopathy arm showed similar serum TTR reduction at both the 0.7 mg/kg and 1.0 mg/kg doses, (2) the comparability of performance at the 0.7 mg/kg and 1.0 mg/kg dose in the dose-escalation portion of the polyneuropathy arm, which led to an 86% and 93% mean and 97% and 98% maximum TTR reduction at day 28, respectively, and (3) a significant elevation in liver enzymes, which normalized without medical intervention, observed at day 28 in a patient treated in the dose-expansion portion of the polyneuropathy arm at the 80 mg dose (the fixed dose corresponding to 1.0 mg/kg). While the adverse event is considered possibly related to study drug, this patient was asymptomatic, had no increase in bilirubin and the event was deemed nonserious by the investigator. We plan to submit a protocol amendment to evaluate a fixed dose corresponding to 0.7 mg/kg in the dose-expansion portion, with enrollment across both arms expected to be completed by the end of 2022, subject to regulatory feedback.

In June 2022, we presented at the European Association for the Study of the Liver ("EASL") International Liver Congress 2022 updated interim data from our ongoing Phase 1 study of NTLA-2001 in patients with ATTRv-PN. Extended follow-up data from 15 ATTRv-PN patients, treated across all four single-ascending dose cohorts, showed deep, dose-dependent reductions in serum TTR observed with prior readouts were sustained through the last measured timepoint of follow-up, reaching 12 months in the 0.1 mg/kg and 0.3 mg/kg cohorts and six months in the 0.7 mg/kg and 1.0 mg/kg cohorts. Both 0.7 mg/kg and 1.0 mg/kg doses led to greater than 85% mean TTR reduction at day 28. The durability and persistence of effect continue to support NTLA-2001 as a potential one-time treatment to permanently inactivate the *TTR* gene and reduce the disease-causing protein.

NTLA-2001 is the subject of a co-development and co-promotion ("Co/Co") agreement directed to our first collaboration target with Regeneron Pharmaceuticals, Inc. ("Regeneron"), ATTR (the "ATTR Co/Co"), for which we are the clinical and commercial lead party and Regeneron is the participating party. Regeneron shares in approximately 25% of worldwide development costs and commercial profits for the ATTR program. For more information regarding our collaboration with Regeneron, see the section below entitled "**Collaborations and Other Arrangements - *Regeneron*"**.

Hereditary Angioedema ("HAE") Program

NTLA-2002 is our wholly-owned candidate for the treatment of HAE. We are progressing the single-ascending dose portion of our first-in-human study. We anticipate presenting interim data in the second half of 2022, including safety, kallikrein reduction and HAE attack rate data. These initial results are expected to characterize the emerging safety and activity profile of NTLA-2002, and potentially demonstrate the modularity of our proprietary, CRISPR-based, LNP platform.

Alpha-1 Antitrypsin Deficiency ("AATD") Program

NTLA-3001 for associated lung disease:

NTLA-3001 is our wholly-owned, first-in-class CRISPR-mediated *in vivo* targeted gene insertion development candidate for the treatment of AATD-associated lung disease. It is designed to precisely insert a functional copy of the *SERPINA1* gene, which encodes the alpha-1 antitrypsin ("A1AT") protein, with the potential to restore permanent expression of functional A1AT protein to therapeutic levels after a single dose. This approach seeks to improve patient outcomes, including eliminating the need for weekly IV infusions of A1AT augmentation therapy or lung transplant in severe cases. We are conducting investigational new drug ("IND")-enabling activities for NTLA-3001, with plans to file an IND or IND-equivalent in 2023.

NTLA-2003 for associated liver disease:

NTLA-2003 is our wholly-owned *in vivo* knockout development candidate for the treatment of AATD-associated liver disease. It is designed to inactivate the *SERPINA1* gene responsible for the production of abnormal A1AT protein in the liver. This approach aims to halt the progression of liver disease and eliminate the need for liver transplant in severe cases. We are conducting IND-enabling activities for NTLA-2003.

In Vivo *Research Programs*

We continue to work on various liver-focused programs, such as hemophilia A and hemophilia B, which we are co-developing with Regeneron, primary hyperoxaluria type 1, as well as other liver targets, which are worked on both independently and in partnership with Regeneron, which leverage our capabilities to knockout, insert and make consecutive edits to the genome.

In the third quarter of 2021, we and Regeneron, the lead party for this program, nominated a *Factor 9 ("F9")* gene insertion development candidate for our Hemophilia B ("Hem B") program, leveraging our jointly developed targeted transgene insertion capabilities to insert *F9*. *F9* is a gene that encodes for Factor IX ("FIX"), a blood-clotting protein that is missing or defective in Hem B patients. In preclinical studies, we and Regeneron demonstrated the first CRISPR/Cas9-mediated targeted transgene insertion in the liver of non-human primates ("NHPs"), which resulted in circulating FIX levels at or above those found in normal human plasma. At the 2019 American Society of Gene and Cell Therapy Annual Meeting, we presented data demonstrating the first CRISPR/Cas9-mediated, targeted transgene insertion in the liver of NHPs, using *F9* as a model gene. Following a single dose to NHPs of the hybrid LNP-adeno-associated virus ("AAV") delivery system containing an *F9* DNA template, we demonstrated that the circulating human FIX protein levels achieved in NHPs were at or above normal levels. Additionally, the NHP data expands on the durability of clinically relevant human FIX protein levels achieved in mice for over 12 months.

In September 2020, we presented data that showed the persistence of *in vivo* CRISPR/Cas9 edits in regenerated liver tissue, both knockout and insertion, and corresponding durability of effect following a partial hepatectomy ("PHx") and liver regrowth in a murine model. Unlike traditional gene therapy, for which a significant loss (over 80%) in transgene expression was observed in the insertion PHx model, our targeted gene insertion approach yielded durable edits, with no significant loss in expression.

We are further investigating delivery strategies that target tissues outside of the liver. For example, at the Keystone eSymposium: Precision Engineering of the Genome, Epigenome and Transcriptome in March 2021, we presented preclinical data establishing proof-of-concept for non-viral genome editing of bone marrow and HSCs in mice. This represented our first demonstration of systemic *in vivo* genome editing in bone marrow using our proprietary non-viral delivery platform. We believe these results extend our modular *in vivo* capabilities to treat inherited blood disorders such as sickle cell disease. In addition, we announced a collaboration with SparingVision SAS ("SparingVision") to develop novel genomic medicines utilizing CRISPR/Cas9 technology for the treatment of ocular diseases.

With the continued progression of our *in vivo* research programs, we plan to advance at least one new *in vivo* development candidate by the end of 2022.

Ex Vivo *Programs*

We are independently researching and developing proprietary engineered cell therapies to treat various oncological and other disease indications, for example TCR-engineered T cells and chimeric antigen receptor T ("CAR-T") cells for immuno-oncology applications and engineered regulatory T cells for autoimmune disorders. Our diverse product strategy includes multiple elements. In particular:

- We are developing TCR-engineered T cells as immuno-oncological therapies. For example, in our existing collaboration with Ospedale San Raffaele, Milan, a leading European research-university hospital, we have identified optimized TCRs that recognize a tumor target, Wilms' Tumor 1 ("WT1"), that could be used to treat a variety of blood cancers and solid tumors; and
- We are developing allogeneic cellular therapies, which are those derived from unrelated donors and modified outside of the human body to allow them to be administered to an unrelated patient. These allogeneic cellular therapies could be used to treat both oncological and immunological diseases. Our proprietary technologies, including our LNP-based cell engineering platform and novel allogeneic solution, offer significant advantages over both autologous cell therapies and allogeneic approaches being investigated by others. Preclinical data presented on our differentiated allogeneic engineering platform showed allogeneic T cells were shielded from immune rejection, both host T and natural killer ("NK") cell attack.

In addition, we strategically partner with others who possess complementary capabilities or technologies to bring forth innovative engineered cell therapies outside of our core areas of focus. This includes collaborations with AvenCell and Kyverna, who will be leveraging our *ex vivo* genome editing platform to develop novel cell therapies for a variety of therapeutic indications, as well as ONK Therapeutics, Ltd. ("ONK") to advance CRISPR-edited NK cell therapies. Further, our partner Novartis is developing therapies directed to selected targets using CAR-T cells for oncology indications, as well as HSC and ocular stem cell ("OSC")-based therapies.

Acute Myeloid Leukemia ("AML") Program

NTLA-5001 is our investigational autologous TCR-T cell therapy engineered to target the WT1 antigen for the treatment of all genetic subtypes of AML. In March 2022, we dosed the first patient in our Phase 1/2a study evaluating NTLA-5001 for the treatment of AML.

In August 2022 we announced our decision to concentrate our *ex vivo* development efforts exclusively on allogeneic cell therapies manufactured from healthy donors. Our proprietary technologies, including our LNP-based cell engineering platform and novel allogeneic solution, offer significant advantages over both autologous and current investigational allogeneic approaches. As described below under ***CD30+ Lymphomas***, preclinical data presented on our differentiated allogeneic engineering platform showed allogeneic T cells were shielded from immune rejection, both host T and NK cell attack.

In addition, we announced plans to discontinue our first-in-human study of NTLA-5001 and are pivoting to an allogeneic version of this program currently in preclinical development. This decision is not due to any safety or efficacy data emerging from the trial. It is instead based on the potential of our allogeneic platform to consistently deliver a high-quality, readily available and persistent cell product for treatment of aggressive cancers. Preclinical data supporting the development of a WT1-directed allogeneic TCR-T cell candidate will be presented at a future scientific conference in 2022.

CD30+ Lymphomas

NTLA-6001 is our wholly-owned, allogeneic CAR-T development candidate targeting CD30 for the treatment of CD30-expressing hematologic cancers, including relapsed or refractory classical Hodgkin lymphoma ("cHL"). NTLA-6001 is the first candidate developed using our proprietary allogeneic cell engineering platform. We are conducting IND-enabling activities for NTLA-6001.

At the Keystone Symposium on May 1, 2022 we presented preclinical data leading to the development of NTLA-6001. The data demonstrated that our proprietary allogeneic solution created T cells that not only avoid immune recognition by host CD4 and CD8 T cells, but also were protected from NK cell-mediated killing in *in vitro* and *in vivo* mouse models. Furthermore, allogeneic T cells engineered specifically with LNPs retained their viability, cell expansion, memory phenotype, cytotoxic and cytokine secretion characteristics.

Ex Vivo *Research Programs*

We are developing engineered cell therapies to treat a range of hematological and solid tumors. We are pursuing modalities, such as TCR, with broad potential in multiple indications. We are advancing efforts for allogeneic therapies to move from liquid to solid tumors. Our researchers are developing and improving cell-engineering manufacturing and delivery processes that, we believe, may allow us to deliver T cell therapies with high levels of editing, robust levels of cell expansion, desirable memory phenotypes, improved function and no translocations above background levels.

Our proprietary T cell engineering process using LNPs to engineer cell therapies enables multiple, sequential gene edits. We have shared preclinical data demonstrating that our LNP-based engineering technology is a significant improvement over electroporation, the standard engineering process used to introduce proteins and nucleic acids into cells. The resulting T cells engineered with LNPs had improved cell properties and performance both *in vitro* and *in vivo* as compared to electroporation. The data support the ability of our platform to be used for a variety of targeting modalities, including CAR and TCRs, and to support both autologous and allogeneic T cell candidates. The LNP-based approach has been used in our NTLA-5001 program and multiple *ex vivo* candidates in development by us and our collaborators.

In March 2021, we presented our first preclinical data set on our novel, proprietary cytosine deaminase base editor technology. We demonstrated the technology's potential for enhanced cell engineering, with multiple simultaneous gene knockouts achieving >90% T cell editing efficiency and no detectable increase in translocation above background levels.

Novartis-Led Sickle Cell Disease and Other Research Programs

In December 2019, the research term under our collaboration agreement with Novartis entered into in 2014 (the "2014 Novartis Agreement") ended, although the 2014 Novartis Agreement remains in effect. Under the 2014 Novartis Agreement, Novartis has selected particular CAR-T cell, HSC and OSC targets for continued development. Novartis has initiated clinical studies for OTQ923 and HIX763, two therapeutic candidates, based on CRISPR/Cas9 editing of HSCs that resulted from our research collaboration with Novartis. Novartis is currently recruiting patients for its Phase 1/2 study of these investigational candidates for treatment of sickle cell diseases. Novartis is developing several other product candidates arising from the 2014 Novartis Agreement. For more information regarding our collaboration with Novartis, see the section below entitled **"Collaborations and Other Arrangements - *Novartis*"**.

Collaborations and Other Arrangements

To accelerate the development and commercialization of CRISPR/Cas9-based products in multiple therapeutic areas, we have formed, and intend to seek other opportunities to form, strategic alliances with collaborators who can augment our leadership in CRISPR/Cas9 therapeutic development.

Regeneron

In April 2016, we entered into a license and collaboration agreement with Regeneron (the "2016 Regeneron Agreement"). The 2016 Regeneron Agreement has two principal components: (i) a product development component under which the parties will research, develop and commercialize CRISPR/Cas-based therapeutic products primarily focused on genome editing in the liver; and (ii) a technology collaboration component, pursuant to which the parties will engage in research and development activities aimed at discovering and developing novel technologies and improvements to CRISPR/Cas technology to enhance our genome editing platform. We may also access the Regeneron Genetics Center and proprietary mouse models to be provided by Regeneron for a limited number of our liver programs. At the inception of the 2016 Regeneron Agreement, Regeneron selected the first of its 10 targets, ATTR, which is subject to the ATTR Co/Co.

On May 30, 2020, we entered into (i) amendment no. 1 (the "2020 Regeneron Amendment") to the 2016 Regeneron Agreement, (ii) co-development and co-funding agreements for the treatment of hemophilia A and hemophilia B (the "Hemophilia Co/Co") agreements and (iii) a stock purchase agreement. The collaboration expansion builds upon the jointly developed targeted transgene insertion capabilities designed to durably restore missing therapeutic protein, and to overcome the limitations of traditional gene therapy. The collaboration was extended until April 2024, at which point Regeneron has an option to renew for an additional two years. The 2020 Regeneron Amendment also grants Regeneron exclusive rights to develop products for five additional *in vivo* CRISPR/Cas-based therapeutic liver targets and non-exclusive rights to independently develop and commercialize up to 10 *ex vivo* gene edited products made using certain defined cell types. Refer to Note 7 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and Regeneron.

AvenCell Therapeutics, Inc. ("AvenCell")

On July 30, 2021, we finalized a transaction in which we, Cellex Cell Professionals GmbH ("Cellex") and funds managed by Blackstone Life Sciences Advisors L.L.C. ("BXLS") established a new universal CAR-T cell therapy company, AvenCell, and entered into two agreements with AvenCell: (i) a license and collaboration agreement (the "LCA"), under which we will collaborate to develop allogeneic universal CAR-T cell therapies and granted AvenCell a license to develop and commercialize genome edited universal CAR-T cell therapies (limited to its use with their switchable, universal CAR-T cell UniCAR and RevCAR platforms); and (ii) a co-development and co-funding agreement (the "AvenCell Co/Co") under which we will co-develop and co-commercialize allogeneic universal CAR-T cell products for an immuno-oncology indication. In addition to the license, we will collaborate with AvenCell on at least seven universal CAR-T cell products that combine our allogeneic T cell technology with AvenCell's switchable, universal CAR-T cell technology, referred to as the ("Allo Collaboration"). Additionally, AvenCell will pay us to provide supply and manufacturing services for them, including supplying good manufacturing practice ("GMP") CRISPR reagents to support the research and development of all CRISPR Products (as defined in the LCA) under the Allo Collaboration until the completion of the first Pivotal Trial (as defined in the LCA) of the first such CRISPR Product. We will also have one additional option to enter into a second co-development and co-funding agreement from selected allogeneic universal CAR-T cell therapy products that the parties intend to develop under the Allo Collaboration for a payment of $30.0 million to AvenCell.

In exchange for the license, we received a 33.33% equity interest in AvenCell at the time of the initial closing. Refer to Notes 7 and 8 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and AvenCell.

SparingVision SAS ("SparingVision")

In October 2021, we and SparingVision, a genomic medicine company developing vision saving treatments for ocular diseases, entered into a license and collaboration agreement (the "SparingVision LCA"), to develop novel genomic medicines utilizing CRISPR/Cas9 technology for the treatment of ocular diseases. We will grant SparingVision exclusive rights to our proprietary *in vivo* CRISPR/Cas9-based genome editing technology for up to three ocular targets addressing diseases with significant unmet medical need. In addition, the parties will research and develop novel self-inactivating AAV vectors and LNP-based approaches to address delivery of CRISPR/Cas9 genome editing reagents to the retina. SparingVision will lead and fund the preclinical and clinical development for the genome editing product candidates pursued under the collaboration.

In exchange for the license, we received an 11% equity ownership in SparingVision as of the closing date as well as three warrants attached to each share received for the right to purchase additional shares at designated prices that are subject to certain vesting conditions. We will also be eligible to receive certain research, development and commercial milestone cash payments (up to approximately $200 million per product) as well as royalties on potential future sales of products arising from the collaboration. We will have an option to obtain exclusive U.S. commercialization rights for product candidates arising from two of three collaboration targets. For product candidates we choose to option, we will pay an opt-in fee between $10.0 million and $20.0 million depending on the stage of development of the target, reimburse certain costs, share in 50% of development costs and pay royalties to SparingVision on U.S. sales. Refer to Notes 7 and 8 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and SparingVision.

Kyverna Therapeutics, Inc. ("Kyverna")

In December 2021, we entered into a licensing and collaboration agreement with Kyverna, a cell therapy company engineering a new class of therapies for autoimmune and inflammatory diseases, for the development of an allogeneic CD19 CAR-T cell therapy for the treatment of a variety of B cell-mediated autoimmune diseases. We granted Kyverna rights to our proprietary *ex vivo* CRISPR/Cas9-based allogeneic platform for the development of KYV-201, an allogeneic CD19 CAR-T cell investigational candidate for the treatment of select autoimmune diseases. This is a novel approach aimed at targeting CD19 for inflammatory diseases as compared to traditional oncology indications. Kyverna will lead and fund preclinical and clinical development for KYV-201 and we will be eligible to receive certain development and commercial milestone payments, as well as low-to-mid-single-digit royalties on potential future sales. We may also exercise an option to lead U.S. commercialization for KYV-201 under a co-development and co-commercialization agreement. If we choose to co-develop and co-commercialize KYV-201, we will pay an opt-in fee of $5.0 million and share in 50% of development costs and future net profit and/or loss arising from commercializing KYV-201 in the U.S. Kyverna retains all rights outside of the U.S., and we will receive low-to-mid-single-digit royalties on net sales generated outside of the U.S.

In exchange for the license, we received an equity ownership of preferred stock in Kyverna. We separately made an additional investment in Kyverna, purchasing incremental shares of Kyverna's preferred stock in exchange for $3.0 million in cash, bringing our investment to approximately 7% ownership in Kyverna at the time of closing. Refer to Notes 7 and 8 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and Kyverna.

ONK Therapeutics, Ltd ("ONK")

In February 2022, we announced a license, collaboration and option agreement with ONK for the development of engineered NK cell therapies for the treatment of cancer. The agreement grants ONK a non-exclusive license to our proprietary *ex vivo* CRISPR/Cas9-based genome editing platform and our LNP-based delivery technologies for development of up to five allogeneic NK cell therapies. ONK will be responsible for preclinical and clinical development for the engineered NK cell therapies enabled by the agreement. We will be eligible to receive up to $184 million per product in development and commercial milestone payments, as well as up to mid-single-digit royalties on potential future sales. In addition, the agreement grants us options to co-develop and co-commercialize up to two products worldwide with rights to lead commercialization in the U.S. Refer to Note 7 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and ONK.

Novartis

In December 2014, we entered into the 2014 Novartis Agreement, primarily focused on the research of new *ex vivo* CRISPR/Cas9-edited therapies using CAR-T cells and HSCs. The agreement was amended in December 2018 to also include research on OSCs. In December 2019, per the terms of the 2014 Novartis Agreement, the research term ended, although the 2014 Novartis Agreement remains in effect, for which we will be eligible to receive milestone and royalty payments in the future. In June 2021, we entered into Amendment No. 3 (the "Amendment") to the 2014 Novartis Agreement. The Amendment amends Novartis' rights with respect to all of the CAR-T Therapeutic Targets (as defined in the 2014 Novartis Agreement) that Novartis selected under the 2014 Novartis Agreement, including (a) making Novartis' license non-exclusive for such CAR-T Therapeutic Targets, (b) removing Novartis' diligence and related reporting obligations for such CAR-T Therapeutic Targets, and (c) refining the scope of Novartis' sublicense rights for such CAR-T Therapeutic Targets. We made a one-time payment to Novartis of $10.0

million within 30 days after the effective date of the Amendment, which was recorded as research and development expense in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2021. Since December 31, 2021, there have been no other material changes to the key terms of the 2014 Novartis Agreement and the Novartis Amendment. Refer to Note 7 to our condensed consolidated financial statements of this Quarterly Report on Form 10-Q for additional information related to the terms of the agreement between us and Novartis.

Financial Overview

Collaboration Revenue

Our revenue consists of collaboration revenue, including amounts recognized related to upfront technology access payments for licenses, technology access fees, research funding and milestone payments earned under our collaboration and license agreements.

Research and Development

Research and development expenses consist of expenses incurred in performing research and development activities, such as compensation and benefits, which includes equity-based compensation, for full-time research and development employees, allocated facility-related expenses, overhead expenses, license and milestone fees, contract research, development and manufacturing services, clinical trial costs and other related costs.

General and Administrative

General and administrative expenses consist primarily of compensation and benefits, including equity-based compensation, for our executive, finance, legal, human resources, business development and support functions. Also included in general and administrative expenses are allocated facility-related costs not otherwise included in research and development expenses, travel expenses and professional fees for auditing, tax and legal services, including IP-related legal services, and other consulting fees and expenses.

Other (Expense) Income, Net

Other (expense) income consists of interest income earned on our cash, cash equivalents, restricted cash equivalents and marketable securities, loss from equity method investment and change in fair value of contingent consideration.

Results of Operations

The following discussion of the financial condition and results of operations should be read in conjunction with the accompanying condensed consolidated financial statements and the related footnotes thereto.

Comparison of Three Months Ended June 30, 2022 and 2021

The following table summarizes our results of operations for the three months ended June 30, 2022 and 2021:

	Three Months Ended June 30,		Period-to-Period Change
	2022	2021	
	(In thousands)		
Collaboration revenue	$ 14,030	$ 6,550	$ 7,480
Operating expenses:			
Research and development	90,199	58,884	31,315
General and administrative	22,132	16,683	5,449
Total operating expenses	112,331	75,567	36,764
Operating loss	(98,301)	(69,017)	(29,284)
Other (expense) income, net:			
Interest income	703	211	492
Loss from equity method investment	(3,252)	-	(3,252)
Change in fair value of contingent consideration	172	-	172
Total other (expense) income, net	(2,377)	211	(2,588)
Net loss	$ (100,678)	$ (68,806)	$ (31,872)

Collaboration Revenue

Collaboration revenue increased by approximately $7.5 million to $14.0 million during the three months ended June 30, 2022, as compared to $6.6 million during the three months ended June 30, 2021. The increase in collaboration revenue during the three months ended June 30, 2022 is primarily due to our joint venture with AvenCell and revenue from the Kyverna LCA. Refer to Note 7 to our condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q for further details.

Research and Development

Research and development expenses increased by approximately $31.3 million to $90.2 million during the three months ended June 30, 2022, as compared to $58.9 million during the three months ended June 30, 2021.

The following table summarizes our research and development expenses for the three months ended June 30, 2022 and 2021, together with the changes in those items in dollars and the respective percentages of change:

	Three Months Ended June 30, 2022	Three Months Ended June 30, 2021	Period-to-Period Change	Percent Change
	(In thousands)			
External development expenses by program:				
NTLA-2001	$ 9,017	$ 4,280	$ 4,737	111 %
NTLA-2002	3,357	1,561	1,796	115 %
NTLA-5001	4,757	4,724	33	1 %
Unallocated research and development expenses:				
Employee-related expenses	28,824	15,635	13,189	84 %
Research materials and contracted services	21,122	18,679	2,443	13 %
Facility-related expenses	8,174	6,778	1,396	21 %
Stock-based compensation	14,079	6,135	7,944	129 %
Other	869	1,092	(223)	-20 %
Total research and development expenses	$ 90,199	$ 58,884	$ 31,315	53 %

The increase in research and development expenses for the three months ended June 30, 2022 compared to the three months ended June 30, 2021 was primarily attributable to:

- a $4.7 million increase in external costs related to the development of NTLA-2001, our lead product candidate, primarily due to an increase in spend on contracted services and lab consumables;

- a $1.8 million increase in external costs related to the development of NTLA-2002, primarily due to an increase in spend on drug components;
- a $13.2 million increase in employee-related expenses primarily driven by the expansion of our development organization;
- a $2.4 million increase in research materials and contracted services primarily driven by an increase in drug component expenses to support our pipeline, partially offset by a $10.0 million one-time payment related to the amendment of the 2014 Novartis Agreement in June 2021;
- a $1.4 million increase in facility-related expenses primarily related to rent, depreciation and technology expense allocated to research and development; and
- a $7.9 million increase in stock-based compensation driven by our larger workforce.

General and Administrative

General and administrative expenses increased by $5.4 million to $22.1 million during the three months ended June 30, 2022, compared to $16.7 million during the three months ended June 30, 2021. This increase was primarily related to employee-related expenses, including an increase in stock-based compensation of $4.5 million, driven by our larger workforce.

Other (Expense) Income, Net

The increase in other (expense) income of $2.6 million is primarily related to our share of three months of AvenCell's losses generated in the first quarter of 2022 of $3.3 million, offset in part by a $0.5 million increase in interest income and a reduction in the fair value of our contingent consideration liability of $0.2 million.

Comparison of Six Months Ended June 30, 2022 and 2021

The following table summarizes our results of operations for the six months ended June 30, 2022 and 2021:

	Six Months Ended June 30,		Period-to-Period Change
	2022	2021	
	(In thousands)		
Collaboration revenue	$ 25,282	$ 12,995	$ 12,287
Operating expenses:			
Research and development	223,294	98,160	125,134
General and administrative	44,535	30,277	14,258
Total operating expenses	267,829	128,437	139,392
Operating loss	(242,547)	(115,442)	(127,105)
Other (expense) income, net:			
Interest income	1,243	431	812
Loss from equity method investment	(5,997)	-	(5,997)
Change in fair value of contingent consideration	(249)	-	(249)
Total other (expense) income, net	(5,003)	431	(5,434)
Net loss	$ (247,550)	$ (115,011)	$ (132,539)

Collaboration Revenue

Collaboration revenue increased by approximately $12.3 million to $25.3 million during the six months ended June 30, 2022, as compared to $13.0 million during the six months ended June 30, 2021. The increase in collaboration revenue during the six months ended June 30, 2022 is primarily due to our joint venture with AvenCell and revenue from the Kyverna LCA. Refer to Note 7 to our condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q for further details.

Research and Development

Research and development expenses increased by $125.1 million to $223.3 million during the six months ended June 30, 2022, as compared to $98.2 million during the six months ended June 30, 2021.

The following table summarizes our research and development expenses for the six months ended June 30, 2022 and 2021, together with the changes in those items in dollars (in thousands) and the respective percentages of change:

	Six Months Ended June 30,		Period-to-	Percent
	2022	2021	Period Change	Change
	(In thousands)			
External development expenses by program:				
NTLA-2001	$ 17,589	$ 6,602	$ 10,987	166 %
NTLA-2002	5,057	3,716	1,341	36 %
NTLA-5001	9,879	9,252	627	7 %
Unallocated research and development expenses:				
Employee-related expenses	53,536	29,302	24,234	83 %
Research materials and contracted services	38,751	25,656	13,095	51 %
In-process research and development	55,990	-	55,990	0 %
Facility-related expenses	16,699	11,960	4,739	40 %
Stock-based compensation	24,353	9,626	14,727	153 %
Other	1,440	2,046	(606)	-30 %
Total research and development expenses	$ 223,294	$ 98,160	$ 125,134	127 %

The increase in research and development expenses for the six months ended June 30, 2022 compared to the six months ended June 30, 2021 was primarily attributable to:

- an $11.0 million increase in external costs related to the development of NTLA-2001, our lead product candidate, primarily due to an increase in spend on drug components, contracted services and lab consumables;
- a $1.3 million increase in external costs related to the development of NTLA-2002, primarily due to an increase in spend on drug components;
- a $0.6 million increase in external costs related to the development of NTLA-5001, primarily due to an increase in spend on drug components and lab consumables, offset in part by a decrease in contracted services as we entered the clinic during the first half of 2022;
- a $24.2 million increase in employee-related expenses, primarily driven by the expansion of our development organization;
- a $13.1 million increase in research materials and contracted services primarily driven by an increase in drug component expenses to support our pipeline, partially offset by a $10.0 million one-time payment related to the amendment of the 2014 Novartis Agreement in June 2021;
- $56.0 million of expense in the first half of 2022 related to the acquisition of Rewrite Therapeutics, Inc.;
- a $4.7 million increase in facility-related expenses primarily related to rent, depreciation and technology expense allocated to research and development; and
- a $14.7 million increase in stock-based compensation driven by our larger workforce.

General and Administrative

General and administrative expenses increased by approximately $14.3 million to $44.5 million during the six months ended June 30, 2022, compared to $30.3 million during the six months ended June 30, 2021. This increase was primarily related to an increase in employee related expenses, including stock-based compensation of $9.8 million.

Other (Expense) Income, Net

The increase in other (expense) income of $5.4 million is primarily related to our share of six months of AvenCell's losses generated in the fourth quarter of 2021 and the first quarter of 2022 totaling $6.0 million and an increase in the fair value of our contingent consideration liability of $0.2 million, offset in part by a $0.8 million increase in interest income.

Liquidity and Capital Resources

Since our inception through June 30, 2022, we have raised an aggregate of approximately $1,861.1 million to fund our operations through our collaboration agreements, our initial public offering and concurrent private placements, follow-on public offerings, at-the-market offerings and the sale of convertible preferred stock.

As of June 30, 2022, we had $906.9 million in cash, cash equivalents and marketable securities.

We are eligible to earn a significant amount of milestone payments and royalties, in each case, on a per-product basis under our collaborations with Novartis, SparingVision and ONK, on a per-target basis under our collaboration with Regeneron and upon achievement of certain events under our collaboration with Kyverna. Our ability to earn these milestone payments and the timing of achieving these milestones is dependent upon the outcome of our research and development activities and is uncertain at this time. Our rights to payments under our collaboration agreements are our only committed external source of funds.

Follow-on Offerings

In July 2021, we closed an underwritten public offering of 4,758,620 shares of common stock, including the exercise in full of the underwriters’ option to purchase an additional 620,689 shares of common stock, at the public offering price of $145.00 per share, for aggregate net proceeds of $648.3 million, after deducting approximately $41.7 million in underwriting discounts and offering costs.

At-the-Market Offering Programs

In August 2019, we entered into an Open Market Sale Agreement (the “2019 Sale Agreement”) with Jefferies LLC (“Jefferies”), under which Jefferies is able to offer and sell, from time to time in “at-the-market” offerings, shares of our common stock having aggregate gross proceeds of up to $150.0 million. We agreed to pay to Jefferies cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2019 Sale Agreement.

During 2021, we issued 641,709 shares of our common stock in a series of sales at an average price of $72.79 per share in accordance with the 2019 Sale Agreement, for aggregate net proceeds of $45.3 million after payment of cash commissions to Jefferies and approximately $0.1 million related to legal, accounting and other fees in connection with the sales.

During the first half of 2022, we issued 579,788 shares of our common stock in a series of sales at an average price of $69.43 per share in accordance with the 2019 Sale Agreement, for aggregate net proceeds of $38.9 million after payment of cash commissions to Jefferies and approximately $0.2 million related to legal, accounting and other fees in connection with the sales.

As of June 30, 2022, $7.2 million in shares of our common stock remain eligible for sale under the 2019 Sale Agreement.

In March 2022, we entered into an Open Market Sale Agreement (the “2022 Sale Agreement”) with Jefferies, under which Jefferies is able to offer and sell, from time to time in “at-the-market” offerings, shares of our common stock having aggregate gross proceeds of up to $400.0 million. We agreed to pay to Jefferies cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2022 Sale Agreement. No shares have been issued under the 2022 Sale Agreement through June 30, 2022.

Funding Requirements

Our primary uses of capital are, and we expect will continue to be, research and development contracted services, clinical trial costs, compensation and related expenses, laboratory and office facilities, research supplies, legal and regulatory expenses, patent prosecution filing and maintenance costs for our licensed IP, milestone and royalty payments and general overhead costs. During the second half of 2022, we expect our expenses to increase compared to prior periods in connection with our ongoing activities as we continue to grow our research and development team, development of our clinical programs and advance additional programs into clinical development.

Because our lead programs are still in the early clinical stage and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of any future product candidates or whether, or when, we may achieve profitability. Until such time as we can generate substantial product revenues, if ever, we expect to finance our ongoing cash needs through equity financings and collaboration arrangements. We receive cost reimbursements from Regeneron for the transthyretin ("ATTR") amyloidosis and hemophilia programs. Additionally, we are eligible to earn milestone payments and royalties, in each case, on a per-product basis under our collaborations with Novartis, SparingVision and ONK, on a per-target basis under our collaboration with Regeneron, and upon achievement of certain events with Kyverna, subject to the provisions of our agreements with each of them. Except for these sources of funding, we will not have any committed external source of liquidity. To the extent that we raise additional capital through the future sale of equity, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing stockholders. If we raise additional funds through collaboration arrangements in the future, we may have to relinquish valuable rights to our technologies, future revenue streams or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Outlook

Based on our research and development plans and our expectations related to the progress of our programs, we expect that our cash, cash equivalents and marketable securities as of June 30, 2022, as well as research and cost reimbursement funding from Regeneron, AvenCell and SparingVision, will enable us to fund our ongoing operating expenses and capital expenditure requirements beyond the next 24 months, excluding any potential milestone payments or extension fees that could be earned and distributed under our collaboration agreements or any strategic use of capital not currently in the base case planning assumptions. We have based this estimate on current assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect.

Our ability to generate revenue and achieve profitability depends significantly on our success in many areas, including: developing our delivery technologies and our CRISPR/Cas9 technology platform; selecting appropriate product candidates to develop; completing research and preclinical and clinical development of selected product candidates; obtaining regulatory approvals and marketing authorizations for product candidates for which we complete clinical trials; developing a sustainable and scalable manufacturing process for product candidates; launching and commercializing product candidates for which we obtain regulatory approvals and marketing authorizations, either directly or with a collaborator or distributor; obtaining market acceptance of our product candidates; addressing any competing technological and market developments; negotiating favorable terms in any collaboration, licensing, or other arrangements into which we may enter; maintaining good relationships with our collaborators and licensors; maintaining, protecting, and expanding our portfolio of IP rights, including patents, trade secrets, and know-how; and attracting, hiring, and retaining qualified personnel.

Cash Flows

The following is a summary of cash flows for the six months ended June 30, 2022 and 2021:

	Six Months Ended June 30,	
	2022	2021
	(In millions)	
Net cash used in operating activities	$ (164.9)	$ (105.4)
Net cash provided by investing activities	142.8	7.7
Net cash provided by financing activities	53.2	65.7

Net cash used in operating activities

Net cash used in operating activities of $164.9 million during the six months ended June 30, 2022 primarily reflects the increased spend in our research and development activities, offset in part by the receipt of $3.8 million in payments from our collaboration partners during that period. Net cash used in operating activities of $105.4 million during the six months ended June 30, 2021 primarily reflects the increased spend in our research and development activities, offset in part by the receipt of $3.2 million in payments from our collaboration partners during that period.

Net cash provided by investing activities

During the six months ended June 30, 2022 and 2021, our investing activities provided cash of $142.8 million and $7.7 million, respectively. The increase in the six months ended June 30, 2022 is primarily due to $224.6 million in marketable securities maturing, offset in part by $44.8 million in net cash for the acquisition of Rewrite, $31.5 million of marketable securities purchased and $5.4 million in cash for the purchase of property and equipment. The increase in the six months ended June 30, 2021 is primarily due to an increase in marketable securities activity during the period, as $185.4 million in marketable securities were purchased and $198.5 million in marketable securities matured, offset in part by $5.4 million for the purchase of property and equipment during the period.

Net cash provided by financing activities

Net cash provided by financing activities of $53.2 million during the six months ended June 30, 2022 includes $38.9 million in net proceeds from at-the-market offerings, $13.3 million in cash received from the exercise of stock options and $1.1 million in cash received from the issuance of shares through our employee stock purchase plan. Net cash provided by financing activities of $65.7 million during the six months ended June 30, 2021 includes $45.3 million in net proceeds from at-the-market offerings, $19.5 million in cash received from the exercise of stock options and $1.0 million in cash received from the issuance of shares through our employee stock purchase plan.

Critical Accounting Policies

Our critical accounting policies require the most significant judgments and estimates in the preparation of our condensed consolidated financial statements. Management has determined that our most critical accounting policies are those relating to revenue recognition and equity-based compensation. There have been no changes to our critical accounting policies from those which were discussed in our Annual Report for the year ended December 31, 2021.

Recent Accounting Pronouncements

Please read Note 2, “Summary of Significant Accounting Policies”, to our condensed consolidated financial statements included in Part I, Item 1, “Notes to Condensed Consolidated Financial Statements,” of this Quarterly Report on Form 10-Q for a description of recent accounting pronouncements applicable to our business.

Contractual Obligations

There were no material changes to our contractual obligations during the three months ended June 30, 2022. For a complete discussion of our contractual obligations, please refer to our *Management’s Discussion and Analysis of Financial Condition and Results of Operations* in our Annual Report for the year ended December 31, 2021.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates. As of June 30, 2022, we had cash equivalents, restricted cash equivalents and marketable securities of $915.4 million consisting of interest-bearing money market accounts, commercial paper, asset-backed securities, corporate and financial institution debt securities, and U.S. Treasury and other government securities. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our investments are primarily in marketable securities. Due to the short-term duration of our investment portfolios and the low risk profile of our investments, we do not believe an immediate change of 100 basis points, or one percentage point, would have a material effect on the fair market value of our investment portfolio. Declines in interest rates, however, would reduce future investment income.

We do not have any foreign currency or derivative financial instruments. Inflation generally affects us by increasing our cost of labor and program costs. We do not believe that inflation had a material effect on our results of operations during the six months ended June 30, 2022.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We have established disclosure controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and is accumulated and communicated to management, including the principal executive officer (our Chief Executive Officer) and principal financial officer (our Chief Financial Officer), to allow timely decisions regarding required disclosure.

Our management, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Quarterly Report on Form 10-Q. Management recognizes that any disclosure controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives. Our disclosure controls and procedures have been designed to provide reasonable assurance of achieving their objectives. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of June 30, 2022.

Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the three months ended June 30, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

In the ordinary course of business, we are from time to time involved in lawsuits, claims, investigations, proceedings, and threats of litigation related to intellectual property ("IP"), commercial arrangements and other matters. 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.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. In evaluating us and our business, careful consideration should be given to the following risk factors, in addition to the other information set forth in this Quarterly Report on Form 10-Q, our Annual Report on Form 10-K for the year ended December 31, 2021 and in other documents that we file with the SEC. If any of the following risks and uncertainties actually occurs, our business, prospects, financial condition and results of operations could be materially and adversely affected. The risks summarized and described below are not intended to be exhaustive and are not the only risks facing us. New risk factors can emerge from time to time, and we cannot predict the impact that any factor or combination of factors may have on our business, prospects, financial condition and results of operations.

Summary of the Material Risks Associated with Our Business

- CRISPR/Cas9 genome editing technology has limited clinical validation and has not been approved for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics using CRISPR/Cas9 systems are unproven and may never lead to marketable products. If we are unable to develop viable product candidates, achieve regulatory approval for any such product candidate or market and sell any products, we may never achieve profitability.
- Results, including data from our preclinical studies and clinical trials, that we announce from time to time, such as the interim data from our ongoing Phase 1 study of NTLA-2001, are not necessarily predictive of our other ongoing and future preclinical and clinical studies, and they do not guarantee or indicate the likelihood of approval of any potential product candidate by the United States Food and Drug Administration ("FDA") or any other regulatory agency. If we cannot replicate the positive results from any of our preclinical or clinical studies, we may be unable to successfully develop, obtain regulatory approval for and commercialize any potential product candidate.
- *In vivo* genome editing products and *ex vivo* engineered cell therapies based on CRISPR/Cas9 genome editing technology are novel and may be complex and difficult to manufacture. We could experience manufacturing problems or regulatory requirements that result in delays in the development, approval or commercialization of our product candidates or otherwise harm our business.
- Clinical development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of any product candidates.
- If we experience delays or difficulties in the enrollment of patients in clinical trials, our ability to complete clinical trials or our receipt of necessary regulatory approvals could be delayed or prevented.
- Even if we obtain regulatory approval of any product candidates, such candidates may not gain market acceptance among physicians, patients, hospitals, third party payors and others in the medical community.
- Business interruptions resulting from the ongoing coronavirus disease 2019 ("COVID-19") outbreak or similar public health crises could cause a disruption of the development of our product candidates and adversely impact our business.
- We face significant competition in an environment of rapid technological change. The possibility that our competitors may achieve regulatory approval before we do or develop therapies that are more advanced or effective than ours may harm our business and financial condition or our ability to successfully market or commercialize our product candidates.
- Our ability to generate revenue from product sales and become profitable is dependent on the success of our

application of CRISPR/Cas9 technology for human therapeutic use, which is at an early stage of development and will require significant additional discovery efforts, preclinical testing and clinical studies and manufacturing capabilities, as well as applicable regulatory guidance regarding preclinical testing and clinical studies from the FDA and other similar regulatory authorities, before we can seek regulatory approval and begin commercial sales of any potential product candidates.

- Negative public opinion and increased regulatory scrutiny of CRISPR/Cas9 use, genome editing or gene therapy generally may damage public perception of the safety of any product candidates that we develop and adversely affect our ability to conduct our business or obtain regulatory approvals for such product candidates.
- Our internal computer systems, or those of our collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our operations and development efforts.
- Our technological advancements and any potential for revenue may be derived in part from our collaborations, including, for example, with Regeneron Pharmaceuticals, Inc. ("Regeneron") and AvenCell Therapeutics, Inc., ("AvenCell"), and if the collaboration or co-development agreements related to a material collaboration were to be terminated or materially altered in an adverse manner, our business, financial condition, results of operations and prospects would be harmed.
- Under our license agreement with Caribou Biosciences, Inc. ("Caribou"), we sublicense a patent family from the Regents of the University of California and the University of Vienna that is co-owned by Dr. Emmanuel Charpentier (collectively, "UC/Vienna/Charpentier"). The outcome of on-going legal proceedings, as well as potential future proceedings, related to this patent family may affect our ability to utilize certain intellectual property sublicensed under our license agreement with Caribou.
- We could be unsuccessful in obtaining or maintaining adequate patent protection for one or more of our products or product candidates, or asserting and defending our intellectual property rights that protect our products and technologies.
- We could be unable to avoid, obtain or invalidate patent rights from third parties necessary to develop, manufacture or commercialize our product candidates in one or more jurisdictions.
- We have incurred net losses in each period since our inception, anticipate that we will continue to incur net losses in the future and may never achieve profitability.
- The price of our common stock historically has been volatile, which may affect the price at which you could sell any shares of our common stock.

Risks Related to Our Business

<u>Risks Related to Preclinical and Clinical Development</u>

CRISPR/Cas9 genome editing technology is not yet clinically validated for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics using CRISPR/Cas9 systems are unproven and may never lead to marketable products. If we are unable to develop viable product candidates, achieve regulatory approval for any such product candidate or market and sell any product candidates, we may never achieve profitability.

We are focused on developing curative medicines utilizing CRISPR/Cas9 genome editing technology, including *in vivo* therapies and *ex vivo* engineered cell therapies. Although there have been significant advances in recent years in the fields of gene therapy and genome editing, *in vivo* CRISPR-based genome editing technologies are relatively new and their therapeutic utility is largely unproven. Our approach to developing therapies centers on using CRISPR/Cas9 technology to alter, introduce or remove genetic information *in vivo* to treat various disorders, or to engineer human cells *ex vivo* to create therapeutic cells that can be introduced into the human body to address the underlying disease.

Successful development of products by us will require solving a number of issues, including developing or obtaining technologies to safely deliver a therapeutic agent into target cells within the human body or engineer human cells while outside of the body such that the modified cells can have a therapeutic effect when delivered to the patient, optimizing the efficacy and specificity of such products, and ensuring and demonstrating the therapeutic selectivity, efficacy, potency, purity and safety of such products. There can be no assurance we will be successful in solving any or all of these issues. Indeed, no genome editing *in vivo* therapy or genome-edited engineered cell therapy has been approved in the United States ("U.S."), European Union ("EU") countries or other key jurisdictions. With regards to CRISPR/Cas9-based therapies specifically, we are beginning to clinically test our *in vivo* and *ex vivo* product candidates. Further, we are unaware of any clinical trials validating safety and efficacy having been completed by any third parties. Accordingly, the potential to successfully obtain approval for any of our CRISPR/Cas9 product candidates remains unproven.

Our future success also is highly dependent on the successful development of CRISPR-based genome editing technologies, cellular delivery methods and therapeutic applications for the indications on which we have focused our on-going research and development efforts. We may decide to alter or abandon these programs as new data become available and we gain experience in developing CRISPR/Cas9-based therapeutics. We cannot be sure that our CRISPR/Cas9 efforts and technologies will yield satisfactory products that are safe and effective, sufficiently pure or potent, manufacturable, scalable or profitable in our selected indications or any other indication we pursue. We cannot guarantee that progress or success in developing any particular CRISPR/Cas9-based therapeutic product will translate to other CRISPR/Cas9-based products.

Public perception and related media coverage of potential therapy-related efficacy or safety issues, including adoption of new therapeutics or novel approaches to treatment, as well as ethical concerns related specifically to genome editing and CRISPR/Cas9, may adversely influence the willingness of subjects to participate in clinical trials, or if any therapeutic is approved, of physicians and patients to accept these novel and personalized treatments. Physicians, healthcare providers and third party payors often are slow to adopt new products, technologies and treatment practices, particularly those that may also require additional upfront costs and training. Physicians may not be willing to undergo training to adopt these novel and potentially personalized therapies, may decide the particular therapy is too complex or potentially risky to adopt without appropriate training, and may choose not to administer the therapy. Further, due to health conditions, genetic profile or other reasons, certain patients may not be candidates for the therapies. In addition, responses by federal and state agencies, congressional committees and foreign governments to negative public perception, ethical concerns or financial considerations may result in new legislation, regulations, or medical standards that could limit our ability to develop or commercialize any product candidates, obtain or maintain regulatory approval or otherwise achieve profitability. New government requirements may be established that could delay or prevent regulatory approval of our product candidates under development. It is impossible to predict whether legislative changes will be enacted, regulations, policies or guidance changed, or interpretations by agencies or courts changed, or what the impact of such changes, if any, may be. Based on these and other factors, healthcare providers and payors may decide that the benefits of these new therapies do not or will not outweigh their costs.

Clinical development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of any product candidates.

All of our lead programs are still in the discovery, preclinical or early clinical stage. Our current and future product candidates will require preclinical and clinical activities and studies, regulatory review and approval in each jurisdiction in which we intend to market the products, substantial investment, establishing manufacturing capabilities, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. Before obtaining marketing approval from regulatory authorities for the sale of a product candidate, we must conduct extensive clinical trials to demonstrate the safety, purity, potency and efficacy of the product in humans. It is impossible to predict when or if any of our programs will prove effective and safe in humans or will receive regulatory approval. Preclinical and clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. We may be unable to establish clinical endpoints that regulatory authorities consider clinically meaningful, and a clinical trial can fail at any stage. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain approval of their products.

Successful completion of clinical trials is a prerequisite to submitting a Biologics License Application (“BLA”) to the FDA, and similar applications to comparable foreign regulatory authorities, for each product candidate and, consequently, the ultimate approval and commercial marketing of any product candidates. We do not know whether any of our clinical trials will begin or be completed on schedule, if at all.

Because these are new therapeutic approaches, discovering, developing, manufacturing and commercializing our product candidates subject us to a number of challenges or delays in completing our preclinical studies and initiating or completing clinical trials. We also may experience numerous unforeseen events during, or as a result of, any current or future clinical trials that we conduct, which could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- challenges in obtaining regulatory authorization or approval to commence clinical trials in the U.S. from the FDA through an investigational new drug ("IND") application or from other regulatory agencies outside the U.S., such as the United Kingdom ("U.K.") Medicines and Healthcare products Regulatory Agency ("MHRA"), the European Medicines Agency ("EMA") or the New Zealand Medicines and Medical Devices Safety Authority ("MEDSAFE"), through corresponding applications, such as a Clinical Trial Application ("CTA"), a Clinical Trial Notification or a Clinical Trial Exemption, because these agencies have very limited or no experience with the clinical development of CRISPR/Cas9-based therapeutics, which may require additional significant testing or data compared to more traditional therapies;
- successfully developing processes for the safe administration of these products, including long-term follow-up for patients who receive treatment with any of our product candidates;
- regulators, institutional review boards ("IRBs") or ethics committees may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial;
- inability to reach, or delays in reaching, agreement on acceptable terms with trial sites and contract research organizations ("CROs");
- clinical trials of any product candidates may fail to show safety or efficacy, or could produce negative or inconclusive results, which could result in having to conduct additional preclinical studies or clinical trials or terminating the product development programs;
- we may not be able to initiate or complete clinical trials of a product candidate if the required number of subjects is larger than we anticipated, the number of subjects willing to enroll is smaller than required, the pace of enrollment is slower than anticipated, or subjects drop out or fail to return for post-treatment follow-up at a higher rate than we anticipated;
- we may need to educate medical personnel, including clinical investigators, and patients regarding the potential benefits and side effect profile of each of our product candidates;
- regulatory agencies may require us to amend our INDs or equivalent regulatory filings or modify the design of our clinical trials or perform more extensive or lengthier clinical testing compared to existing therapeutic modalities;
- our third party contractors may fail to comply with regulatory requirements or meet their performance obligations to us in a timely manner, or at all, or may deviate from the clinical trial protocol or drop out of the trial, which may require that we add new clinical trial sites or investigators;
- we may elect to, or regulators, IRBs or ethics committees may require that we or our investigators, suspend or terminate clinical research or trials for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- the cost of preclinical studies and clinical trials of any product candidates may be greater than we anticipate;
- the supply or quality of our product candidates or other materials necessary to conduct preclinical studies and clinical trials of our product candidates may be insufficient or inadequate, or not available in a reasonable timeframe, and any transfer of manufacturing activities may require unforeseen manufacturing or formulation changes;
- we may face challenges in sourcing preclinical, clinical and, if approved, commercial supplies for the materials used to manufacture and process our product candidates, which may include importing or exporting materials between different jurisdictions;

- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators, IRBs or ethics committees to suspend or terminate the trials, or reports may arise from preclinical or clinical testing of other gene therapies or genome editing-based therapies that raise safety or efficacy concerns about our product candidates;
- the FDA or other regulatory authorities may require us to submit additional data, such as long-term toxicology studies, or impose other requirements, including requiring amendments to our regulatory filings, before permitting us to initiate or rely on a clinical trial;
- we may be unable to develop a manufacturing process and distribution network with a cost of goods that allows for an attractive return on investment;
- we may face challenges in establishing sales and marketing capabilities in anticipation of, and after obtaining, any regulatory approval to gain market authorization;
- the FDA or other regulatory authorities may revise the requirements for approving our product candidates, or their interpretation of the approval requirements may not be what we anticipate; and
- we may not ultimately obtain regulatory approval for a BLA, or corresponding applications outside the U.S., such as a Marketing Authorization Application ("MAA") from the U.K. and other similar regulatory authorities, such as the EMA, which may have very limited or no experience with the clinical development of CRISPR/Cas9-based therapeutics.

In addition, disruptions caused by the evolving COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting or completing our ongoing and planned clinical trials. We could also encounter delays if a clinical trial is suspended or terminated by us, the IRBs of the institutions in which such trials are being conducted or the relevant ethics committee, the Data Monitoring Committee ("DMC") for such trial, or the FDA or other relevant regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities, resulting in the imposition of a clinical hold, manufacturing or quality control issues, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product or treatment, failure to establish or achieve clinically meaningful trial endpoints, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. Further, the FDA or other regulatory authorities may disagree with our clinical trial design and our interpretation of data from clinical trials or may change the requirements for approval even after they have reviewed and commented on the design for our clinical trials.

Additionally, because our *in vivo* technology potentially involves genome editing across multiple cell and tissue types, we are subject to many of the challenges and risks that other genome editing therapeutics and gene therapies face, including:

- regulatory guidance regarding the requirements governing gene and genome editing therapy products have changed and may continue to change in the future, including, e.g., the draft guidance document titled "Human Gene Therapy Products Incorporating Human Genome Editing" that the FDA issued in March 2022;
- to date, only a limited number of products that involve *in vivo* gene transfer have been approved globally;
- improper modulation of a gene sequence, including unintended editing events or insertion of a sequence into certain locations in a patient's chromosome, could lead to cancer, other aberrantly functioning cells or other diseases, including death;
- transient expression of the Cas9 protein could lead to patients having an immunological reaction towards those cells, which could be severe or life-threatening;
- corrective expression of a missing protein in patients' cells could result in the protein being recognized as foreign, and lead to a sustained immunological reaction against the expressed protein or expressing cells, which could be severe or life-threatening; and
- regulatory agencies may require extended follow-up observation periods of patients who receive treatment using genome editing products including, for example, the FDA's recommended 15-year follow-up observation period for

these patients, and we will need to adopt such observation periods for our product candidates if required by the relevant regulatory agency, which could vary by country or region.

Further, because our *ex vivo* product candidates involve editing human cells and then delivering modified cells to patients, we are subject to many of the challenges and risks that engineered cell therapies face. For example, clinical trials using engineered cell-based gene therapies may require unique products to be created for each patient and such individualistic manufacturing may be both inefficient and cost-prohibitive.

To date, human clinical trials utilizing either *in vivo* or *ex vivo* CRISPR/Cas9-based therapeutics, including our clinical trials for NTLA-2001 for transthyretin (“ATTR”) amyloidosis and NTLA-2002 for hereditary angioedema (“HAE”), are still at an early stage. In November 2021, we received MHRA approval for an amendment to our approved protocol for NTLA-2001 which enabled us to include patients with ATTR amyloidosis with cardiomyopathy. There is no certainty that the FDA or other similar agencies will continue to apply to all our CRISPR/Cas9 product candidates the same regulatory pathway and requirements it is applying to other *in vivo* therapies or *ex vivo* engineered therapeutics. In addition, if any product candidates encounter safety or efficacy problems, development delays, regulatory issues or other problems, our development plans and business could be significantly harmed. Further, competitors that are developing *in vivo* or *ex vivo* products with similar technology may experience problems with their product candidates or programs that could in turn cause us to identify problems with our product candidates and programs that would potentially harm our business.

We received IND authorization from the FDA for NTLA-5001 in September 2021 and CTA authorization from the MHRA in November 2021, and the first patient was dosed in the Phase 1/2a study. In addition, we received authorization in October 2021 from the U.K.’s MHRA and New Zealand’s MEDSAFE to initiate a Phase 1/2 study evaluating NTLA-2002 for the treatment of adults with HAE, and the first dose-escalation cohort of patients have been dosed in such clinical trial. We have decided to discontinue the first-in-human study of NTLA-5001, an investigational autologous T cell receptor (“TCR”)-T cell therapy, and are pivoting to an allogeneic version of this program currently in preclinical development. This decision is not due to any safety or efficacy data emerging from the trial. It is instead based on the potential of our allogeneic platform to consistently deliver a high-quality, readily available and persistent cell product for treatment of aggressive cancers. We may experience manufacturing delays or other issues that prevent us from executing the first-in-human clinical trials for NTLA-2002 or our other product candidates on the timeline we expect. Moreover, we cannot guarantee that the FDA, MHRA, MEDSAFE, or other regulatory authorities will not change their requirements in the future or approve amendments to our INDs or equivalent regulatory filings, including for NTLA-2001, NTLA-2002, or NTLA-5001, including any requirements related to our discontinuing the clinical trial for NTLA-5001.

Negative public opinion and increased regulatory scrutiny of CRISPR/Cas9 use, genome editing or gene therapy generally may damage public perception of the safety of any product candidates that we develop and adversely affect our ability to conduct our business or obtain regulatory approvals for such product candidates.

Gene therapy in general, and genome editing in particular, remain novel technologies, with only a limited number of gene therapy products approved to date in the U.S. and EU. Public perception may be influenced by claims that gene therapy or genome editing, including the use of CRISPR/Cas9, is unsafe or unethical, or carries an undue risk of side effects, such as improper modification of a gene sequence in a patient’s chromosome that could lead to cancer, and gene therapy or genome editing may not gain the acceptance of the public or the medical community. In particular, our success will depend upon physicians who specialize in the treatment of diseases targeted by our product candidates prescribing treatments that involve the use of our product candidates in lieu of, or in addition to, existing treatments with which they are more familiar and for which greater clinical data may be available. In addition, responses by the U.S., state or foreign governments to negative public perception or ethical concerns may result in new legislation or regulations that could limit our ability to develop or commercialize any product candidates, obtain or maintain regulatory approval or otherwise achieve profitability. More restrictive statutory regimes, government regulations or negative public opinion could have an adverse effect on our business, financial condition and results of operations and prospects, and may delay or impair the development and commercialization of our product candidates or demand for any products we may develop. For example, certain gene therapy trials led to several well-publicized adverse events, including cases of leukemia and death. Serious adverse events, such as these, in our clinical trials, or other clinical trials involving gene therapy or genome editing products or our competitors’ products, even if not ultimately attributable to the relevant product candidates, and the resulting publicity could result in increased government regulation, unfavorable public perception, potential regulatory delays in the testing or approval of our product candidates, stricter labeling requirements for those product candidates that are approved and a decrease in demand for any such product candidate. In addition, the use of the technology by third parties in areas that are not being pursued by us, such as for targeting and editing of embryonic cells, could adversely impact public and governmental perceptions regarding the ethics and risks of the CRISPR/Cas9 technology and lead to social or legal changes that could limit our ability to apply the technology to develop human therapies addressing disease. For example, reports of the use of CRISPR/Cas9 in China and Russia to edit embryos *in utero* have generated and may continue to create negative public perception about the use of the technology in humans. Negative public and governmental perception of the technology, or additional governmental regulation of our technologies, could also adversely affect our stock price or our ability to enter into revenue generating collaborations or obtain additional funding from the public markets.

Risks Related to Competition

We face significant competition in an environment of rapid technological change. The possibility that our competitors may achieve regulatory approval before we do or develop therapies that are more advanced or effective than ours may harm our business and financial condition or our ability to successfully market or commercialize our product candidates.

The biotechnology and pharmaceutical industries are extremely competitive in the race to develop new products. While we believe we have significant competitive advantages with our industry-leading expertise in genome editing, clinical development expertise and dominant IP position, we currently face and will continue to face competition for our development programs from companies that use genome editing or gene therapy development platforms and from companies focused on more traditional therapeutic modalities such as small molecules and antibodies. The competition is likely to come from multiple sources, including large and specialty pharmaceutical and biotechnology companies, academic research institutions, government agencies and public and private research institutions. Many of these competitors may have access to greater capital and resources than us. For any products that we may ultimately commercialize, not only will we compete with any existing therapies and those therapies currently in development, but we will also have to compete with new therapies that may become available in the future.

Competitors in our efforts to provide genetic therapies to patients can be grouped into at least three sets based on their product discovery platforms:

Our platform and product foci are on the development of therapies using CRISPR-based technologies. Genome editing companies focused on CRISPR-based technologies include: Beam Therapeutics Inc., Caribou Biosciences, Inc., CRISPR Therapeutics AG, Editas Medicine, Inc., Verve Therapeutics Inc. and ToolGen, Inc.

There are also companies developing therapies using additional gene-editing technologies, which include Allogene Therapeutics, Inc., bluebird bio, Inc., Cellectis S.A., Precision Biosciences, Inc., Sangamo Therapeutics, Inc., Homology Medicines, Inc., Poseida Therapeutics, Inc. and Prime Medicine, Inc.

We are also aware of companies developing therapies in various areas related to our specific *ex vivo* research and development programs. These companies include Allogene Therapeutics, Inc., Precision BioSciences, Inc., CRISPR Therapeutics AG, Cellectis S.A. and Editas Medicine, Inc. In *in vivo*, these companies include Editas Medicine, Inc., CRISPR Therapeutics AG, Locus Biosciences, Inc., Excision Biotherapeutics, Inc. and Precision Biosciences, Inc.

Specific to our NTLA-2001 program, we are aware of other companies that are currently commercializing or developing products and therapies used to treat TTR amyloidosis, including Pfizer, Inc., Alnylam Pharmaceuticals, Inc., Ionis Pharmaceuticals, Inc., BridgeBio Pharma Inc. and Novo Nordisk A/S.

Specific to our NTLA-2002 program, we are aware of other companies that are currently commercializing or developing products used to treat HAE including Takeda Pharmaceutical Company Limited, BioCryst Pharmaceuticals Inc., Pharming Group N.V. and CSL Limited.

Our competitors will also include companies that are or will be developing other genome editing methods as well as small molecules, biologics, *in vivo* gene therapies, engineered cell therapies and nucleic acid-based therapies for the same indications that we are targeting with our CRISPR/Cas9-based therapeutics.

Any advances in gene therapy, engineered cell therapies or genome editing technology made by a competitor may be used to develop therapies that could compete against any of our product candidates.

Many of these competitors have substantially greater research and development capabilities and financial, scientific, technical, intellectual property, manufacturing, marketing, distribution and other resources than we do, and we may not be able to successfully compete with them.

Even if we are successful in selecting and developing any product candidates, in order to compete successfully we may need to be first-to-market or demonstrate that our CRISPR/Cas9-based products are superior to therapies based on the same or different treatment methods. If we are not first-to-market or are unable to demonstrate such superiority, any products for which we are able to obtain approval may not be commercially successful. Furthermore, in certain jurisdictions, if a competitor has orphan drug status for a product and if our product candidate is determined to be contained within the scope of a competitor's orphan drug exclusivity, then approval of our product for that indication or disease could potentially be blocked, for example, for up to seven years in the U.S. and 10 years in the EU.

We may never succeed in any or all of these activities and, even if we do, we may never generate revenues that are significant or large enough to achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease our value and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations.

Risks Related to the Industry

Results, including data from our preclinical and clinical studies, are not necessarily predictive of our other ongoing and future preclinical and clinical studies, and they do not guarantee or indicate the likelihood of approval of any potential product candidate by the FDA or any other regulatory agency. If we cannot replicate positive results from any of our preclinical or clinical activities and studies, we may be unable to successfully develop, obtain regulatory approval for and commercialize any potential product candidate.

From time to time, we may disclose interim data from our clinical trials, such as the interim results of our ongoing Phase 1 study of NTLA-2001. Interim data from clinical trials that have not been completed are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available or as patients from our clinical trials continue other treatments for their disease. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. As a result, interim data should be viewed with caution until we make the final data and analysis available.

In addition, there is a high failure rate, as well as potential substantial and unanticipated delays, for product candidates progressing through preclinical and clinical studies. Even if we are able to successfully complete our ongoing and future preclinical and clinical activities and studies for any potential product candidate, we may not be able to replicate, or may have to engage in significant efforts and resource and time investments to replicate, any positive results from these or any other studies in any of our future preclinical and clinical trials, and they do not guarantee approval of any potential product candidate by the FDA or any other necessary regulatory authorities in a timely manner or at all. For more information regarding these risks, see also the above risk factor section entitled "Risks Related to Preclinical and Clinical Development."

Inconclusive results, lack of efficacy, adverse events or additional safety concerns in clinical trials that we or others conduct may impede the regulatory approval process or overall market acceptance of our product candidates.

Therapeutic applications of genome editing technologies, and CRISPR/Cas9 in particular, for both *in vivo* products and *ex vivo* products, are unproven and must undergo rigorous clinical trials and regulatory review before receiving marketing authorization. If the results of our clinical studies or those of any other third parties, including with respect to genome editing technology or engineered cell therapies, are inconclusive, fail to show efficacy or if such clinical trials give rise to safety concerns or adverse events, we may:

- be prevented from, or delayed in, obtaining marketing approval for our product candidates;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings;
- be subject to the addition of labeling statements, such as warnings or contraindications, or other types of regulatory restrictions or scrutiny;
- be subject to changes in the way the product is administered;
- be required to perform additional clinical studies to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities modify or withdraw their legal requirements or written guidance, if any, regarding the applicable regulatory approval pathway or any approval of the product in question, or impose restrictions on its distribution in the form of a modified Risk Evaluation and Mitigation Strategy ("REMS") or similar strategy;
- be sued; or
- experience damage to our reputation.

Additionally, our product candidates could potentially cause other adverse events that have not yet been predicted and the potentially permanent nature of genome editing effects, including CRISPR/Cas9's effects, on genes or novel cell therapies in the organs of the human body may make these adverse events irreversible. The inclusion of critically ill patients in our clinical studies or those of our competitors may result in deaths or other adverse medical events, including those due to other therapies or medications that such patients may be using. Any of these events could prevent us from achieving or maintaining regulatory approval or market acceptance of our product candidates and impair our ability to achieve profitability.

Research and development of biopharmaceutical products is inherently risky. We may not be successful in our efforts to use and enhance our genome editing technology to create a pipeline of product candidates, establish the necessary manufacturing capabilities, obtain regulatory approval and develop commercially successful products, or we may expend our limited resources on programs that do not yield a successful product candidate and fail to capitalize on potential product candidates or diseases that may be more profitable or for which there is a greater likelihood of success. If we fail to develop product candidates, our commercial opportunity, if any, will be limited.

We are at an early stage of development and our technology and approach has not yet led, and may never lead, to the approval or commercialization of any of our product candidates, including NTLA-2001 for ATTR amyloidosis or NTLA-2002 for HAE, or for other product candidates, including NTLA-2003 and NTLA-3001 for alpha-1 antitrypsin deficiency ("AATD") and NTLA-6001 for CD30+ lymphomas, being deemed appropriate for clinical development and ultimately approval by a regulatory agency. Even if we are successful in building our pipeline of product candidates, completing clinical development, establishing the necessary manufacturing processes and capabilities, obtaining regulatory approvals and commercializing product candidates will require substantial additional funding and are subject to the risks of failure inherent in therapeutic product development. Investment in biopharmaceutical product development involves significant risk that any potential product candidate will fail to demonstrate acceptable safety and efficacy profiles, gain regulatory approval, or become commercially viable.

We cannot provide any assurance that we will be able to successfully advance any of our product candidates, including NTLA-2001, NTLA-2002, NTLA-2003, NTLA-3001 or NTLA-6001, through the entire research and development process. Any of our other programs may show promise, yet fail to yield product candidates for clinical development or commercialization for many reasons. For more information regarding these risks, see the above risk factor section entitled "<u>Risks Related to Clinical Development</u>."

Even if we obtain regulatory approval of any product candidates, such candidates may not gain market acceptance among physicians, patients, hospitals, third party payors and others in the medical community.

The use of the CRISPR/Cas9 system to create genome editing-based therapies is a recent development and may not become broadly accepted by patients, healthcare providers, third party payors and other stakeholders. A variety of factors will influence whether our product candidates are accepted in the market, including, for example:

- the clinical indications for which our product candidates are approved;
- the potential and perceived advantages of our product candidates over alternative treatments;
- the incidence and severity of any side effects, including any unintended deoxyribonucleic acid (“DNA”) changes;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA or other regulatory authorities;
- the timing of market introduction of our product candidates;
- availability or existence of competitive products;
- the cost of treatment in relation to alternative treatments;
- the amount of upfront costs or training required for healthcare providers to administer our product candidates;
- the availability of adequate coverage, reimbursement and pricing by government authorities and other third party payors;
- patients’ ability to access healthcare providers capable of delivering our product candidates;
- patients’ willingness and ability to pay out-of-pocket in the absence of coverage and reimbursement by government authorities and other third party payors;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies;
- any restrictions on the use of our product candidates together with other medications;
- interactions of our product candidates with other medicines patients are taking;
- potential adverse events for any products developed, or negative interactions with regulatory agencies, by us or others in the gene therapy and genome editing fields; and
- the effectiveness of our sales and marketing efforts and distribution support.

Even if our products achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our products, are more cost effective or render our products obsolete. In addition, adverse publicity due to the ethical and social controversies surrounding the therapeutic *in vivo* use of CRISPR/Cas9, gene edited modified cells, or other therapeutics mediums, such as viral vectors that we may use in our clinical trials may limit market acceptance of our product candidates. If our product candidates are approved but fail to achieve market acceptance among physicians, patients, hospitals, third party payors or others in the medical community, we will not be able to generate significant revenue. Our efforts to educate the healthcare providers, patients and third party payors about our products may require significant resources and may never be successful.

Risks Related to Healthcare

Coverage and reimbursement may be limited or unavailable in certain market segments for our product candidates, if approved, which could make it difficult for us to sell any product candidates or therapies profitably.

The success of our product candidates, if approved, depends on the availability of adequate coverage and reimbursement from third party payors, including government agencies, private health insurers and health maintenance organizations. There is significant uncertainty related to the insurance coverage and reimbursement of any newly approved product, but in particular novel gene editing and engineered cell products. All the therapeutic indications approved by the relevant authorities may not be covered or reimbursed. In addition, we cannot be sure that coverage and reimbursement will be available for, or accurately estimate the potential revenue from, our product candidates because they are novel treatments for diseases using a new technology and delivery approaches.

In the U.S. and some other jurisdictions, patients generally rely on third party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid in the U.S., and commercial payors are critical to new product acceptance.

Government authorities and other third party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. In the U.S., the principal decisions about reimbursement for new medicines are typically made by the Centers for Medicare & Medicaid Services ("CMS"), an agency within the U.S. Department of Health and Human Services. CMS decides whether and to what extent a new medicine will be covered and reimbursed under Medicare, and private payors often follow CMS's coverage decisions. Other jurisdictions have agencies, such as the National Institute for Health and Care Excellence ("NICE") in the U.K., that evaluate the use and cost-effectiveness of therapies, which impact the utilization and price of the medicine in such jurisdiction.

In the U.S., no uniform policy of coverage and reimbursement for products exists among third party payors. As a result, obtaining coverage and reimbursement approval of a product from a third party payor is a time-consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data for the use of our products to each potential payor, with no assurance that coverage and adequate reimbursement will be obtained from all or any of them. Even if we obtain coverage for a given product, the resulting reimbursement payment rates might be insufficient or may require co-payments that patients find unacceptably high, which may prevent us from achieving or sustaining profitability. Additionally, third party payors may not cover, or provide adequate reimbursement for, long-term follow-up evaluations required following the use of our gene-modifying products.

In addition, each country in which we seek approval to market our product candidates has unique laws and market practices regulating coverage and reimbursement for human therapeutics. Market acceptance and sales of our products in each country will depend on our ability to meet each of these jurisdiction's requirements for coverage and reimbursement. Further, changes to the country's existing requirements may also affect our ability to commercialize our products in the future, or achieve profitability from their sale.

We may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, physician payment transparency laws, health information privacy and security laws and anti-corruption laws. If we are unable to comply, or have not fully complied, with such laws or their relevant foreign counterparts, we could face substantial penalties.

The sale, distribution and marketing of human therapeutics and the relationship with healthcare providers are strictly regulated by laws in the U.S. and most other jurisdictions in which we intend to seek approval for our product candidates. In addition, the collection and use of personally identifiable information, including health-related information, is regulated by federal, state and foreign privacy, data security and data protection laws. Failure to comply with these laws could impair our ability to properly sell our product candidates in particular jurisdictions and subject us to liability from private and governmental entities. In addition, addressing these diverse and sometimes contradictory requirements in myriad jurisdictions may necessitate that we expend significant resources on compliance efforts. Any failure to comply with these requirements may leave us exposed to possible enforcement actions and potential liability.

The laws that may affect our ability to operate include:

- the federal Anti-Kickback Statute, which generally prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe, or certain rebates) for referring an individual or inducing a transaction for which payment may be made under a federal healthcare program, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Violators are subject to civil and criminal fines and penalties, as well as imprisonment and exclusion from government healthcare programs;

- federal civil and criminal false claims laws, including the federal False Claims Act ("FCA"), which generally prohibit knowingly making false or fraudulent claims for payment or approval from the federal government, including Medicare, Medicaid and other government payors, or knowingly seeking to conceal, decrease or avoid an obligation to pay money to the federal government. Certain indirect acts, such as promoting products off-label, can be deemed FCA violations by a manufacturer even it did not submit the claim directly to the government payor. Further, under the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the "Affordable Care Act" or "ACA"), a violation of the federal Anti-Kickback Statute may also constitute a false or fraudulent claim under the FCA. These laws impose criminal and civil penalties on violators. Private individuals may bring civil whistleblower or *qui tam* actions for alleged FCA violations on behalf of the federal government;

- the U.S. federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act," created under the ACA, and their implementing regulations, which require manufacturers of certain products paid under Medicare, Medicaid or the Children's Health Insurance Program, including biopharmaceutical products, to report information related to payments or other consideration made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare providers and teaching hospitals, as well as ownership and investment interests held by these healthcare providers and their immediate family members in the manufacturer. Failure to comply could result in civil monetary penalties. Effective January 1, 2022, the U.S. federal physician transparency reporting requirements extend to include transfers of value made to certain non-physician providers (physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists & anesthesiologist assistants, and certified nurse-midwives);

- the Foreign Corrupt Practices Act ("FCPA") and other laws, which generally prohibit improper payments or offers of payments to foreign governments and their officials and political parties by U.S. persons and entities to obtain or retain business. In the U.K., for example, the U.K. Bribery Act 2010 prohibits giving financial or other advantages to encourage persons to perform their functions improperly;

- the Federal Food, Drug and Cosmetic Act, which prohibits the commercialization of adulterated or misbranded drugs, and the Public Health Service Act, which prohibits the commercialization of biological products without a biologics license;

- analogous state and foreign legal requirements that:

    - may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third party payors, including private insurers, and may be broader in scope than their federal equivalents, such as state anti-kickback and false claims laws;

    - require following the pharmaceutical industry's voluntary compliance guidelines and the federal government's relevant compliance guidance, or otherwise restrict payments to healthcare providers;

    - require reporting information related to payments and other consideration to physicians and other healthcare providers or marketing expenditures; and

- other national and local laws that govern the distribution and sale of pharmaceuticals, including imposing requirements regarding licensing, record-keeping, storage and security requirements.

The scope and enforcement of each of these laws is not always certain and is subject to legislative, judicial or prosecutorial changes. Further, because of the breadth of these laws, it is possible that some of our business activities could be subject to challenge under one or more of such laws. Indeed, U.S. federal and state enforcement bodies have increasingly scrutinized healthcare companies and providers interactions, which has led to a number of investigations, prosecutions, convictions and settlements in the industry. Ensuring business arrangements comply with applicable laws, as well as responding to possible investigations by government authorities, can be time- and resource-consuming and can divert a company's attention from its business.

The increasingly global nature of our business operations, including clinical development efforts, subjects us to domestic and foreign anti-bribery and anti-corruption laws and regulations, such as the FCPA and the U.K. Bribery Act. These activities create the risk of unauthorized payments or offers of payments that are prohibited under the FCPA, the U.K. Bribery Act or similar laws. It is our policy to implement safeguards to discourage these practices by our employees and agents. However, these safeguards may ultimately prove ineffective, and our employees, consultants, and agents may engage in conduct for which we might be held responsible. Violations of the FCPA may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results and financial condition.

Further, the U.S. federal and state government, as well as other jurisdictions, have myriad laws regulating the collection, storage, distribution and use of data of employees, patients, agents, and others. These different laws governing the privacy and security of health and other personal information often differ from each other in significant ways and may not have the same effective requirements, thus complicating efforts to comply with their respective provisions. For example:

- in the U.S., the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH"), imposes requirements relating to the privacy, security and transmission of individually identifiable health information on certain covered healthcare providers, health plans, and healthcare clearinghouses, and their respective business associates that perform services for them that involve the use or disclosure of such information. These laws impose civil and criminal monetary penalties, and give state attorneys general the authority to file civil actions for damages or injunctions, and attorney's fees, in federal courts to enforce the laws;
- the California Consumer Privacy Act ("CCPA") requires covered companies to provide new disclosures to California consumers and afford such consumers new rights with respect to their personal information, including the rights to: request deletion of their information, receive the information on record for them, know what categories of information are being maintained about them, and opt-out of certain sales of their information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches that result in the loss of personal information, which may increase the likelihood of, and risks associated with, data breach litigation. The CCPA became effective in January 2020 and enforceable in July 2020;
- other U.S. states, such as Massachusetts, Nevada, Illinois, Colorado, Virginia, Pennsylvania, Ohio, North Carolina, New Jersey and New York, have enacted and/or are considering laws that impose stringent privacy and/or data security requirements and, most notably, stringent new privacy laws will become effective in Colorado, Virginia, Utah, Connecticut and California in 2023; and
- around the world, many countries have enacted laws that regulate data protection. In the EU and European Economic Area ("EEA") the collection and use of personal data is regulated by the General Data Protection Regulation ("GDPR") and the member states' related data protection and privacy laws, and in the U.K. by its Data Protection Act 2018 and, as of January 1, 2021, the U.K. GDPR (such laws collectively being described as "European Data Protection Law"). Because the European Data Protection Law applies not only to businesses that are established within the EU but also to any business that offers goods or services to individuals in the EU or U.K., it could apply to us. European Data Protection Law imposes strict requirements, including special protections for "sensitive" personal data which includes health and genetic information of individuals in the EU or the U.K.; expanded disclosures about the personal data use; information retention limitations; mandatory data breach notification requirements; and additional oversight obligations relating to third-parties retained to process the personal data. European Data Protection Law grants or enhances the rights of individuals with respect to their personal data, including the rights to object to the processing of the data and request deletion of the same. It also has strict requirements on the transfer of personal data out of the EU or the U.K. to jurisdictions that have not been deemed to offer "adequate" privacy protections, such as the U.S. Failure to comply with the requirements of the European Data Protection Law may result in warning letters, mandatory audits, orders to cease/change the use of data, and financial penalties, including fines of up to 4% of global revenues, or 20,000,000 Euro (£17.5 million in the U.K.), whichever is greater. Moreover, data subjects can seek damages for violations, and non-profit organizations can bring claims on behalf of data subjects.

The costs associated with ensuring compliance with these laws, including in particular European Data Protection Law, may be onerous and adversely affect our business, financial condition, results of operations and prospects. Further, due to Brexit, we may have additional costs and operational challenges in complying with the U.K. GDPR and any other developments regulating the transfer of personal data between the U.K. and EU. We may also need to rely on multiple third parties to meet these legal requirements, which could result in additional liability for us if they do not comply.

Efforts to ensure that we comply with all applicable healthcare and data privacy laws and regulations, as well as other domestic and foreign legal requirements, will involve substantial costs. It is possible that governmental and enforcement authorities in the U.S. or outside the U.S. will conclude that our business practices do not comply with current or future legal requirements. If any noncompliance 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, including the imposition of significant civil, criminal and administrative penalties, damages, disgorgement, monetary fines, individual imprisonment, exclusion from participation in federal healthcare programs (such as Medicare and Medicaid), contractual damages, reputational harm, diminished profits and future earnings, and curtailment or restructuring of our operations, as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, any of which could adversely affect our ability to operate our business and our results of operations. Any action for violation of these laws, even if successfully defended, could result in significant legal expenses and divert management's attention from the operation of the business. Prohibitions or restrictions on sales (including importation or exportation) or withdrawal of future marketed products could materially affect business in an adverse way.

Healthcare cost control initiatives, including healthcare legislative and regulatory reform measures, may have a material adverse effect on our business and results of operations.

The U.S. and many other jurisdictions have enacted or proposed legal changes affecting the healthcare system that could prevent or delay marketing approval of our product candidates, affect our ability to profitably sell our product candidates once approved, and restrict or regulate post-approval activities. Changes in the legal requirements, or their interpretation, could impact our business by compelling, for example, modification to: our manufacturing arrangements; product labeling; pricing and reimbursement arrangements; private or governmental insurance coverage; the sale practices for, or availability of, our products; or record-keeping activities. If any such changes were to be imposed, they could adversely affect the operation of our business.

Third party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In the U.S. and certain other jurisdictions, there have been, and are expected to continue to be, a number of legislative and regulatory changes to the healthcare system that could impact our ability to sell our products profitably. In the U.S., however, significant uncertainty exists regarding the provision and financing of healthcare because the newly elected administration and federal legislators have publicly declared their intention to review and potentially significantly modify the current legal and regulatory framework for the healthcare system.

Current legislation at the U.S. federal and state levels seeks to reduce healthcare costs and improve the quality of healthcare. For example, the U.S. Affordable Care Act, enacted in March 2010, subjected biologic products to potential competition by lower-cost biosimilars; introduced a new methodology to calculate manufacturers' rebates under the Medicaid Drug Rebate Program for certain drugs, including infused or injected drugs; increased manufacturers' minimum Medicaid rebates under the Medicaid Drug Rebate Program; extended the Medicaid Drug Rebate program to pharmaceutical prescriptions of individuals enrolled in Medicaid managed care organizations; imposed new annual fees and taxes for certain branded prescription drugs and biologic agents; created the Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts as of January 1, 2019, off negotiated prices on certain brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and provided incentives to programs that increase the federal government's comparative effectiveness research. At this time, the full effect that the Affordable Care Act would have on our business remains unclear.

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. The Tax Cuts and Jobs Act of 2017 ("Tax Act") includes a provision that decreased the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year, commonly referred to as the "individual mandate," to $0, effective January 1, 2019. On December 14, 2018, a federal district court in Texas ruled the individual mandate is a critical and inseverable feature of the ACA and, therefore, because it was repealed as part of the Tax Act, the remaining provisions of the ACA are invalid as well. On December 18, 2019, the Fifth Circuit U.S. Court of Appeals ("Fifth Circuit") held that the individual mandate is unconstitutional, and remanded the case to the lower court to reconsider its earlier invalidation of the full ACA. Following an appeal by certain defendants, on June 17, 2021, the U.S. Supreme Court dismissed the plaintiffs' challenge to the ACA for lack of standing without specifically ruling on the constitutionality of the ACA, and reversed the Fifth Circuit's judgment and remanded the case with instructions to dismiss. It is unclear how other healthcare reform measures of the Biden administrations or other efforts, if any, to challenge, repeal or replace the ACA, will impact our business.

Other legislative changes relevant to the healthcare system have been adopted in the U.S. since the Affordable Care Act 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. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013, and, due to subsequent legislative amendments, will remain in effect through 2030 unless additional Congressional action is taken. Pursuant to the Coronavirus Aid, Relief, and Economic Security Act, also known as the CARES Act, as well as subsequent legislation, these reductions have been suspended from May 1, 2020 through March 31, 2022 due to the COVID-19 pandemic. Following the suspension, a 1% payment reduction occurred beginning April 1, 2022 through June 30, 2022, and the 2% payment reduction resumed on July 1, 2022. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers, cancer centers and other treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additionally, on July 9, 2021, President Biden issued an executive order directing the FDA to, among other things, work with states and tribes to safely import prescription drugs from Canada and to continue to clarify and improve the approval framework for generic drugs and biosimilars, including the standards for interchangeability of biological products, facilitate the development and approval of biosimilar and interchangeable products, clarify existing requirements and procedures related to the review and submission of BLAs, and identify and address any efforts to impede generic drug and biosimilar competition. It is unclear whether the FDA will make changes or additions to current requirements and procedures relating to BLAs and, if so, how such changes or additions could impact our business.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. As indicated previously, significant uncertainty exists regarding the future scope and effect of current healthcare legislation and regulations because of recent changes in U.S. executive and legislative branches, and elected officials' public declarations of their intention to significantly modify or repeal the current legislative framework. We cannot predict the initiatives that may be adopted in the future, any of which could limit or modify the amounts that foreign, federal and state governments as well as private payors, including patients, will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

Risks Related to Manufacturing and Supply

In vivo *genome editing products and* ex vivo *engineered cell therapies based on CRISPR/Cas9 genome editing technology are novel and may be complex and difficult to manufacture. We could experience manufacturing problems that result in delays in the development, approval or commercialization of our product candidates or otherwise harm our business.*

The manufacturing process used to produce CRISPR/Cas9-based *in vivo* and engineered cell therapy product candidates may be complex, as they are novel and have not been validated for late phase clinical and commercial production and may require components that are difficult to obtain or manufacture at the necessary quantities and in accordance with regulatory requirements. Several factors could cause production interruptions, including equipment malfunctions; facility unavailability or contamination; raw material cost, shortages or contamination; natural disasters, such as the COVID-19 pandemic; disruption in utility services; human error; insufficient personnel; inability to meet legal or regulatory requirements; or disruptions in the operations of our suppliers.

Because our product candidates likely will be regulated as biologics, their processing steps will be more complex than those of most small molecule drugs. Moreover, unlike small molecules, the physical and chemical properties of a complex product such as ours generally cannot be fully characterized. As a result, assays of the finished product or relevant components may not be sufficient to ensure that the product will perform in the intended manner. For this reason, we will employ multiple steps to control the manufacturing process to ensure that the process results in product candidates that meet their specifications, but complications at any one step could adversely impact our manufacturing of products. Further, we may encounter problems achieving adequate quantities and quality of clinical grade materials that meet the FDA or other relevant regulatory agency’s applicable standards or our specifications with consistent and acceptable production yields and costs. Manufacturing process irregularities, even minor deviations from the normal process, could result in product defects or manufacturing issues that cause lot failures, product recalls, product liability claims and litigation, insufficient inventory or production interruption. In addition, product manufacturing and supply could be delayed if the FDA and other regulatory authorities require us to submit lot samples, testing results and protocols, or if they require that we not distribute a lot until they authorize the product’s release.

Further, certain of our product candidates may require components that are unavailable or difficult to acquire or manufacture at the necessary scale and in compliance with regulatory requirements to support our clinical trials or, if approved, commercial efforts. We expect to continue to rely on third party contract manufacturing organizations (“CMOs”) to manufacture these components and the final product candidates for the foreseeable future. We may not have full control of these CMOs and they may prioritize other customers or be unable to provide us with enough manufacturing capacity to meet our objectives. Further, we may rely on CMOs outside the U.S. for certain components of our product candidates, and may be subject to importation regulations that may affect our ability to manufacture or increase the cost of our product candidates.

We also may encounter problems hiring and retaining the experienced scientific, quality-control and manufacturing personnel needed to operate or supervise the necessary manufacturing processes, which could result in delays in production or difficulties in maintaining compliance with applicable regulatory requirements.

Any of these manufacturing and supply issues or delays could restrict our ability to meet clinical or market demand for our products, and be costly to us and otherwise harm our business, financial condition, results of operations and prospects. Further, any problems in manufacturing processes or facilities could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs.

Risks Related to Data and Privacy

Our internal computer systems, or those of our collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our operations and development efforts.

We are increasingly dependent upon information technology systems, infrastructure, and data to operate our business. In the ordinary course of business, we collect, store, and transmit large amounts of confidential information (including but not limited to intellectual property, such as trade secrets, proprietary business information, and personal information). It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential information. We also have outsourced elements of our operations to third parties, and as a result we manage a number of third party vendors who may or could have access to our confidential information. Our third party collaborators, vendors and service providers (including our CMOs and CROs) also have access to large amounts of confidential information relating to our operations, including our research and development efforts. The size and complexity of our information technology systems, and those of third party vendors, service providers and collaborators, and the large amounts of confidential information stored on those systems, make such systems potentially vulnerable to service interruptions or systems failures, or to security breaches from inadvertent or intentional actions by our employees, third party vendors, service providers, collaborators, and/or business partners, or from cyber-attacks by malicious third parties.

In addition to such risks, the adoption of new technologies may also increase our exposure to cybersecurity breaches and failures. Further, having a significant portion of our workforce working from home for extended periods of time due to the COVID-19 pandemic puts us at greater risk of cybersecurity attacks. Cyber-attacks are increasing in their frequency, sophistication, and intensity, and have become increasingly difficult to detect. Cyber-attacks could include the deployment of harmful malware, denial-of-service attacks, social engineering, “phishing” scams, ransomware, network security breaches, and other means to affect service reliability and threaten the confidentiality, integrity, and availability of information. Certain of our service providers have been subject to such attacks and our company or our service providers may be impacted by such attacks in the future. Significant disruptions of these information technology systems or security breaches could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use, or disclosure of, or the prevention of access to, confidential information (including but not limited to trade secrets or other intellectual property, proprietary business information, and personal information), and could result in financial, legal, business, and reputational harm to us and would adversely affect our operations, including our discovery and research and development programs. For example, any such event that leads to unauthorized access, use, or disclosure of personal information, including personal information regarding our employees or current or future clinical trial participants, could harm our reputation, require us to comply with federal and/or state breach notification laws and foreign law equivalents (such as the GDPR or the U.K.’s Data Protection Act), and otherwise subject us to liability, including financial penalties and fines, under laws and regulations that protect the privacy and security of personal information. Also, the loss of preclinical or clinical trial data from completed or future preclinical or clinical trials, respectively, could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed. Security breaches and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type summarized and described above. While we have implemented security measures to protect our information technology systems and infrastructure, there is no assurance that such measures will prevent service interruptions or security breaches that could adversely affect our business.

Interruptions in the availability of server systems or communications with internet or cloud-based services, or failure to maintain the security, confidentiality, accessibility or integrity of data stored on such systems, could harm our business.

We rely upon a variety of internet service providers, third party web hosting facilities and cloud computing platform providers and Software as a Service vendors to support our business. Failure to maintain the security, confidentiality, accessibility or integrity of data stored on such systems could result in interruptions in our operations, damage our reputation in the market, increase our service costs, cause us to incur substantial costs, subject us to liability for damages and/or fines, and divert our resources from other tasks, any one of which could materially adversely affect our business, financial condition, results of operations and prospects. If our security measures or those of our third party data center hosting facilities, cloud computing platform providers, or third party service partners, are breached, and unauthorized access is obtained to our data or our information technology systems, we may incur significant legal and financial exposure and liabilities.

We also do not have control over the operations of the facilities of our cloud service providers, software as a service vendors or our third party web hosting providers, and they also may be vulnerable to damage or interruption from natural disasters, cybersecurity attacks, terrorist attacks, power outages and similar events or acts of misconduct. In addition, any changes in these providers’ service levels may adversely affect our ability to meet our requirements and operate our business.

Social media platforms present new risks and challenges to our business.

As social media continues to expand, it also presents us with new risks and challenges. Social media is increasingly being used to communicate information about us, our programs and the diseases our therapeutics are being developed to treat. Social media practices in the pharmaceutical and biotechnology industries are evolving, which creates uncertainty and risk of noncompliance with regulations applicable to our business. For example, patients may use social media platforms to comment on the effectiveness of, or adverse experiences with, a product or a product candidate, which could result in reporting obligations or other consequences. Further, the accidental or intentional disclosure of non-public information by our workforce or others through media channels could lead to information loss. In addition, there is a risk of inappropriate disclosure of sensitive information or negative or inaccurate posts or comments about us, our products, or our product candidates on any social media platform. The nature of social media prevents us from having real-time control over postings about us on social media. We may not be able to reverse damage to our reputation from negative publicity or adverse information posted on social media platforms or similar mediums. If any of these events were to occur or we otherwise fail to comply with applicable regulations, we could incur liability, face restrictive regulatory actions or incur other harm to our business including quick and irreversible damage to our reputation, brand image and goodwill.

Risks Related to the COVID-19 Pandemic

Business interruptions resulting from the COVID-19 outbreak or similar public health crises could delay or cause a disruption of the development of our product candidates and adversely impact our business.

Public health crises, such as pandemics or similar outbreaks, could adversely impact our business. The current COVID-19 pandemic has continuously evolved, and to date has led to the implementation of various responses, including government-imposed quarantines, travel restrictions and other public health safety measures, as well as reported adverse impacts on healthcare resources, facilities and providers, in Massachusetts, across the U.S. and in other countries. The U.S. government, as well as certain foreign governments, have imposed restrictions on travel to or from the U.S. and other jurisdictions, which may delay or prevent us from conducting our business in a timely and efficient manner. The extent to which COVID-19 impacts our operations or those of our third party partners will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the duration of the outbreak, the identification of new variants of the virus, additional or modified government actions, new information that will emerge concerning the severity and impact of COVID-19 and the actions to contain COVID-19 or address its impact in the short and long term, among others.

Additionally, completion of our clinical trials for NTLA-2001 for ATTR amyloidosis and NTLA-2002 for HAE, as well as timely completion of preclinical activities and initiation of planned clinical trials for other product candidates, such as NTLA-2003 and NTLA-3001 for AATD or NTLA-6001 for CD30+ lymphomas, is dependent upon the availability of, for example, preclinical and clinical trial sites, researchers and investigators, regulatory agency personnel, and materials, which may be adversely affected by global health matters, such as pandemics. We plan to conduct preclinical activities and clinical trials for our investigational drug product candidates in geographies that are currently being affected by COVID-19.

Further, in response to the pandemic and in accordance with direction from state and local government authorities, we have restricted and may continue to restrict access to our facilities mostly to personnel and third parties who must perform critical activities that must be completed on-site, limited the number of such personnel that can be present at our facilities at any one time, and requested that personnel work remotely, as appropriate. In the event that governmental authorities were to further modify current restrictions, our employees conducting research and development or manufacturing activities may not be able to access our laboratory or manufacturing space, and our core activities may be significantly limited or curtailed, possibly for an extended period of time.

Some factors from the COVID-19 pandemic that could delay or otherwise adversely affect the completion of our preclinical activities and our ongoing and planned clinical trials for our investigational drug product candidates, as well as our business generally, include:

- the potential diversion of healthcare resources away from the conduct of preclinical activities and 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 prospective clinical trials;
- risk that participants enrolled in our clinical trials will contract COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events;
- risk that we are unable to enroll and retain participants in our clinical trials in adequate numbers;
- limitations on travel that could interrupt key preclinical activities and trial activities, such as limited operations at laboratory facilities, 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 prospective clinical trials;

- delays in necessary interactions with local regulators, ethics committees and other important agencies and contractors due to limitations in employee resources or forced furlough of government employees;
- interruption, delays or backlogs in the operations of the FDA, MHRA and comparable domestic and foreign regulatory agencies, which may impact review, inspection, authorization and approval timelines;
- interruption in global shipping affecting the transport of clinical trial materials, such as patient samples, investigational drug product candidates and conditioning drugs, raw materials and other supplies used in our prospective clinical trials;
- interruption of, or delays in receiving, supplies of our investigational drug product from our CMOs due to staffing shortages, production slowdowns or stoppages and disruptions in delivery systems;
- limitations on our business operations by local, state, or the federal government that could impact our ability to conduct our preclinical or clinical activities, including completing our IND-enabling studies or our ability to select future development candidates;
- 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, 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;
- business disruptions or cybersecurity risks associated with a substantial portion of our workforce working from home for extended periods of time; and
- the impact on the valuation of our marketable securities and other financial assets due to market volatility.

These and other factors arising from COVID-19 could worsen in countries that are already afflicted with coronavirus or could continue to spread to additional countries, 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 other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our common stock or such sales may be on unfavorable terms. The COVID-19 outbreak continues to rapidly evolve. The extent to which the outbreak may impact our business, preclinical studies and ongoing and planned clinical trials will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and other actions to contain the outbreak or address its impact, such as social distancing and quarantines or lock-downs in the U.S. and other countries, business closures or business disruptions and the effectiveness of actions taken in the U.S. and other countries to contain and address the disease.

Risks Related to Commercialization

If, in the future, we are unable to establish sales, marketing and distribution capabilities or enter into agreements with third parties to sell, market and distribute products based on our technologies, we may not be successful in commercializing our products if and when any product candidates or therapies are approved and we may not be able to generate any revenue.

We do not currently have a sales, marketing or distribution infrastructure and, as a company, have no experience in the sale, marketing or distribution of therapeutic products. To achieve commercial success for any approved product candidate for which we retain sales and marketing responsibilities, we must build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services.

Factors that may inhibit our efforts to commercialize our product candidates include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future product candidates that we may develop;

- the lack of complementary treatments to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines;
- the location of patients in need of our product candidates and the treating physicians who may prescribe the products; and
- unforeseen costs and expenses, as well as legal and regulatory requirements, associated with creating and operating a sales and marketing organization.

If we enter into arrangements with third parties to perform sales, marketing and distribution services, we would likely have lower product revenue or profitability than if we ourselves were to market and sell our product candidates. In addition, we may be unable to enter into sales and marketing arrangements with third parties, or into arrangements with terms that are favorable to us. We likely will have little control over such third parties and any of them may fail to devote the necessary resources and attention to sell and market our product candidates effectively. If we do not establish sales, marketing and distribution capabilities successfully, either on our own or through third parties, we may not be successful in commercializing our product candidates, and our business, results of operations, financial condition and prospects will be materially adversely affected.

Risks Related to Our Financial Position and Need for Additional Capital

Risks Related to Past Financial Condition

We have never generated any revenue from product sales and our ability to generate revenue from product sales and become profitable depends significantly on our success in a number of areas.

We have no products approved for commercial sale, have not generated any revenue from product sales, and do not anticipate generating any revenue from product sales until we have received regulatory approval for the commercial sale of one of our product candidates. Our ability to generate revenue, and achieve and retain profitability, depends significantly on our success in many areas, including:

- selecting commercially viable product candidates and effective delivery methods;
- successfully completing research, preclinical and clinical development of product candidates;
- obtaining regulatory approvals and marketing authorizations for product;
- developing a sustainable and scalable manufacturing process for product candidates, including establishing and maintaining commercially viable supply relationships with third parties, such as CMOs, and potentially establishing our own manufacturing capabilities and infrastructure;
- investing significant resources in developing large scale manufacturing and operational infrastructure prior to clinical evidence of safety and efficacy for a given product candidate;
- launching and commercializing product candidates for which we obtain regulatory approvals and marketing authorizations, either directly or with a collaborator or distributor;
- accurately assessing the size and addressability of potential patient populations;
- obtaining market acceptance of our product candidates as viable treatment options;
- addressing any competing technological and market developments;
- negotiating favorable terms in any collaboration, licensing or other arrangements into which we may enter or which may be necessary for us to develop, manufacture or commercialize our product candidates;
- maintaining good relationships with our collaborators and licensors;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trade secrets and know-how;
- avoiding infringement of or obtaining licenses to any valid intellectual property owned or controlled by third parties; and
- attracting, hiring and retaining qualified personnel.

Even if one or more product candidates that we discover and develop are approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate and the timing of such costs may be out of our control. If we are not able to generate revenue from the sale of any approved products, we may never become profitable.

Our limited operating history may make difficult the evaluation of our business's success to date and assessment of our future viability.

We are an early clinical-stage company. We were founded and commenced operations in mid-2014. All of our product candidates are still in the preclinical development or early clinical stage. We have not yet demonstrated our ability to successfully complete any clinical trials, including large-scale, pivotal clinical trials, obtain marketing approvals, manufacture clinical and commercial scale therapeutics, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Our ability to generate product revenue or profits, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates, which may never occur. We may never be able to develop or commercialize a marketable product.

Each of our programs may require additional discovery research and then preclinical and clinical development, regulatory approval in multiple jurisdictions, obtaining manufacturing supply, capacity and expertise, building of a commercial organization, substantial investment and significant marketing efforts before we generate any revenue from product sales. In addition, our product candidates must be approved for marketing by the FDA, or certain other foreign regulatory agencies, before we may commercialize any product.

Our limited operating history, particularly in light of the rapidly evolving genome editing field, may make it difficult to evaluate our current business and predict our future performance. Our relatively short history as an operating company makes any assessment of our future success or viability subject to significant uncertainty. We will encounter risks and difficulties frequently experienced by very early-stage companies in rapidly evolving fields. If we do not address these risks successfully, our business will suffer.

We have incurred net losses in each period since our inception, anticipate that we will continue to incur net losses in the future and may never achieve profitability.

We are not profitable and have incurred losses in each period since our inception. Our net loss was $100.7 million for the three months ended June 30, 2022. As of June 30, 2022, we had an accumulated deficit of $950.6 million. We expect these losses to increase as we continue to incur significant research and development and other expenses related to our ongoing operations, seek regulatory approvals for our future product candidates, scale-up manufacturing capabilities, maintain, expand and protect our intellectual property portfolio and hire additional personnel to support the development of our product candidates and to enhance our operational, financial and information management systems. Although we believe that our cash, cash equivalents, and marketable securities will enable us to fund our operating and capital expenditure requirements at least through the next twenty four months, we cannot predict the impact of the COVID-19 pandemic on future results of operations and financial condition due to a variety of factors, including the health of our employees, the ability of suppliers to continue to operate and deliver, the ability of Intellia to maintain operations, continued access to transportation resources, any further government and/or public actions taken in response to the pandemic and ultimately the length of the pandemic. We expect to finance our operations through a combination of collaboration revenue, equity or debt financings or other sources, which may include collaborations with third parties. Given the impact of COVID-19 on the U.S. and global financial markets, we may be unable to access further equity or debt financing when needed.

A critical aspect of our strategy is to invest significantly in our technology to improve the efficacy and safety of potential product candidates that we discover. Even if we succeed in discovering, developing and ultimately commercializing one or more of these product candidates, we will continue to incur losses for the foreseeable future relating to our substantial research and development expenditures to develop our technologies. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business, such as the COVID-19 pandemic. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital. Further, the net losses we incur may fluctuate significantly from quarter to quarter and year to year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance.

Risks Related to Future Financial Condition

We may need to raise substantial additional funding to fund our operations. If we fail to obtain additional financing, we may be unable to complete the development and commercialization of any product candidates.

Our operations have required substantial amounts of cash since inception, and we expect to spend substantial amounts of our financial resources on our discovery programs going forward and future development efforts. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical development, manufacture (or have manufactured) product candidates and components, and then conduct extensive clinical trials to demonstrate the safety and efficacy of any of our future product candidates in humans. Because preclinical and clinical testing is expensive and can take many years to complete, we may require additional funding to complete these undertakings. Further, if we are able to identify product candidates that are eventually approved, we will require significant additional amounts in order to launch and commercialize our product candidates. For the foreseeable future, we expect to continue to rely on additional financing to achieve our business objectives. Our future capital requirements will depend on and could increase significantly as a result of many factors, including the scope, progress, results and costs of drug discovery, preclinical development, laboratory testing and clinical trials for our current or future product candidates, including additional expenses attributable to adjusting our development plans (including any supply related matters).

We will require additional capital for the further development and commercialization of any product candidates and may need to raise additional funds sooner if we choose to expand more rapidly than we presently anticipate or due to other unanticipated factors. Disruptions in the financial markets in general and, more recently, due to the COVID-19 pandemic have made equity and debt financing more difficult to obtain, and may have a material adverse effect on our ability to meet our fundraising needs.

We cannot be certain that additional funding will be available on acceptable terms, or at all. We have no committed source of additional capital and if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development, manufacture or commercialization of our product candidates or other research and development initiatives. Our collaboration and license agreements may also be terminated if we are unable to meet the payment or other obligations under the agreements. We could be required to seek collaborators for product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to product candidates in markets where we otherwise would seek to pursue development or commercialization ourselves.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline.

Raising additional capital may cause dilution to our stockholders and restrict our operations.

We will need additional capital in the future to continue our planned operations. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our existing stockholders may be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. In addition, the impact on the economic and financial markets of the COVID-19 pandemic has depressed the valuation of public companies, which could require selling equity at lower prices to ensure appropriate capitalization. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

Unfavorable national or global economic conditions or political developments could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the national or global economy and financial markets. For example, governmental statements, actions or policies, political unrest and global financial crises can cause extreme volatility and disruptions in the capital and credit markets. A severe or prolonged economic downturn, political unrest or additional global financial crises, including those resulting from the current COVID-19 pandemic, could result in a variety of risks to our business, including weakened demand for our products, if approved, or our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our suppliers, possibly resulting in supply disruption. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate, further political developments and financial market conditions could adversely impact our business.

Inadequate funding for, or change of priorities or disruptions at, the FDA and other government agencies in or outside the U.S. could hinder their ability to hire, retain, or deploy key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA and other similar regulatory agencies to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and authorization to accept the payment of user fees, reallocation of resources to address unique or new healthcare issues (such as the COVID-19 pandemic), and statutory, regulatory, and policy changes. For example, the FDA's average review times at the agency have fluctuated in recent years as a result of these factors in the U.S. In addition, government funding of other government agencies on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other similar agencies may also slow the time necessary for new product applications to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, Securities and Exchange Commission ("SEC") and other government employees and stop critical activities.

If a prolonged government shutdown occurs (or if the COVID-19 pandemic continues to disrupt or prevent regular inspections, reviews, or other regulatory activities conducted by regulatory agencies) in the U.S. or other jurisdictions where we plan to conduct our clinical trials, manufacturing, or other operations, it could significantly impact the ability of the relevant agency, such as the FDA, to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Risks Related to Our Reliance on Third Parties

Risks Related to Our Reliance on Collaboration Partners

Our technological advancements and any potential for revenue may be derived in part from our collaborations, including, for example, with Regeneron and AvenCell, and if the collaboration or co-development agreements related to a material collaboration were to be terminated or materially altered in an adverse manner, our business, financial condition, results of operations and prospects would be harmed.

We rely on strategic collaborations to advance our technology and co-develop products that we plan to co-commercialize. If our collaboration partner in a material collaboration fails to develop, obtain regulatory approval for or ultimately commercialize any product candidate from the development programs governed by the respective collaboration agreements, including, e.g., a co-development or co-commercialization agreement, or breaches or terminates our collaboration with it, our business, financial condition, results of operations and prospects could be harmed. In addition, any material alteration, in an adverse manner, of any material collaboration agreement, or dispute or litigation proceedings we may have related to a material collaboration in the future could delay development programs, create uncertainty as to ownership of or access to intellectual property rights, distract management from other business activities and generate substantial expense.

As described within the "**Collaborations and Other Arrangements**" section of this Quarterly Report on Form 10-Q, we have entered into co-development and co-promotion ("Co/Co") arrangements with Regeneron and AvenCell. Either Regeneron or AvenCell may change its strategic focus or pursue alternative technologies in a manner that results in reduced, delayed or no revenue to us under these arrangements. For example, Regeneron has a variety of marketed products and product candidates either by itself or with other companies, including some of our competitors. In addition, the corporate objectives of our collaborators, such as Regeneron or AvenCell, may not be consistent with our best interests. Regeneron or AvenCell may change its position regarding its participation and funding of our joint activities, which may impact our ability to successfully pursue those programs.

Our existing and future collaborations will be important to our business. If we are unable to maintain any of these collaborations, or if these collaborations are not successful, our business could be adversely affected.

We have limited capabilities for product discovery and development and do not yet have any capability for sales, marketing or distribution. Accordingly, we have entered, and plan to enter, into collaborations with other companies, including our therapeutic-focused collaboration agreements with Novartis Institutes for BioMedical Research, Inc. (“Novartis”) and Regeneron, that we believe can provide such capabilities. These current and future therapeutic-focused collaborations could provide us with important technologies and/or funding for our programs and technology. Our existing and future therapeutic collaborations may have a number of risks, including that collaborators:

- have significant discretion in determining the efforts and resources that they will apply;
- may not perform their obligations as expected;
- may dispute the amounts of payments owed;
- may not pursue development and commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization programs or license arrangements based on clinical trial results, changes in their strategic focus or available funding, or external factors, such as a strategic transaction that may divert resources or create competing priorities;
- may delay, insufficiently fund, stop, initiate new or repeat clinical trials, reformulate a product candidate for clinical testing, or abandon a product candidate;
- could develop independently, or with third parties, products that compete directly or indirectly with our products and product candidates;
- may view product candidates discovered in our collaborations as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the development or commercialization of our product candidates;
- may dispute ownership or rights in jointly developed technologies or intellectual property;
- may fail to comply with applicable legal and regulatory requirements regarding the development, manufacture, sale, distribution or marketing of a product candidate or product;
- with sales, marketing, manufacturing and distribution rights to our product candidates may not commit sufficient resources to the product’s sale, marketing, manufacturing and distribution;
- may disagree with us about material issues, including proprietary rights, contract interpretation, payment obligations or the preferred course of discovery, development, sales or marketing, which might cause delays or terminations of the research, development or commercialization of product candidates, lead to additional and burdensome responsibilities for us with respect to product candidates, or result in litigation or arbitration, any of which would be time-consuming and expensive;
- may not properly maintain or defend their or our relevant intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation and liability;
- may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- could become involved in a business combination or cessation that could cause them to deemphasize or terminate the development or commercialization of any product candidate licensed to it by us; and
- may terminate our collaborations, which could require us to raise additional capital to develop or commercialize the applicable product candidates, or lose access to the collaborator’s intellectual property.

If our therapeutic collaborations do not result in the successful discovery, development and commercialization of products or if a collaborator terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. All of the risks relating to product discovery, development, regulatory approval and commercialization summarized and described in this report also apply to the activities of our therapeutic collaborators.

Additionally, if one of our collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

As part of our business strategy, we may pursue acquisitions or licenses of assets or acquisitions of businesses, or disposition of assets or technologies. For example, in February 2022, we announced the acquisition of Rewrite Therapeutics, Inc. (“Rewrite”) in order to add additional capabilities to our growing platform. We also may pursue strategic alliances and joint ventures that leverage our core technology and industry experience. If we decide to collaborate with other companies to discover, develop and commercialize therapeutic products, we face significant competition in seeking appropriate collaborators because, for example, third-parties have comparable rights to the CRISPR/Cas9 system or similar genome editing technologies. In addition, we have limited experience with acquiring, disposing of or licensing assets or forming strategic alliances and joint ventures. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator’s resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator’s evaluation of a number of factors. If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms, or at all, we may have to curtail, delay or abandon discovery efforts or development programs, and the development, manufacture or commercialization of a product candidate, or increase our expenditures and undertake these activities at our own expense. If we elect to fund and undertake discovery, development, manufacturing or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we fail to enter into collaborations and do not have sufficient funds or expertise to undertake the necessary discovery, development, manufacturing and commercialization activities, we may not be able to further develop our product candidates, manufacture the product candidates, bring them to market or continue to develop our technology and our business may be materially and adversely affected. Furthermore, we may not identify or complete these transactions in a timely manner, on a cost-effective basis, or at all, and we may not realize the anticipated benefits of any acquisition, license, strategic alliance or joint venture.

Risks Related to AvenCell

We launched a new company, AvenCell, alongside Cellex Cell Professionals GmbH and Blackstone Life Sciences Advisors L.L.C. We are exposed to risks associated with the launch of the new company and may not realize the advantages we expect from it.

In July 2021, we launched AvenCell alongside Cellex Cell Professionals GmbH (“Cellex”) and Blackstone Life Sciences Advisors L.L.C. (“BXLS”) (the “AvenCell Launch”). AvenCell acquired GEMoaB GmbH (“GEMoaB”), a wholly-owned subsidiary of Cellex. AvenCell combines GEMoaB’s clinical-stage universal CAR-T program and platforms with our allogeneic universal cell engineering platform. In connection with the AvenCell Launch, we entered into a license and collaboration agreement with AvenCell (the “AvenCell License”), under which we will collaborate to develop allogeneic universal CAR-T cell therapies, as well as a co-development and co-funding agreement (the “AvenCell Co/Co Agreement”) to develop allogeneic universal CAR-T cell products targeted to a particular undisclosed immuno-oncology therapeutic target. AvenCell may not be successful in the timeframe we expect, or at all. In addition, if AvenCell fails to develop, obtain regulatory approval for or ultimately commercialize any product candidate from its development programs, including those governed by the respective AvenCell License or AvenCell Co/Co Agreement, or breaches or terminates such agreements, our business, financial condition, results of operations and prospects could be harmed.

Additionally, we, BXLS, and Cellex (and certain related entities) each have equal ownership of AvenCell and, therefore, share control over portions of the operations of AvenCell. Because of our minority ownership in AvenCell, we have a lesser degree of control over its business operations, thereby potentially increasing the financial, legal, operational and compliance risks Intellia may face in the future. In addition, we may be dependent on controlling shareholders or management of AvenCell who may have business interests, strategies or goals that are inconsistent with ours. These risks include the possibility that AvenCell, BXLS or Cellex has economic or business interests or goals that are or become inconsistent with our economic or business interests or goals; is in a position to take action contrary to our instructions, requests, policies or objectives; subjects us to unexpected liabilities or risks; takes actions that reduce our return on investment; acts in a manner that compromises our key licensed rights, or important IP or other rights that we own or license; or takes actions that harm our reputation or restrict our ability to run our business. Furthermore, as a result of our ownership in AvenCell, we may be required to include AvenCell’s financial information in our consolidated financial results. We have not previously included a minority-owned subsidiary in our financial statements and therefore are subject to increased risk in accurately representing and incorporating AvenCell’s financial statements into our own, which could result in delayed filings with the SEC and the finding of a material or significant weakness, among others. This could result in harmful consequences to our business, including an adverse reaction in the financial markets due to a loss of confidence in the reliability of our consolidated financial statements.

Risks Related to Our Reliance on Other Third Parties

We currently rely, and expect to continue to rely in part on, third parties to manufacture our clinical product supplies, and we intend to rely on third parties for at least a portion of the manufacturing process of our product candidates, if approved. Our business could be harmed if the third parties fail to provide us with sufficient quantities of product inputs or fail to do so at acceptable quality levels or prices or fail to meet legal and regulatory requirements.

We are in the early stages of establishing our own manufacturing facility to provide preclinical, clinical and commercial supply of our product candidates and must rely on outside vendors, such as CMOs, to manufacture supplies and process our product candidates. We have only recently begun to manufacture and process product candidate components on a clinical scale and may not be able to successfully complete or continue to do so. We will make changes to optimize the manufacturing process, and cannot be sure that even minor changes in the process will result in therapies that are safe, potent, pure or effective.

Any facility that we may have in the future and the facilities used by our CMOs to manufacture our product candidates must be inspected and approved by, as applicable, the FDA or other foreign regulatory agencies after we apply for approval or marketing authorization. For the foreseeable future, we will be dependent on our CMO partners to properly manufacture adequate supply of our product candidates and components in a timely manner and in accordance with our specification. We also will depend on these entities for compliance with relevant legal and regulatory requirements for manufacture of our product candidates, including current good manufacturing practice ("cGMP"), and in certain cases, current good tissue practice ("cGTP"), requirements. If we or our CMOs cannot successfully manufacture material that conforms to our specifications and the strict relevant regulatory requirements, we and our CMOs will not be able to secure or maintain regulatory approval for our respective manufacturing facilities. In addition, we have no control over the ability of our CMOs to maintain adequate quality control, quality assurance and qualified personnel, particularly as we increase the scale of our manufactured material. If the FDA or relevant foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates.

If any CMO with whom we contract 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 such scenario, our clinical trials supply could be delayed significantly as we establish alternative supply sources. In some cases, the technical skills required to manufacture our product candidates may be unique to the original CMO and we may have difficulty 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. We will also need to verify, such as through a comparability study, that any new manufacturing process will produce our product candidate according to the specifications previously submitted to 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. In addition, changes in manufacturers often involve changes in manufacturing procedures and processes, which could require that we conduct bridging studies between our prior clinical supply used in our clinical trials and that of any new manufacturer. We may be unsuccessful in demonstrating the comparability of clinical supplies which could require the conduct of additional clinical trials.

Events such as the ongoing COVID-19 pandemic could adversely impact the ability of our vendors, including CMOs, to manufacture supplies, process and deliver our product candidates, or to otherwise meet our requirements or those of the applicable regulatory agencies. For example, since the beginning of the COVID-19 pandemic, three vaccines for COVID-19 have been granted Emergency Use Authorization by the FDA, and two of those later received marketing approval. Additional vaccines may be authorized or approved in the future. The resultant demand for vaccines and potential for manufacturing facilities and materials to be commandeered under the Defense Production Act of 1950, or equivalent foreign legislation, may make it more difficult to obtain materials or manufacturing capacity for the products needed for our clinical trials, which could lead to delays in these trials. Additionally, these events could also impact the regulatory agencies' ability to inspect and approve our vendors, including CMOs, within our currently expected timeframe.

We currently rely, and expect to continue to rely on, third parties to conduct our preclinical studies and clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines or comply with legal and regulatory requirements, we may not be able to obtain regulatory approval of or commercialize any potential product candidates.

We currently depend, and expect to continue to depend, upon third parties, including independent investigators, to conduct our clinical trials under agreements with universities, medical institutions, CROs, strategic partners and others. We expect to have to negotiate budgets and contracts with CROs, trial sites and other service and goods providers, which may result in delays to our development timelines and increased costs.

We currently rely, and expect to continue to rely heavily on third parties over the course of our preclinical studies and clinical trials, and, as a result, will have limited control over the clinical investigators and other service providers, and limited visibility into their day-to-day activities, including with respect to their compliance with the approved clinical protocol and other legal, regulatory and scientific standards. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our legal responsibilities. We and these third parties are required to comply with good clinical practice ("GCP"), which are regulations and guidelines enforced by the FDA, EMA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, clinical investigators and trial sites. If we or any of these third parties fail to comply with applicable GCP requirements, the clinical data generated in our clinical trials may be deemed unreliable and the relevant regulatory authorities may require us to suspend or terminate these trials or perform additional preclinical studies or clinical trials before approving our marketing applications. We cannot be certain that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the GCP requirements. In addition, our clinical trials must be conducted with product produced under cGMP, and in certain cases, cGTP, requirements and may require a large number of test patients.

Our or these third parties' failure to comply with these requirements or to recruit a sufficient number of patients may require us to delay, suspend, repeat or terminate clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates applicable federal, state or local, as well as foreign, laws and regulations, such as the fraud and abuse or false claims laws and regulations or privacy and security laws. In jurisdictions such as the U.K. and EU, penalties for violations of privacy laws and other regulations can be financially significant. Further, if any of our CROs, clinical investigators or others involved in our clinical trials fail to comply with such laws and regulations, we could be held responsible for its actions or omissions and be negatively impacted. In the event of non-compliance with European Data Protection Law, we could be subject to substantial fines and other penalties, including fines of up to 10,000,000 Euros or up to 2% of our total worldwide annual turnover for certain comparatively minor offenses, or up to 20,000,000 Euros or up to 4% of our total worldwide annual turnover for more serious offenses.

Any third parties conducting our current or future clinical trials will not be our employees and, except for remedies that may be available to us under our agreements with such third parties, we cannot control whether they devote sufficient time and resources to our ongoing preclinical, clinical, and nonclinical programs. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other product development activities, which could affect their performance on our behalf. If these third parties fail to meet their contractual obligations, legal requirements or expected deadlines, need to be replaced, or generate inaccurate or substandard clinical data by failing to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of or successfully commercialize our product candidates. In addition, the COVID-19 pandemic or similar events, and responsive governmental actions, could divert healthcare resources, including necessary materials and clinical trial personnel, away from our clinical trial sites to focus on pandemic concerns. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed.

A resurgence of the COVID-19 pandemic (or a similar event) and measures taken in response by U.S. or other governments may have a significant impact on our CROs, clinical sites and other service and goods providers, which may affect our ability to initiate and complete preclinical studies and clinical trials.

If any of our relationships with these third party CROs, clinical sites or other third parties terminate, we may not be able to enter into arrangements with alternative CROs, clinical sites or other third parties or to do so on commercially reasonable terms. Switching or adding additional CROs, clinical sites or other providers involves additional cost and requires management time and focus. In addition, the transition to a new CRO may result in delays, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with these parties, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

Risks Related to Employee Matters and Managing Our Growth

Risks Related to Hiring and Retention

We expect to expand our research, development, manufacturing, clinical and regulatory capabilities, and, as a result, we may encounter difficulties in hiring capable personnel and otherwise managing our growth, which could disrupt our operations.

We expect growth in the number of our employees and the scope of our operations, including the areas of technology research, product development and manufacturing, clinical, regulatory and quality affairs and, if any product candidates receive marketing approval, sales, marketing and distribution. To manage our anticipated growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities, and recruit and train additional qualified personnel. Due to our limited financial resources, the significant competition for employees in our market and industry, and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to recruit and train additional qualified personnel or otherwise effectively manage the expansion of our operations, which may lead to significant costs and divert our management and business resources. Any inability to manage growth could delay or disrupt the execution of our business and operational plans.

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

We are highly dependent on the research and development, clinical, legal, financial and business development expertise of John M. Leonard, M.D., our President and Chief Executive Officer, Glenn Goddard, our Executive Vice President, Chief Financial Officer and Treasurer, David Lebwohl, our Executive Vice President and Chief Medical Officer, James Basta, our Executive Vice President, General Counsel and Corporate Secretary, Laura Sepp-Lorenzino, our Executive Vice President and Chief Scientific Officer, Eliana Clark, our Executive Vice President and Chief Technical Officer and Derek Hicks, our Executive Vice President and Chief Business Officer, as well as the other principal members of our management, scientific and clinical teams. Although we have entered into employment arrangements with our executive officers, each of them may terminate their employment with us at any time. We do not maintain “key person” insurance for any of our executives or other employees.

Recruiting and retaining qualified scientific, clinical, manufacturing and sales and marketing personnel will also be important for our success. The loss of the services of our executive officers or other key employees could impede the achievement of our research, development and commercialization objectives, and seriously harm our ability to successfully implement our business strategy. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize products using our technology. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies, universities and research institutions for similar personnel. The market for qualified personnel in the biotechnology space generally, and genome editing and gene therapy fields in particular, in and around the Cambridge, Massachusetts area is especially competitive. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategies. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. Further, some of the qualified personnel that we hire and recruit are not U.S. citizens, and there is uncertainty with regard to their future employment status due to the current U.S. administration’s announced intention of modifying the legal framework for non-U.S. citizens to be employed in the U.S. Finally, events such as the COVID-19 pandemic and government restrictions and directives, including immigration policy changes, could adversely impact our ability to recruit, retain or replace key employees necessary to achieve our objectives and strategic imperatives, If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

Risks Related to Government Regulation

Risks Related to Obtaining Regulatory Approval

While the regulatory framework for approval of gene therapy including genome editing products exists, the limited specific guidance and precedent for genome-edited products makes the regulatory approval process potentially more unpredictable and we may experience significant delays in the clinical development and regulatory approval, if any, of our product candidates.

The research, testing, manufacturing, labeling, approval, selling, import, export, marketing and distribution of drug products, including genome editing therapeutics and engineered cell therapies, are subject to extensive regulation by the FDA in the U.S. and other regulatory authorities in other jurisdictions. For example, we are not permitted to market any drug or biological product, including *in vivo* products or engineered cell therapies, until we receive regulatory approval from the relevant regulatory agency, such as the FDA in the U.S. or EMA in the EU. We expect the novel nature of our product candidates to create challenges or raise questions from regulatory agencies in obtaining regulatory approval. For example, in the U.S., the FDA has approved neither any *in vivo* gene editing-based therapeutic nor any nuclease edited cell therapy for human therapeutic use. The FDA may also require a panel of experts, referred to as an Advisory Committee, to deliberate on the adequacy of the safety and efficacy data to support approval. The Advisory Committee's opinion, although not binding, may significantly impact our ability to obtain approval of our product candidates. Moreover, while we are not aware of any specific genetic or biomarker tests for which regulatory approval would be necessary to advance any of our product candidates to clinical trials or commercialization, regulatory agencies could require the development and approval of such tests. Accordingly, the regulatory approval pathway for such product candidates may be uncertain, complex, expensive and lengthy, as well as different in each jurisdiction, and approval may not be obtained in any, some or all jurisdictions.

Other non-regulatory entities may impact the regulatory agencies and ethics committees' evaluation and approval decision regarding our product candidates. For example, in December 2018, the World Health Organization ("WHO") established the Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing. While the standards are expected to focus primarily on germline modifications, the guidelines could impact somatic cell editing research programs, such as ours. In March 2019, the WHO Expert Advisory Committee recommended initiating the first phase of a new global registry (the "Registry") to track research on human genome editing. Accepting this recommendation, the WHO announced plans in August 2019 for an initial phase of the registry using the International Clinical Trials Registry Platform ("ICTRP"). This phase will include worldwide registries for both somatic cell editing and germline editing clinical trials. Although registration of these clinical trials in the WHO's Registry currently is voluntary, failure to register could impact the evaluation by the regulators and ethics committees. In July 2021, the WHO Expert Advisory Committee issued recommendations and a governance framework for human genome editing research intended for the international, regional, national and institutional level. For example, the WHO recommended that: clinical trials using somatic human genome editing technologies be reviewed and approved by the appropriate research ethics committee before inclusion in its Registry; basic and preclinical gene editing research also be included in a registry; somatic or germline human genome editing research should only take place in jurisdictions with domestic policy and oversight mechanisms; and relevant patent holders help ensure equitable access to human genome editing interventions. We cannot predict the impact of the WHO's current and future recommendations, or any policies or actions that ethics committees or regulatory agencies may take in response to such recommendations, on our research, clinical and business plans and results.

Patient enrollment is a significant factor in the timing of clinical trials and is affected by many factors, including willingness of physicians to use an experimental therapy, the availability of existing treatments, the trial's geographic locations and the number of patients in each geographic location. In addition, our ability to enroll and dose patients may be delayed by the regulatory authority as well as, the IRB or another ethics committee (whether local or national). For example, as set forth in the National Institutes of Health ("NIH") Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules ("NIH Guidelines"), gene therapy clinical trials are also subject to review and oversight by an institutional biosafety committee ("IBC"), a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. Before a clinical trial can begin at any institution, that institution's IRB and its IBC assesses the safety of the research and identifies any potential risk to public health or the environment. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. Further, a clinical trial may be suspended or terminated by us, the relevant IRBs or ethics committees of the trial's DMC, or the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience termination of, or delays in the completion of, any clinical trial of product candidates, the commercial prospects for our product candidates will be harmed, and our ability to generate product revenue will be impaired. In addition, any delays in completing any clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

We have received orphan drug designation for NTLA-2001 and may in the future seek orphan drug designation for some of our other product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug status, including market exclusivity, which may cause our revenue, if any, to be reduced.

Regulatory authorities in some jurisdictions, including the U.S. and Europe, may in response to a request from the sponsor designate products for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may grant orphan drug designation to a product intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 in the U.S., or a patient population of 200,000 or more in the U.S. when there is no reasonable expectation that the cost of developing and making available the product in the U.S. will be recovered from sales in the U.S. for that product. Orphan drug designation must be requested before submitting a BLA. In the U.S., orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. After the FDA grants orphan drug designation, the generic identity of the product and its potential orphan use are disclosed publicly by the FDA. In the EU, a medicinal product may be designated as orphan if (1) it is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition; (2) either (a) such condition affects no more than five in 10,000 persons in the EU when the application is made, or (b) it is unlikely that the product, without the benefits derived from orphan status, would generate sufficient return in the EU to justify the necessary investment in its development; and (3) there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU, or if such a method exists, the product will be of significant benefit to those affected by the condition. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

Generally, if a product with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the approval of another marketing application for the same drug for the same indication for that time period. The applicable period is seven years in the U.S. and ten years in the EU. Orphan drug exclusivity may be lost if the FDA or the EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. In addition, the FDA can subsequently approve a marketing application for the same drug, or a product with the same active moiety, for treatment of the same disease or condition if it concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care. Similarly, the EMA may grant a marketing authorization to a similar medicinal product for the same indication as an authorized orphan product at any time if it is established that the second product, although similar, is safer, more effective or otherwise clinically superior to the authorized product. The FDA and EMA also can approve a different drug for the same orphan indication, or the same drug for a different indication, during the orphan exclusivity period.

We have received orphan drug designation for NTLA-2001 for the treatment of TTR amyloidosis. We may seek orphan drug designation for some of our other product candidates in orphan indications in which there is a medically plausible basis for the use of these product candidates. Even where we obtain orphan drug designation, exclusive marketing rights in the U.S. may be limited if we seek approval for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. In addition, although we intend to seek orphan drug designation for other product candidates, we may never receive such designations.

The FDA may reevaluate the Orphan Drug Act and its regulations and policies. We do not know if, when, or how the FDA may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business could be adversely impacted.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, but a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA approves a product candidate, comparable regulatory authorities in foreign jurisdictions must also authorize the marketing and sale of the product candidate in those countries. Approval procedures vary among jurisdictions and can involve requirements and review periods different from those in the U.S., including additional preclinical studies or clinical trials as clinical studies conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the U.S., a product candidate must be approved for reimbursement before it can be sold in that jurisdiction. In some cases, the price that we are allowed to charge for our products is also subject to approval or to other legal restrictions.

Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the relevant regulatory requirements or to receive applicable marketing approvals, our target markets will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Risks Related to Ongoing Regulatory Obligations

Even if we receive regulatory approval of any product candidates or therapies, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

If any of our product candidates are approved, they may be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, distribution, storage, advertising, promotion, sampling, record-keeping, and submission of safety and efficacy data, and other post-market information and potential obligations (such as post-marketing studies), including both federal and state requirements in the U.S. and requirements of comparable foreign regulatory authorities. In addition, we will be subject to continued compliance with cGMP and GCP, and in certain cases, cGTP, requirements for any clinical trials that we conduct post-approval.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA and comparable foreign regulatory authority requirements, as applicable, including ensuring that quality control and manufacturing procedures conform to cGMP and, in certain cases, cGTP requirements, and applicable product tracking and tracing requirements. As such, we and our CMOs will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any BLA, other marketing applications, and previous responses to inspection observations. Accordingly, we and others with whom we work must continue to expend time, money, and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

Any regulatory approvals that we receive for our product candidates may be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase IV clinical trials and surveillance to monitor the safety and efficacy of the product candidate. For example, the FDA or other regulatory agency may also require a REMS or similar program as a condition of approval of our product candidates, which could entail requirements for long-term patient follow-up, a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, we will have to comply with their respective legal or regulatory requirements including submissions of safety and other post-marketing information and reports and registration.

The FDA or other regulatory agencies may seek to impose consent decrees, withdraw approval or prohibit the export or import of a product if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from clinical trials or the market, or voluntary or mandatory product recalls;
- manufacturing delays and supply disruptions until issues identified by regulatory inspections are remediated;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA or the relevant regulatory agency to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- product seizure or detention or refusal to permit the import or export of our product candidates; and
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising, and promotion of products that are placed on the U.S. market, and the relevant foreign regulatory agencies do the same in their respective jurisdictions. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we or our collaborators are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or our collaborators are not able to maintain regulatory compliance, we or our collaborators may lose any marketing approval that we or our collaborators may have obtained, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

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

We are exposed to the risk of non-compliance, fraud, misconduct or other illegal activity by our employees, independent contractors, clinical investigators, CMOs, CROs, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and/or negligent conduct that fails to: comply with federal and state laws and those of other applicable jurisdictions; provide true, complete and accurate information to the FDA and other similar foreign regulatory bodies; comply with manufacturing standards; comply with federal and state data privacy, security, fraud and abuse and other healthcare laws and regulations in the U.S. and similar foreign privacy or fraudulent misconduct laws; or report financial information or data accurately; or disclose unauthorized activities to us. If we obtain FDA approval of any of our product candidates and begin commercializing those products in the U.S., our potential exposure under such laws will increase significantly, and our costs associated with compliance with such laws are also likely to increase. These laws may impact, among other things, our current activities with clinical investigators and research patients, as well as proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare products and services, as well as certain 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, including promotion and marketing of off-label uses of our products, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of clinical trials or creating fraudulent data in our preclinical studies or clinical trials, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. Additionally, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

Legal, political and economic uncertainty surrounding the exit of the United Kingdom from the EU is a source of instability and uncertainty.

The U.K.'s withdrawal from the EU, or Brexit, became effective on January 31, 2020. EU laws, including pharmaceutical laws, continued to apply in the U.K. during a transitional period, which ended on December 31, 2020. On December 24, 2020, the U.K. and EU signed an EU-U.K. Trade and Cooperation Agreement ("TCA"), which became provisionally applicable on January 1, 2021 and has been formally applicable since May 1, 2021. The TCA includes specific provisions concerning pharmaceuticals, which include the mutual recognition of cGMP, inspections of manufacturing facilities for medicinal products and cGMP documents issued, but does not foresee wholesale mutual recognition of U.K. and EU pharmaceutical regulations. At present, Great Britain has implemented EU legislation on the marketing, promotion and sale of medicinal products through the Human Medicines Regulations 2012 (as amended) (under the Northern Ireland Protocol, the EU regulatory framework will continue to apply in Northern Ireland). The regulatory regime in Great Britain therefore currently aligns in the most part with EU regulations, however it is possible that these regimes will diverge in the future now that Great Britain's regulatory system is independent from the EU and the TCA does not provide for mutual recognition of U.K. and EU pharmaceutical legislation. This lack of clarity on future U.K. laws and regulations and their interaction with the EU laws and regulations increases our regulatory burden of operating in and doing business with both the U.K. and the EU.

The long-term effects of Brexit will depend in part on how the EU-U.K. TCA, and any future agreements signed by the U.K. and the EU, take effect in practice. Such a withdrawal from the EU is unprecedented, and it is unclear how the restrictions on the U.K.'s access to the European single market for goods, capital, services and labor within the EU and the wider commercial, legal and regulatory environment, could impact our current and future operations and clinical activities in the U.K.

We may also face new regulatory costs and challenges that could have an adverse effect on our operations as a result of Brexit. Since the regulatory framework in the U.K. covering quality, safety and efficacy of medicinal products, clinical trials, marketing authorization, commercial sales and distribution of medicinal products is derived from EU directives and regulations, Brexit could materially impact the future regulatory regime with respect to the approval of any of our future product candidates in the U.K., because U.K. legislation has the potential to diverge from EU legislation. For instance, the new Clinical Trials Regulation which became effective in the EU on January 31, 2022 and provides for a streamlined clinical trial application and assessment procedure covering multiple EU Member States has not been implemented into U.K. law, and a separate application will need to be submitted for clinical trial authorization in the U.K. In addition, Great Britain is no longer covered by the centralized procedure for obtaining EEA-wide marketing authorizations from the EMA for medicinal products and a separate process for authorization of drug products is required in Great Britain. For a period of two years from January 1, 2021, the U.K.'s MHRA may rely on a decision taken by the European Commission on the approval of a new marketing authorization in the centralized procedure, in order to more quickly grant a new Great Britain marketing authorization, however a separate application will still be required. Any delay in obtaining, or an inability to obtain, any regulatory approvals, as a result of Brexit or otherwise, would delay or prevent us from commercializing our current or future product candidates in the U.K. and could restrict our ability to generate revenue from that market.

Failure to comply with health and data protection laws and regulations could lead to government enforcement actions (which could include civil or criminal penalties), private litigation, and/or adverse publicity and could negatively affect our operating results and business.

We and any potential collaborators, clinical investigators, CMOs, CROs, consultants or vendors may be subject to federal, state, and foreign data protection laws and regulations (i.e., laws and regulations that address privacy and data security). In the U.S., numerous federal and state laws and regulations, including federal health information privacy laws, state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), that govern the collection, use, disclosure and protection of health-related and other personal information could apply to our operations or the operations of our collaborators. In addition, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under HIPAA, as amended by HITECH, or by comparable laws in other jurisdictions. Depending on the facts and circumstances, we could be subject to civil, criminal, and administrative penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a covered entity in a manner that is not authorized or permitted by laws or regulations.

Compliance with U.S., both state and national, 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.

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

We are subject to numerous federal, state and local environmental, health and safety, and laboratory animal welfare laws and regulations. These legal requirements include those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes as well as those which regulate the care and use of animals in research. Our operations will involve research using research animals and the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also may produce hazardous waste products. We generally anticipate contracting with third parties for the disposal of these materials and wastes. We will not be able to eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from any use by us of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We 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.

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

Failure to comply with labor and employment laws and regulations could subject us to legal liability and costs, including fines or penalties, as well as reputational damage that could harm our business.

We are subject to numerous federal, state and local laws and regulations relating to the recruiting, hiring, compensation and treatment of employees and contractors. These laws and regulations cover financial compensation (including wage and hour standards), benefits (including insurance and 401K plans), discrimination, workplace safety and health, benefits, and workers' compensation.

The Commonwealth of Massachusetts also has laws that expand on federal laws or create additional rights for employees or obligations for employers. For example, on July 1, 2018, the Massachusetts Equal Pay Act went into effect, which added protections employers must comply with regarding pay equity for “comparable work”. There is currently uncertainty regarding the exact scope of these new legal limits and such uncertainty may remain for the foreseeable future. We may face increased employment and legal costs to ensure we are complying with this law. In addition, on October 1, 2018, a new Massachusetts non-compete law went into effect, placing additional restrictions on employers seeking to enter into non-competition agreements with employees. This law may negatively impact our ability to prevent employees from working with direct or indirect competitors in the future and may affect our ability to retain key talent in a competitive market.

Our failure to comply with these and other related laws could expose us to civil and, in some cases, criminal liability, including fines and penalties. Further, government or employee claims that we have violated any of these laws, even if ultimately disproven, could result in increased expense and management distraction, as well as have an adverse reputational impact on us.

Risks Related to Intellectual Property

Risks Related to Third Party and Licensed Intellectual Property

Third party claims of intellectual property infringement against us, our licensors or our collaborators may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our avoiding infringement of the valid patents and proprietary rights of third parties.

Numerous U.S. and foreign issued patents and pending patent applications owned by third parties exist in the fields in which we are developing our product candidates and in areas potentially related to components and methods we use or may use in our research and development efforts. As industry, government, academia and other biotechnology and pharmaceutical research expands and more patents are issued, the risk increases that our product candidates may give rise to claims of infringement of the patent rights of others. Our development candidates are complex and may include multiple components such as Cas9 protein or messenger ribonucleic acid (“mRNA”) encoding Cas9 protein, guide RNAs (“gRNAs”), targeting molecules, or formulation components such as lipids. We cannot guarantee that any of these components of our technology, processes, future product candidates or the use of such product candidates do not infringe third party patents. It is also possible that we have failed to identify relevant third party patents or applications. Because patent rights are granted jurisdiction-by-jurisdiction, our freedom to practice certain technologies, including our ability to research, develop and commercialize our product candidates, may differ by country.

Third parties may assert that we infringe their patents or that we are otherwise employing their proprietary technology without authorization, and may sue us. There may be third party patents of which we are currently unaware with claims to compositions, formulations, methods of manufacture or methods of use or treatment that cover product candidates we discover and develop. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies or the manufacture, use or sale of our product candidates infringes these patents. If any such third party patents were held by a court of competent jurisdiction to cover our technologies or product candidates, the holders of any such patents may be able to block our ability to commercialize the applicable product candidate unless we obtain a license under the applicable patents, or until such patents expire or are finally determined to be held invalid or unenforceable. Such a license may not be available on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing, manufacturing or importing the infringing technology or product. In addition, we could be found liable for monetary damages, including treble damages and attorneys’ fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing one or more of our product candidates, force us to redesign our infringing products or force us to cease some or all of our business operations, any of which could materially harm our business and could prevent us from further developing and commercializing our proposed future product candidates thereby causing us significant harm. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business. If we are unable to obtain a necessary license to a third party patent on commercially reasonable terms, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business.

Third parties may seek to claim intellectual property rights that encompass or overlap with intellectual property that we own or license from them or others. Legal proceedings may be initiated to determine the scope and ownership of these rights, and could result in our loss of rights, including injunctions or other equitable relief that could effectively block our ability to further develop and commercialize our product candidates. For example, through the Caribou License, we sublicense the rights of the Regents of the University of California and the University of Vienna (collectively, "UC/Vienna") to a worldwide patent portfolio that covers methods of use and compositions relating to engineered CRISPR/Cas9 systems for, among other things, cleaving or editing DNA and altering gene product expression in various organisms, including eukaryotic cells. We sublicense the UC/Vienna rights to this portfolio for human therapeutic, prophylactic and palliative uses, including companion diagnostics, except for anti-fungal and anti-microbial uses. This patent portfolio to-date includes, for example, multiple granted, allowed, and/or allowable patent applications in the U.S., as well as granted patents from the European Patent Office, the United Kingdom's Intellectual Property Office, the German Patent and Trade Mark Office, Australia's Intellectual Property agency and China's Intellectual Property Office, among others. Because UC/Vienna co-own this portfolio with Dr. Emmanuelle Charpentier (from whom we do not have sublicense rights), we refer to this co-owned worldwide patent portfolio as the "UC/Vienna/Charpentier patent family." UC/Vienna could challenge Caribou's rights under their license agreement, including Caribou's right to sublicense its rights to others, such as Intellia, and on what terms such a sublicense would be granted, each of which could adversely impact our rights under our license agreement with Caribou.

On June 16, 2021, we executed a leaseback agreement with Caribou, which settled the arbitration with Caribou. Under the leaseback agreement, in exchange for an upfront payment, potential future regulatory and sales milestones, and single-digit royalties payable by Caribou to us, we have agreed to leaseback or sublicense certain CRISPR/Cas9 IP, including our chemical gRNA modification technology and foundational CRISPR/Cas9 IP, to Caribou so that it can develop and commercialize CB-010. Caribou also will be responsible for any payments required in respect of our in-licensed IP, such as the foundational CRISPR/Cas9 IP. Under the leaseback agreement, Caribou will be able to compete with us (or our licensees) in the development of CAR-T cell human therapeutics directed at CD19, which could adversely affect our business.

Third parties could assert that UC/Vienna/Charpentier do not have rights to the CRISPR/Cas9 technology, including inventorship and ownership rights to currently issued or allowable patents, or that any rights owned by UC/Vienna/Charpentier are limited. If such third parties were found to have rights to the CRISPR/Cas9 technology, we could be required to obtain rights from such parties or cease our development and commercialization efforts. For example, under our sublicense from Caribou, we have rights to patent applications owned by UC/Vienna/Charpentier covering certain aspects of CRISPR/Cas9 systems to edit genes in eukaryotic cells, including human cells (collectively, the "UC/Vienna/Charpentier eukaryotic patent family"). The Broad Institute, Massachusetts Institute of Technology, the President and Fellows of Harvard College and the Rockefeller University (collectively, the "Broad Institute") co-own patents and patent applications that also claim CRISPR/Cas9 systems to edit genes in eukaryotic cells (collectively, the "Broad Institute patent family"). Because the respective owners of various UC/Vienna/Charpentier patent applications and the Broad Institute patent family both allege owning intellectual property claiming overlapping aspects of CRISPR/Cas9 systems and methods to edit genes in eukaryotic cells, including human cells, our ability to market and sell CRISPR/Cas9-based human therapeutics may be adversely impacted depending on the scope and actual ownership over the inventions claimed in the competing patent portfolios. On June 25, 2019, the Patent Trial and Appeal Board ("PTAB") of the U.S. Patent and Trademark Office ("USPTO") declared an interference between the UC/Vienna/Charpentier eukaryotic patent family and the Broad Institute patent family to determine which research group first invented the use of the CRISPR/Cas9 technology in eukaryotic cells and, therefore, is entitled to the patents covering the invention. The interference involved 14 allowable patent applications from the UC/Vienna/Charpentier eukaryotic patent family and 13 patents and one patent application from the Broad Institute patent family. On February 28, 2022, the PTAB issued a Decision of Priority and Judgment in the interference finding that the Broad Institute patent family has priority over the UC/Vienna/Charpentier patent family with respect to the subject matter of the interference. An appeal and cross-appeal from the interference are pending at the United States Court of Appeals for the Federal Circuit as Case Nos. 22-1594 and 22-1653.

On December 14, 2020, the PTAB declared an additional interference between the same 14 allowable patent applications in the UC/Vienna/Charpentier patent family, and one patent application owned by ToolGen, Inc. And, on June 21, 2021, the PTAB declared another interference between the same 14 allowable patent applications in the UC/Vienna/Charpentier patent family and one patent application owned by Sigma-Aldrich Co. LLC (a subsidiary of Merck KGaA). Because the patent applications involved in these interferences also purport to cover the use of CRISPR/Cas9 for gene editing in eukaryotic cells, the PTAB seeks to determine between the various groups which one invented first and is entitled to the resulting patents. These two latter interferences are in their motion phases where the PTAB may determine, among other matters, which party will have the burden of proof in their respective priority phases. If either the Broad Institute, ToolGen or Sigma-Aldrich were to succeed in their respective interference, the prevailing party or parties could seek to assert its issued patents against us based on our CRISPR/Cas9-based activities, including commercialization.

In addition, other third parties, such as Vilnius University, and Harvard University, filed patent applications claiming CRISPR/Cas9-related inventions around or within a year after the first patent application filed in the UC/Vienna/Charpentier patent family and allege (or may allege) that they invented one or more of the inventions claimed by UC/Vienna/Charpentier before UC/Vienna/Charpentier. If the USPTO deems the scope of the claims of one or more of these parties to sufficiently overlap with the allowable claims from the applicable patent applications in the UC/Vienna/Charpentier patent family, the USPTO could declare other interference proceedings to determine the actual inventor of such claims. If these third parties were to prevail in their inventorship claims or obtain patent claims that cover our product candidates or related activities through these various legal proceedings, then we could be prevented from utilizing the intellectual property we have licensed from Caribou, as well as from developing and commercializing all or some of our products candidates unless we can obtain rights to the third parties' intellectual property, or avoid or invalidate it.

Further, these third-parties, and others, have also filed patent applications and obtained patents covering aspects of the CRISPR/Cas9 technology in other key jurisdictions, including the EU members, the U.K., China and Japan. If these patents are deemed valid and cover our product candidates or related activities, we could be prevented from developing and commercializing all or some of our product candidates unless we license the relevant intellectual property or avoid it.

Defense of any potential infringement claims, regardless of their merit, would involve substantial litigation expense, would be a substantial diversion of management and other employee resources from our business and may impact our reputation. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. In that event, we could be unable to further develop and commercialize our product candidates, which could harm our business significantly.

We depend on intellectual property licensed from third parties and termination or modification of any of these licenses could result in the loss of significant rights, which would harm our business.

We are dependent on patents, know-how and proprietary technology, both our own and licensed from others, including Caribou, Novartis and Ospedale San Raffaele ("OSR"). Any termination of these licenses, loss by our licensors of the rights they receive from others, diminution of our rights or those of our licensors, or a finding that such intellectual property lacks legal effect, could result in the loss of significant rights and could harm our ability to commercialize any product candidates. For example, UC/Vienna could challenge Caribou's rights under their agreement, including Caribou's right to sublicense its rights to others, such as Intellia, and on what terms such a sublicense would be granted, each of which could adversely impact our rights under our agreement with Caribou. Similarly, Caribou or other licensors, or other third parties from which we derive rights, could challenge the scope of our licensed rights or fields under our license agreement, which could adversely impact our exclusive rights to use CRISPR/Cas9 technology in our human therapeutics field.

Disputes have and may arise between us and our licensors, our licensors and their licensors, or us and third parties that co-own intellectual property with our licensors or their licensors, regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights, if any, granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology, products and processes infringe on, or derive from, intellectual property of the licensor that is not subject to the license agreement;
- whether our licensor or its licensor had the right to grant the license agreement, or whether they are compliant with their contractual obligations to their respective licensor(s);
- whether third parties are entitled to compensation or equitable relief, such as an injunction, for our use of the intellectual property without their authorization;
- our right to sublicense patent and other rights to third parties, including those under collaborative development relationships;
- whether we are complying with our obligations with respect to the use of the licensed technology in relation to our development and commercialization of product candidates;
- our involvement in the prosecution, defense and enforcement of the licensed patents and our licensors' overall patent strategy;

- the allocation of ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and by us and our partners; and
- the amounts of royalties, milestones or other payments due under the license agreement.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, or are insufficient to provide us the necessary rights to use the intellectual property, we may be unable to successfully develop and commercialize the affected product candidates. If we or any such licensors fail to adequately protect this intellectual property, our ability to commercialize our products could suffer.

We depend, in part, on our licensors to file, prosecute, maintain, defend and enforce patents and patent applications that are material to our business.

Patents relating to our product candidates are controlled by certain of our licensors or their respective licensors. Each of our licensors or their licensors generally has rights to file, prosecute, maintain and defend the patents we have licensed from such licensor. If these licensors or any future licensees and in some cases, co-owners from which we do not yet have licenses, having rights to file, prosecute, maintain, and defend our patent rights fail to adequately conduct these activities for patents or patent applications covering any of our product candidates, our ability to develop and commercialize those product candidates may be adversely affected and we may not be able to prevent competitors from making, using or selling competing products. We cannot be certain that such activities by our licensors or their respective licensors have been or will be conducted in compliance with applicable laws and regulations or in our best interests, or will result in valid and enforceable patents or other intellectual property rights. Pursuant to the terms of the license agreements with our licensors, the licensors may have the right to control enforcement of our licensed patents or defense of any claims asserting the invalidity of these patents and, even if we are permitted to pursue such enforcement or defense, we cannot ensure the cooperation of our licensors or, in some cases, other necessary parties, such as the co-owners of the intellectual property from which we have not yet obtained a license. We cannot be certain that our licensors or their licensors, and in some cases, their respective co-owners, will allocate sufficient resources or prioritize their or our enforcement of such patents or defense of such claims to protect our interests in the licensed patents. For example, with respect to our sublicensed rights from Caribou to UC/Vienna/Charpentier intellectual property, UC retained the right to control the prosecution, enforcement and defense of this intellectual property in its license agreement with Caribou and, pursuant to an Invention Management Agreement, shares these responsibilities with CRISPR Therapeutics AG and, under certain circumstances, ERS Genomics, Ltd., as the designated managers of the intellectual property. For these reasons, UC may be unable or unwilling to prosecute certain patent claims that would be best for our product candidates, or enforce its patent rights against infringers of the UC/Vienna/Charpentier patent family.

Even if we are not a party to legal actions or other disputes involving our licensed intellectual property, an adverse outcome could harm our business because it might prevent us from continuing to license intellectual property that we may need to operate our business. In addition, even when we have the right to control patent prosecution of licensed patents and patent applications, enforcement of licensed patents, or defense of claims asserting the invalidity of those patents, we may still be adversely affected or prejudiced by actions or inactions of our licensors and their counsel that took place prior to or after our assuming control.

We may not be successful in obtaining or maintaining necessary rights to product components and processes or other technology for our product development pipeline.

The growth of our business will likely depend in part on our ability to acquire or in-license additional proprietary rights. For example, our programs may involve additional product candidates, delivery systems or technologies that may require the use of additional proprietary rights held by third parties, including competitors. Our ultimate product candidates may also require specific modifications or formulations to work effectively and efficiently. These modifications or formulations may be covered by intellectual property rights held by others, including competitors. We may be unable to acquire or in-license any relevant third party intellectual property rights that we identify as necessary or important to our business operations.

Additionally, we sometimes collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate a license to any of the institution’s rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our program.

The licensing and acquisition of third party intellectual property rights is a competitive practice and companies that may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their larger size and cash resources or greater clinical development and commercialization capabilities. There can be no assurance that we will be able to successfully complete such negotiations and ultimately acquire the rights to the intellectual property surrounding the additional product candidates that we may seek to acquire.

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

We may be required to pay certain milestones and royalties under our license agreements with third party licensors.

Under our current and future license agreements and other technology agreements, we may be required to pay milestones and royalties based on our revenues, including sales revenues of our products, utilizing the technologies acquired, licensed or sublicensed from third parties, including Caribou, OSR and Rewrite, and these milestones and royalty payments could adversely affect our ability to research, develop and obtain approval of product candidates, as well as the overall profitability for us of any products that we may seek to commercialize. In order to maintain our intellectual property rights under these agreements, we will need to meet certain specified milestones, subject to certain cure provisions, in the development of our product candidates. Further, our counterparties, including our licensors (or their licensors) or licensees, may dispute the terms, including amounts, that we are required to pay under the respective agreements. If these claims were to result in a material increase in the amounts that we are required to pay to our counterparties, including licensors or their licensors, or in a claim of breach of the applicable agreement, our ability to research, develop and obtain approval of product candidates, or to commercialize products, could be significantly impaired.

In addition, these agreements contain diligence milestones and we may not be successful in meeting all of the milestones in the future on a timely basis or at all. We will need to outsource and rely on third parties for many aspects of the clinical development, sales and marketing of our products covered under our license agreements and other technology agreements. Delay or failure by these third parties could adversely affect the continuation of these agreements with their counterparties, including our licensors or their licensors.

Risks Related to Patents and Trademarks

We could be unsuccessful in obtaining or maintaining adequate patent protection for one or more of our products or product candidates, or asserting and defending our intellectual property rights that protect our products and technologies.

We anticipate that we will file additional patent applications both in the U.S. and in other countries, as appropriate. However, we cannot predict:

- if and when any patents will issue;
- the scope, degree and range of protection any issued patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether others will apply for or obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether certain governments will appropriate our intellectual property rights and allow competitors to use them; or
- whether we will need to initiate litigation or administrative proceedings to assert or defend our patent rights, which may be costly whether we win or lose.

Composition of matter patents for biological and pharmaceutical products are generally considered to be the strongest form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. We cannot be certain, however, that any claims in our pending or future patent applications covering the composition of matter of our product candidates will be considered patentable by the USPTO or by patent offices in foreign countries, or that the claims in any of our ultimately issued patents will be considered valid and enforceable by courts in the U.S. or foreign countries. Method of use patents protect the use of a product for the specified method, for example a method of treating a certain indication using a product. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label" for those uses that are covered by our method of use patents. Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field can be uncertain, and evaluating the scope of such patents involves complex legal and scientific analyses. The patent applications that we own or in-license may fail to result in issued patents with claims that cover any product candidates or uses thereof in the U.S. or in other foreign countries.

Further, the patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost, in a timely manner, or in all jurisdictions. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we do not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from third parties. We may also require the cooperation of our licensors or other necessary parties, such as the co-owners of the intellectual property from which we have not yet obtained a license, in order to enforce the licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business.

The laws of foreign countries may not protect our rights to the same extent as the laws of the U.S. and we may fail to seek or obtain patent protection in all major markets. For example, European patent law restricts the patentability of methods of treatment of the human body more than U.S. law does. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the U.S. and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we will be unable to know with certainty whether we were the first to make any inventions claimed in any patents or patent applications, or that we were the first to file for patent protection of such inventions, nor can we know whether those from whom we license patents were the first to make the inventions claimed or were the first to file.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the U.S. and abroad. There is a substantial amount of litigation as well as administrative proceedings for challenging patents, including interference, derivation, reexamination, and other post-grant proceedings before the USPTO and oppositions and other comparable proceedings in foreign jurisdictions, involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, and we expect this to be true for the CRISPR/Cas9 space as well. Indeed, a number of third parties have filed oppositions challenging the validity, and seeking the revocation, of several CRISPR/Cas9 genome editing patents granted to UC/Vienna/Charpentier by the European Patent Office ("EPO"). To date, UC/Vienna/Charpentier have successfully defended before the EPO's opposition division the validity of their first European patent, which covers compositions comprising Cas9 and single gRNA molecules, as well as methods of editing DNA *in vitro* or *ex vivo* using Cas9 and single gRNAs. The opponents to this patent have appealed the decision of the EPO's opposition division. If UC/Vienna/Charpentier fail in defending the validity of its first European patent, we may lose valuable intellectual property rights, such as the right to exclude others from using such intellectual property. Such an outcome could have a material adverse effect on our business in Europe. Similarly, third parties are opposing the other patents issued by the EPO to UC/Vienna/Charpentier, including their second European patent that was recently revoked by the EPO's opposition division, a decision that UC/Vienna/Charpentier have appealed. Although the claims of these other patents are more limited in scope compared to the first European patent, the inability to defend their respective validity could result in loss of valuable rights. In addition, since the passage of the America Invents Act in 2013, U.S. law also provides for other procedures to challenge patents, including *inter partes* reviews and post-grant reviews, that add uncertainty to the possibility of challenge to our developed or licensed patents and patent applications in the future. Furthermore, for U.S. applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. See the above risk factor titled "*Third party claims of intellectual property infringement against us, our licensors or our collaborators may prevent or delay our product discovery and development efforts*."

Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to practice the invention or stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing their products to avoid being covered by our claims. If the breadth or strength of protection provided by the patent applications we hold is threatened, this could dissuade companies from collaborating with us to develop, and could threaten our ability to commercialize, product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market product candidates under patent protection would be reduced. Because patent applications in the U.S. and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates.

Our pending and future patent applications or the patent applications that we obtain rights to through in-licensing arrangements may not result in patents being issued which protect our technology or future product candidates, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the U.S. and other countries may diminish the value of our patents or narrow the scope of our patent protection.

Litigation or other administrative proceedings challenging our intellectual property, including interferences, derivation, reexamination, *inter partes* reviews and post-grant reviews, may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees. Furthermore, there could be public announcement of the results of hearings, motions or other interim proceedings or developments in any proceeding challenging the issuance, scope, validity and enforceability of our developed or licensed intellectual property. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Any of these potential negative developments could impact the scope, validity, enforceability or commercial value of our patent rights and, as a result, have material adverse effect on our business, financial condition, results of operations or prospects.

We may be subject to claims challenging the inventorship of our patents and other intellectual property.

We may in the future be subject to claims that former employees, collaborators or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor or other claims challenging the inventorship of our patents or ownership of our intellectual property (including patents and intellectual property that we in-license). For example, the UC/Vienna/Charpentier patent family that is covered by our license agreement with Caribou is co-owned by UC/Vienna and Dr. Charpentier, and our sublicense rights are derived from the first two co-owners and not from Dr. Charpentier. Therefore, our rights to these patents are not exclusive and third parties, including competitors, may have access to intellectual property that is important to our business. In addition, we may have inventorship disputes arise from conflicting obligations of collaborators, consultants or others who are involved in developing our technology and product candidates. Litigation or other legal proceedings may be necessary to defend against these and other claims challenging inventorship. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world.

We have limited intellectual property rights outside the U.S. Filing, prosecuting, maintaining and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the U.S. can have a different scope and strength than do those in the U.S. In addition, the laws of some foreign countries, such as China, Brazil, Russia, India and South Africa, do not protect intellectual property rights to the same extent as federal and state laws in the U.S. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the U.S., or from selling or importing products made using our inventions in and into the U.S. or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement rights are not as strong as those in the U.S. These products may compete with our products and our patents or other intellectual property rights may not be effective or adequate to prevent them from competing. In addition, in jurisdictions outside the U.S., a license may not be enforceable unless all the owners of the intellectual property agree or consent to the license. Further, patients may choose to travel to countries in which we do not have intellectual property rights or which do not enforce these rights to obtain the products or treatment from competitors in such countries.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, such as China, Brazil, Russia, India and South Africa, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to biopharmaceutical products, which could make it difficult in those jurisdictions for us to stop the infringement or misappropriation of our patents or other intellectual property rights, or the marketing of competing products in violation of our proprietary rights. Proceedings to enforce our patent and other intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Furthermore, such proceedings could put our patents at risk of being invalidated, held unenforceable, or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims of infringement or misappropriation against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may be involved in lawsuits to protect or enforce our patents, the patents of our licensors or our licenses, which could be expensive, time-consuming, and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To cease such infringement or unauthorized use, we may be required to file patent infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding or a declaratory judgment action against us, a court may decide that one or more of our patents is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceeding could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business.

Interference or derivation proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to, or the correct inventorship of, our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our current patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Litigation, interference or derivation proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees.

Further, if a party to our licenses, either a licensee or licensor, were to breach or challenge our rights under the relevant license agreement (or if one of our licensor's own licensors were to challenge our licensor's rights), we may have to initiate or participate in a legal proceeding to enforce our rights. Any such legal proceeding could be expensive and time-consuming. In addition, if a court or other tribunal were to rule against us, we could lose key intellectual property and financial rights. Pursuing or defending against these legal claims, regardless of merits, would involve substantial legal expense and would be a substantial diversion of employee resources from our business. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or contractual litigation there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation or proceeding. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or before the USPTO or comparable foreign authority.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate is invalid or unenforceable. In patent litigation in the U.S., defendant counterclaims alleging invalidity or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the U.S. or other jurisdictions, even outside the context of litigation. Such mechanisms include re-examination, *inter partes* review, post-grant review and equivalent proceedings in foreign jurisdictions, such as opposition or derivation proceedings. Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover and protect our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity of our patents, for example, we cannot be certain that there is no invalidating prior art of which we, our patent counsel, and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity, unpatentability and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. For example, as highlighted in the above risk factor entitled "*We could be unsuccessful in obtaining or maintaining adequate patent protection for one or more of our products or product candidates, or asserting and defending our intellectual property rights that protect our products and technologies*", various third parties have filed challenges to the validity of UC/Vienna/Charpentier's European patents, which cover compositions comprising Cas9 and gRNA molecules, as well as methods of editing DNA *in vitro* or *ex vivo* using Cas9 and gRNAs. If UC/Vienna/Charpentier fail in defending the validity of these patents, we may lose valuable intellectual property rights, such as the exclusive right to use such intellectual property. Such an outcome could have a material adverse effect on our business in Europe.

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

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. Although an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees, and failure to properly legalize and submit formal documents. In any such event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected. Our unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or future, potential customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our unregistered trademarks or trade names. Over the long term, if we are unable to successfully register our trademarks and trade names and establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely impact our financial condition or results of operations.

Risks Related to Confidentiality

Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect our proprietary and confidential information. We also utilize proprietary processes for which it would be difficult to enforce patents. In addition, other elements of our product discovery and development processes involve proprietary know-how, information, or technology that is not covered by patents. Trade secrets, however, may be difficult to protect. We seek to protect our proprietary processes, in part, by entering into confidentiality agreements with our employees, consultants, outside scientific advisors, contractors, and collaborators, and we also rely on national and state laws requiring our directors, employees, contractors and collaborators to protect our proprietary information. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, outside scientific advisors, contractors, and collaborators might intentionally or inadvertently disclose our trade secret information to competitors. In addition, competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the U.S. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the U.S. and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, or misappropriation of our intellectual property by third parties, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results, and financial condition. Our trade secrets and other confidential information of ours may also be exposed through cybersecurity attacks, ransomware attacks, and other hacking attempts directed at our information technology systems and those of our employees, consultants, outside scientific advisors, contractors, vendors and collaborators. For more information, please see the risk factor section entitled "Risks Related to Data and Privacy."

We may be subject to claims that our employees, directors, consultants, or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies as well as academic research institutions. We may be subject to claims that we or our employees, directors, consultants, or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against these claims, which could result in money damages or a judicial order prohibiting the use of certain intellectual property. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

Risks Related to Our Common Stock

Risks Related to Investment in Securities

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

If an active market for our common stock does not continue, it may be difficult for our stockholders to sell their shares without depressing the market price for the shares or sell their shares at or above the prices at which they acquired their shares or sell their shares at the time they would like to sell. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration.

The price of our common stock historically has been volatile, which may affect the price at which you could sell any shares of our common stock.

The market price for our common stock historically has been highly volatile and could continue to be subject to wide fluctuations in response to various factors. This volatility may affect the price at which you could sell the shares of our common stock, and the sale of substantial amounts of our common stock could adversely affect the price of our common stock. Our stock price is likely to continue to be volatile and subject to significant price and volume fluctuations in response to market and other factors, including:

- the success of our or competing products or technologies;
- results of clinical trials of our product candidates or those of our competitors;
- developments or disputes concerning issued patents, patent applications or other intellectual property rights;
- regulatory or legal developments in the U.S. and other countries;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to discover, develop, manufacture, acquire or in-license our current and additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or the financial results of companies that are perceived to be similar to us;
- sales of a substantial number of shares of our common stock in the public market, or the perception in the market that the holders of a large number of shares intend to sell shares;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- public perception of the safety of genome editing based therapeutics;
- general economic, industry and market conditions; and
- the other factors summarized and described in this *Risk Factors* section.

In addition, the trading prices for our common stock and other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. The extent to which the outbreak may impact our business, preclinical studies and ongoing and planned clinical trials will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the emergence of new variants of the disease, the ability of governments to vaccinate their populations and that existing vaccines can treat any new variants effectively, the ultimate containment of the disease, the modification or lifting of travel restrictions and other actions implemented to contain the outbreak or address its impact, such as social distancing and quarantines or lock-downs in the U.S. and other countries, business closures or business disruptions, and the ultimate effectiveness of other actions taken in the U.S. and other countries to contain and address the disease. A resurgence or other negative developments relating to the pandemic may require us to again restrict access to our offices and laboratories, or to pause or suspend preclinical research and our clinical trial; and, further, may disrupt our manufacturing and supply chain or those of our third party suppliers and manufacturers.

Companies trading in the stock market in general, and in The Nasdaq Global Market in particular, have also experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. In the past, following periods of volatility in the market, securities class-action litigation has often been instituted against companies. Such litigation, if instituted against us, could result in substantial costs and diversion of management’s attention and resources, which could materially and adversely affect our business, financial condition, results of operations and growth prospects.

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

The trading market for our common stock will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts may not publish an adequate amount of research on us, which may negatively impact the trading price for our stock. In addition, if one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. Further, if our operating results fail to meet the forecasts of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

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

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

Risk Related to Ownership Generally

Our principal stockholders and management own a significant percentage of our stock and, if they choose to act together, will be able to control or exercise significant influence over matters subject to stockholder approval.

As of March 31, 2022, our executive officers, directors, 5% or greater stockholders and their affiliates beneficially owned approximately 29.9% of our outstanding voting stock. These stockholders may have the ability to influence us through their ownership positions. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders, acting together, may be able to control elections of directors or approval of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may believe are in your best interest as one of our stockholders.

We have broad discretion over the use of our cash, cash equivalents and marketable securities, and may not use them effectively.

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

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

As a public company, and particularly since we are no longer an “emerging growth company” under applicable SEC regulations, we incur significant legal, accounting and other expenses. The Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Global Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel devote a substantial amount of time to these compliance initiatives.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 (“Section 404”), we are required to furnish a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. We conduct a process each year to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we dedicate internal resources, engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that neither we nor our independent registered public accounting firm will be able to conclude that our internal control over financial reporting is effective as required by Section 404. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our consolidated financial statements.

Risks Related to Future Financial Condition

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of stockholders and could cause our stock price to fall.

We will need additional capital in the future to continue our planned operations in addition to the proceeds we received from our initial public offering ("IPO") in May 2016 and follow-on public offerings in November 2017, June 2020, December 2020, and July 2021. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

On August 23, 2019, we filed a Registration Statement on Form S-3, as amended (the "2019 Shelf") with the SEC, which was declared effective on September 12, 2019 (File No. 333-233448) in relation to the registration of common stock, preferred stock, debt securities, warrants and units of any combination thereof. We also simultaneously entered into an Open Market Sale Agreement (the "2019 Sale Agreement") with the Sales Agent, to provide for the offering, issuance and sale of up to an aggregate amount of $150.0 million of our common stock from time to time in "at-the-market" offerings under the 2019 Shelf and subject to the limitations thereof. We will pay to the Sales Agent cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2019 Sale Agreement. Through June 30, 2022, we issued 3,778,889 shares of our common stock at an average price of $37.80 per share in accordance with the 2019 Sale Agreement for aggregate net proceeds of $138.0 million, after payment of cash commissions to the Sales Agent and approximately $0.5 million related to legal, accounting and other fees in connection with the sales. There were no shares of our common stock sold in the three months ended June 30, 2022 in accordance with the 2019 Sale Agreement. In June 2020, we issued 6,301,370 shares of our common stock, including the exercise in full by the underwriters of their option to purchase an additional 821,917 shares, at the public offering price of $18.25 per share pursuant to the 2019 Shelf for aggregate cash consideration of $107.7 million, after payment of commissions and fees and approximately $0.4 million related to legal, accounting and other fees in connection with the sales. In June 2020 we also issued 925,218 shares of our common stock to Regeneron in a private placement for an aggregate cash consideration of $30.0 million, or $32.42 per share, representing a 100% premium over the volume-weighted average trading price of the Company's common stock during the 30-day period prior to the closing. On November 30, 2020, we filed a Registration Statement on Form S-3ASR (the "Universal Shelf") with the SEC, which was automatically declared effective upon filing (File No. 333-251022) in relation to the registration of common stock, preferred stock, debt securities, warrants and units of any combination thereof. In December 2020, we issued 5,513,699 shares of our common stock, including the exercise in full by the underwriters of their option to purchase an additional 719,178 shares, at the public offering price of $36.50 per share pursuant to the Universal Shelf for aggregate cash consideration of $188.9 million, after deducting the underwriting discount, commissions and offering expenses. In July 2021, we issued 4,758,620 shares of our common stock, including the exercise in full by the underwriters of their option to purchase an additional 620,689 shares, at the public offering price of $145.00 per share pursuant to the Universal Shelf for aggregate cash consideration of approximately $648.3 million, after deducting the underwriting discount, commissions and estimated offering expenses. In March 2022, we entered into an Open Market Sale Agreement (the "2022 Sale Agreement") with the Sales Agent, to provide for the offering, issuance and sale of up to an aggregate amount of $400.0 million of our common stock from time to time in "at-the-market" offerings under the Universal Shelf and subject to the limitations thereof. We have not sold any securities to date under the 2022 Sale Agreement. We will pay to the Sales Agent cash commissions of 3.0% of the gross proceeds of sales of common stock under the 2022 Sale Agreement. In addition, sales of a substantial number of shares of our outstanding common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock. Persons who were our stockholders prior to our IPO continue to hold a substantial number of shares of our common stock that many of them are now able to sell in the public market. Significant portions of these shares are held by a relatively small number of stockholders. Sales by our stockholders of a substantial number of shares, or the expectation that such sales may occur, could significantly reduce the market price of our common stock.

Risks Related to our Charter and Bylaws

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us difficult, limit attempts by our stockholders to replace or remove our current management and adversely affect our stock price.

Provisions of our certificate of incorporation and by-laws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our stock. Among other things, the certificate of incorporation and by-laws:

- permit the board of directors to issue up to 5,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide the board of directors into three classes;
- provide that a director may only be removed from the board of directors by the stockholders for cause;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders, and may not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner, and meet specific requirements as to the form and content of a stockholder’s notice;
- prevent cumulative voting rights (therefore allowing the holders of a plurality of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- require that, to the fullest extent permitted by law, a stockholder reimburse us for all fees, costs and expenses incurred by us in connection with a proceeding initiated by such stockholder in which such stockholder does not obtain a judgment on the merits that substantially achieves the full remedy sought;
- provide that special meetings of our stockholders may be called only by the chairman of the board, our chief executive officer (or president, in the absence of a chief executive officer) or by the board of directors; and
- provide that stockholders will be permitted to amend the bylaws only upon receiving at least two-thirds of the total votes entitled to be cast by holders of all outstanding shares then entitled to vote generally in the election of directors, voting together as a single class.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder.

Our certificate of incorporation and by-laws designate certain courts as the sole and exclusive forums for certain disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our certificate of incorporation and by-laws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for any state law claims for any derivative action or proceeding brought on our behalf alleging state law claims, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our by-laws, any action to interpret, apply, enforce, or determine the validity of our certificate of incorporation or bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine (the “Delaware Forum Provision”). The Delaware Forum Provision does not apply to claims arising under the Exchange Act or the Securities Act. Our by-laws further provide that the U.S. District Court for the District of Massachusetts will be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act (the “Federal Forum Provision”). We have chosen the U.S. District Court for the District of Massachusetts as the exclusive forum for such Securities Act causes of action because our principal executive offices are located in Cambridge, Massachusetts. Our by-laws provide that any person or entity purchasing or otherwise acquiring any interest in any shares of our common stock is deemed to have notice of and consented to the foregoing Delaware Forum Provision and the Federal Forum Provision.

The Delaware Forum Provision and the Federal Forum Provision may impose additional litigation costs on stockholders in pursuing the claims identified above, particularly if the stockholders do not reside in or near the State of Delaware or the Commonwealth of Massachusetts. Additionally, the Delaware Forum Provision and the Federal Forum Provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the Delaware Forum Provision and the Federal Forum Provision to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition. The Court of Chancery of the State of Delaware or the U.S. District Court for the District of Massachusetts may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

Risks Related to Tax Matters

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

The laws and rules dealing with U.S. federal, state and local income taxation are routinely being reviewed and modified by governmental bodies, officials and regulatory agencies, including the Internal Revenue Service and the U.S. Treasury Department. Since we were founded in 2014, many such changes have been made and changes are likely to continue to occur in the future. We cannot predict whether, when, in what form, or with what effective dates, tax laws, regulations and rulings may be enacted, promulgated or issued, that could result in an increase in our or our stockholders' tax liability.

Our ability to use our net operating loss ("NOL") carryforwards and certain other tax attributes may be limited.

We have incurred substantial losses during our history and do not expect to become profitable in the near future, and we may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire. As of December 31, 2021, we had federal and state NOLs of $800.5 million and $767.8 million, respectively, some of which begin to expire in 2034. Federal and certain state NOLs generated in taxable years ending after December 31, 2017 are not subject to expiration. As of December 31, 2021, we had federal and state research and development and other credit carryforwards of approximately $37.9 million and $30.2 million, which begin to expire in 2034 and 2029, respectively. Under Sections 382 and 383 of the Code, if a corporation undergoes an "ownership change," generally defined as a greater than 50 percentage point change (by value) in its equity ownership by certain stockholders over a three-year period, the corporation's ability to use its pre-change NOLs, and other pre-change tax attributes (such as research and development tax credits) to offset its post-change income or taxes may be limited. We may have experienced ownership changes in the past and may experience ownership changes in the future as a result of our initial public offering in May of 2016, follow-on offerings and/or subsequent shifts in our stock ownership (some of which shifts are outside our control). As a result, if we earn net taxable income, our ability to use our pre-change NOLs and research and development tax credits to offset such taxable income and income tax, respectively, could be subject to limitations. Similar provisions of state tax law may also apply. As a result, even if we attain profitability, we may be unable to use a material portion of our NOLs and other tax attributes.

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

None.

Item 6. Exhibits

The following exhibits are incorporated by reference or filed as part of this report.

10.1#	Retirement Policy for Equity Awards (1)
10.2#	Amended and Restated Corporate Bonus Plan (1)
31.1	Certification of the Chief Executive Officer pursuant to Rules 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (1)
31.2	Certification of the Chief Financial Officer pursuant to Rules 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (1)
32.1	Certifications pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002, by John M. Leonard, M.D., President and Chief Executive Officer of the Company, and Glenn Goddard, Executive Vice President, Chief Financial Officer of the Company. (2)
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document. (1)
101.SCH	Inline XBRL Taxonomy Extension Schema Document. (1)
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document. (1)
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document. (1)
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document. (1)
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document. (1)
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101) (1)

\# Indicates a management contract or any compensatory plan, contract or arrangement.

(1) Filed with this Quarterly Report on Form 10-Q.

(2) The certifications furnished in Exhibit 32.1 hereto are deemed to accompany this Quarterly Report on Form 10-Q and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended. Such certifications will not be deemed to be incorporated by reference into any filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

SIGNATURES

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

Dated: August 4, 2022

INTELLIA THERAPEUTICS, INC.

By: /s/ John M. Leonard
John M. Leonard, M.D.
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ Glenn G. Goddard
Glenn G. Goddard
Executive Vice President, Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 10.1

INTELLIA THERAPEUTICS, INC.

RETIREMENT POLICY FOR EQUITY AWARDS

1. Introduction

The Intellia Therapeutics, Inc. ("Intellia" or the "Company") Retirement Policy for Equity Awards (the "Policy") is intended to retain employees to achieve corporate objectives which align with the interests of stockholders and to also encourage employees to provide adequate notice of transition prior to retirement from the Company.

2. Applicability

This Policy applies to all equity awards, including, without limitation, Options and RSUs (each defined below) granted to employees other than the Company's Chief Executive Officer after the initial effective date of this Policy ("Eligible Equity Awards").

3. Definitions

"*Award Agreement*" means a written agreement entered into between the Company and an employee or other documentation issued by the Company to such employee, in either case setting forth the terms of an equity award.

"*Committee*" means the Compensation and Talent Development Committee of the Board of Directors of the Company.

"*Final Exercise Date*" means the final date on which a Retiree may exercise any stock options.

"*Notice Date*" means the date on which a Notice-Eligible Employee provides written notice of the employee's intent to retire to the Company's Chief Human Resources Officer (or subsequent executive leading the human resources function) and the executive officer of the Company responsible for Notice-Eligible Employee's department as of the Notice Date. The Notice Date is the first day of the Notice Period.

"*Notice-Eligible Employee*" means an employee that has reached the age of 60 (sixty) and has worked as a regular full-time employee continuously at the Company for at least 5 (five) years.

"*Notice Period*" means the one (1) year following the Notice Date. During the Notice Period, the employee shall not be eligible to receive any additional equity awards from the Company.

"*Options*" means options to purchase Shares granted by the Company.

"*Performance-Based Awards*" means any Eligible Equity Award that is subject to performance-based vesting (whether or not also subject to vesting based on continued service) and for which achievement of the performance metrics has not been determined as of the Retirement Date.

"Plan" means the Company's 2015 Amended and Restated Stock Option and Incentive Plan and any other successor equity plan of the Company.

"Retiree" means any employee that has reached such employee's Retirement Date and has retired from the Company.

"Retirement Agreement" means the agreement in a form acceptable to the Company that an employee must sign for the benefit of the Company in order to receive any benefits outlined in Paragraph 4 contained herein. The Retirement Agreement shall include, without limitation, a general release of claims in favor of the Company and related persons and entities, confidentiality, return of property, and, if requested by the Company, non-competition and non-solicitation restrictions that apply for up to 2 (two) years following the Retirement Date.

"Retirement Date" means the one-year anniversary of the employee's Notice Date. An employee must remain employed in good standing with the Company through the Retirement Date in order to receive any benefits outlined in Paragraph 4 contained herein.

"*RSUs*" means restricted stock units granted by the Company.

"Share" means a share of common stock of the Company.

"Time-Based Award(s)" means any Eligible Equity Award that is subject to vesting solely based on continued service through a certain date. For avoidance of doubt, an Eligible Equity Award that is subject to vesting based on the achievement of one or more performance metrics as well as continued service will not constitute a "Time-Based Award" unless achievement of the performance metrics applicable to such Eligible Equity Award has been determined as of the Retirement Date.

4. Equity Treatment Upon Retirement Date

Unvested Stock Options. Following the Retirement Date, all unvested Time-Based Awards in the form of Options shall continue to vest according to the vesting schedule contained in the applicable Award Agreement(s) until fully vested. Such awards have a Final Exercise Date of the earlier of the 5 (five) year anniversary of the Retirement Date or the original expiration date of the Option, as described in the applicable Award Agreement.

Vested Stock Options. A Retiree's Final Exercise Date for all Options which have vested on or before the Retirement Date shall be the earlier of the 5 (five) year anniversary of the Retirement Date or the original expiration date of the Option, as described in the applicable Award Agreement.

Restricted Stock Unit Awards. On the Retirement Date, 100% of all unvested Time-Based Awards in the form of RSUs shall vest immediately.

Performance-Based Equity. All unvested Performance-Based Awards held by a Retiree shall remain outstanding following the Retirement Date and the Retiree shall remain eligible to earn a pro-rated portion of such Performance-Based Awards at the end of the performance period applicable to the Performance-Based Award based upon achievement of the applicable performance metrics in accordance with the terms of the applicable Award Agreement and Plan (notwithstanding that the Retiree is no longer employed by, or providing services to, the Company). Pro-ration shall be determined by dividing the number of days that the Retiree was employed by the Company during the performance period applicable to the Performance-Based Award by the total number of days in such performance period.

5. Clawback Provisions

In the event that the Retiree breaches the terms of the Retirement Agreement, on the date of such breach, (i) vesting of all unvested Time-Based Awards held by the Retiree that remain outstanding shall immediately cease, (ii) the Retiree shall forfeit the unvested portion of all Performance-Based Awards held by the Retiree that remain outstanding, (iii) the Retiree shall be required to return the Shares underlying Eligible Equity Awards held by the Retiree for which vesting was accelerated or permitted to continue in accordance with this Policy or, if the Retiree no longer holds such Shares, repay the Company the value of such shares (the “Repayment”) and (iv) all Options held by the Retiree shall immediately terminate and the Retiree shall have no further ability to exercise any such Options. For purposes of the foregoing, the Repayment shall be determined by multiplying the Fair Market Value (as defined in the applicable Plan) of a Share on the date of vesting by the number of Shares that vested on such date.

6. Death of Retiree

In the event a Retiree dies while receiving benefits according to this Policy, any treatment of equity shall be governed by the applicable Plan and the applicable Award Agreement.

7. Sale Event Post-Retirement

If there is a Sale Event (as defined in the applicable Plan) following an employee’s Retirement Date, any equity treatment will be governed by the terms of such Sale Event.

8. Conflict with Award Agreement or Plan

In the event of a conflict between the terms and conditions of this Policy and the terms and conditions of any Award Agreement or the applicable Plan, the terms and conditions of this Policy shall control (and the conflicting terms and conditions of the Award Agreement and the applicable Plan shall be disregarded).

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9. Section 409A

All equity awards governed by this Policy are intended to be exempt from Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), to the greatest extent possible and to otherwise comply with Section 409A of the Code. This Policy shall be interpreted in accordance with such intent. The Company makes no representation or warranty and shall have no liability to any Notice Eligible Employee, Retiree or any other person with respect to any penalties or taxes under Section 409A of the Code that are, or may be, imposed with respect to any equity award.

10. Administration

The Committee has delegated administration of this Policy to the Chief Executive Officer for all employees under the level of Senior Vice President, and retains administration of this Policy as it relates to employees at the level of Senior Vice President and above.

The Committee has the sole discretion to amend or terminate this Policy at any time.

Adopted by the Board of Directors and made effective as of July 1, 2022.

Exhibit 10.2

INTELLIA THERAPEUTICS, INC.

AMENDED AND RESTATED CORPORATE BONUS PLAN

1. Purpose

The Amended and Restated Corporate Bonus Plan (the "Plan") of Intellia Therapeutics, Inc. ("Intellia" or the "Company") is intended to attract, motivate and retain employees by promoting and rewarding the achievement of key short-term corporate objectives, as well as individual performance, and to align the interests of the employees and stockholders. As an incentive to meet these objectives, the Company may award a cash-based annual performance bonus ("Actual Bonus Awards") to eligible employees in accordance with this Plan.

2. Plan Year and Participant Eligibility

a. Plan Year

A "Plan Year" is the annual performance period from January 1 to December 31; provided that the Plan's terms will apply from the start of a Plan Year through the date on which the Actual Bonus Awards for the applicable Plan Year are paid, if at all.

b. Participant Eligibility Criteria

To be considered an eligible employee ("Participant") for any applicable Plan Year, both participant eligibility criteria (the "Criteria") below must be met:

i. The individual is (i) a regular full-time employee of Intellia on or before October 31st of the applicable Plan Year and (ii) regularly scheduled to work 30 or more hours per week.

ii. The employee must not be eligible to participate in any similar cash incentive bonus program of the Company.

3. Target Bonus Award Calculation

"Target Bonus Award" is the potential award that a Participant may earn based on his or her Annual Base Salary, Target Bonus Percentage, and Time Proration Factor. The Target Bonus Award shall be calculated as follows:

Target Bonus Award = Annual Base Salary x **Target Bonus Percentage** x **(Time Proration Factor / 12)**

i. "Annual Base Salary" shall be equal to each Participant's annualized base salary as of December 31st of the Plan Year. The Annual Base Salary does not include any bonus payments, overtime, commissions, unused vacation time, or any other non-salary compensation earned or received by the Participant.

ii. "Target Bonus Percentage" shall be the target bonus percentage set by the Company for the Participant as of December 31st of the Plan Year.

iii. "Time Proration Factor" shall be a factor corresponding to the portion of the Plan Year, and, if applicable, the prior Plan Year (as noted below), for which the Participant has met the Criteria. The Time Proration Factor shall be calculated as follows:

Time Proration Factor = Number of full months the Participant met the Criteria in the Plan Year + (Total number of days that the Participant met the Criteria in the month they first met the Criteria)/Total number of days in the month that the Participant first met the Criteria)

If the Participant first meets the Criteria between November 1 and December 31 during a Plan Year and remains eligible for a bonus (i.e., continues to meet the Criteria) in the Plan Year *following* such Plan Year, additional time will be added to the Time Proration Factor when calculating the Target Bonus Award for the *following* Plan Year.

The Time Proration Factor shall be rounded up to the next hundredth.

Examples to determine Time Proration Factor:

Date Criteria Is Met	**Time Proration Factor Calculation**
May 1, 2020	8
July 20, 2020	[5 months + (12 days in July / 31 days in July)] = 5.39
November 16, 2020	[13 months + (15 days in November / 30 days in November)] = 13.5 Note: Under this example, Participant would be ineligible for an Actual Bonus Award in for the 2020 Plan Year. The above Time Proration Factor would be used to calculate Participant's Target Bonus Award for the 2021 Plan Year; provided the employee remains eligible for a bonus for the 2021 Plan Year.

4. Actual Bonus Award Calculation

Each Participant's Actual Bonus Award shall be calculated as follows:

Actual Bonus Award = Target Bonus Award x **Individual Achievement** x **Corporate Achievement**

a. "Individual Achievement"

For each Plan Year, managers and executives of the Company shall determine each Participant's individual performance goals ("Individual Goals"); provided that the Board of Directors ("Board") or the Compensation and Talent Development Committee of the Board ("Committee") shall determine the Individual Goals of the Chief Executive Officer ("CEO"), executive officers and other members of the Company's senior management, as applicable and as provided by the Company's by-laws, the Committee's Charter, and the Committee's discretion.

- For each Plan Year, the managers and executives of the Company (or in the case of CEO, executive officers and other senior management of the Company, the Board or Committee, as applicable) shall determine the Participant's Individual Achievement by considering the Participant's performance relative to his or her Individual Goals, as well as other factors related to the Company's core values and policies and the expected competencies and skills for the Participants' job. Partial or excess achievement may be determined for each goal, at the discretion of the Company, Committee or Board, as applicable.

- The Company may introduce tools to guide the decision-making regarding Individual Achievement including, but not limited to, using a rating system such as a 9-box grid, rating distribution guidelines, and Individual Achievement guideline ranges for each type of rating. The Committee or Board may use the Company's tools, at their discretion, in determining the Individual Achievement of the CEO, executive officers and senior management of the Company, as applicable.

- If a Participant's Individual Achievement is not deemed to have reached at least 50%, their Individual Achievement will generally be set to 0% for purposes of calculating their Actual Bonus Award.

b. "Corporate Achievement"

"Corporate Achievement" for each Plan Year shall be determined by the Committee, at its sole discretion, after the end of the relevant Plan Year. In determining the "Corporate Achievement," the Committee may consider any relevant factors it deems appropriate including, but not limited to, the Company's overall actual performance for the Plan Year as compared to the corporate goals set and approved by the Board for such Plan Year.

5. Bonus Pool

Each Plan Year's "Target Bonus Pool" shall be the sum of all Target Bonus Awards of Participants who were eligible as of October 31. The Target Bonus Pool will be calculated based on all eligible Participants' Target Bonus Awards as of December 31 of the applicable Plan Year. For each Plan Year, the "Actual Bonus Pool" shall be calculated as follows:

Actual Bonus Pool = Target Bonus Pool x Corporate Achievement

6. Impact to Participant Status

a. Terminations

Except as otherwise provided in this Plan, to receive a bonus payout, a Participant generally must remain employed at the Company through the date on which the Actual Bonus Awards are paid for the applicable Plan Year. This applies to all terminations, whether voluntary or involuntary (except in the case of death, where an employee will still be eligible to receive an Actual Bonus Award).

b. Changes in Employment Status

A Participant for any part of the Plan Year between January 1 and October 31, who (i) loses eligibility on or before December 31 but (ii) remains an employee of the Company as of the date on which the Actual Bonus Awards are paid for the applicable Plan Year may receive a prorated Actual Bonus Award for such Plan Year. In such cases, the Actual Bonus Award shall be calculated by applying a Time Proration Factor (see below for an example calculation).

Scenario	Time Proration Factor
Employee was a regular full time employee working 30 hours or more per week from January 1 – August 31, 2020. On September 1, this employee dropped to 20 hours per week and became classified as a regular *part-time* employee, and was still employed in 2021 on the Payout Date (defined below).	8 Note: Under this example, this employee was still employed on the Payout Date, but was not deemed eligible for the entire Plan Year. This employee would still be eligible to receive an Actual Bonus Award in 2021 for the Plan Year 2020 for the time they were deemed eligible.

c. Leaves of Absence

i. *Short-Term Disability, Federal Medical Leave Act ("FMLA"), and other state-specific family and medical leave laws*. Participants will continue to earn time toward their Time Proration Factor and be considered eligible to receive an Actual Bonus Award during any leave of absence based on short term disability, FMLA and state-specific family and medical leave laws and consistent with the applicable Company policies.

ii. *Long-Term Disability ("LTD"), including LTD combined with Workers' Compensation*. Participants who are on LTD in excess of any applicable federal or state-mandated family and medical leave allowances will not be eligible for an Actual Bonus Award for the period of the LTD.

iii. *Personal Unpaid Leaves of Absence.* Participants who are on a personal unpaid leave of absence not covered by items 1 and 2 above are not eligible for an Actual Bonus Award for the period of the personal leave of absence.

d. Retirement

An employee who retires in accordance with the provisions set forth in the Company's Retirement Policy for Equity Awards is eligible for a prorated Actual Bonus Award for the Plan Year that contains such employee's Retirement Date (as defined in the Company's Retirement Policy for Equity Awards).

7. Payout Date

The "Payout Date" for Actual Bonus Awards will generally be on or before March 15th of the calendar year following the applicable Plan Year. Individual Actual Bonus Awards will be calculated by the Company and made to Participants who remain eligible as of the Payout Date, including those Participants on any type of leave of absence or who have passed away or retired while they were eligible Participants but who are eligible for an Actual Bonus Award per the terms of the Plan (see Section VI).

8. Termination, Suspension or Modification and Plan Administration

a. The Committee may terminate, suspend or modify (and if suspended, reinstate with or without modification) all or part of the Plan at any time, with or without notice to Participants. The Committee has sole authority and discretion to administer or interpret the Plan. Notwithstanding anything herein to the contrary, the Committee may determine that no Actual Bonus Awards shall be paid hereunder for a particular Plan Year or to a particular Participant or Participants, notwithstanding the level of Corporate Achievement and/or Individual Achievement for such Plan Year.

b. The Committee reserves the exclusive right to determine eligibility to participate in this Plan and to interpret and modify all applicable terms and conditions, including eligibility criteria, performance objectives and payment conditions, for the Company's employees. The Committee delegates to each of the Company's CEO, Chief Financial Officer, Chief Human Resources Officer, General Counsel and other executive officers the authority to, in their discretion, administer, and determine eligibility to participate in, the Plan and interpret all applicable terms and conditions for employees who are not executive officers of the Company. The determinations and interpretations of the Committee and its delegates will be final.

c. All Actual Bonus Awards are paid from the Company's general assets. No trust, account or other separate collection of amounts will be established for the payment of Actual Bonus Awards under the Plan. Actual Bonus Awards are unfunded obligations of the Company, so if and when an Actual Bonus Award becomes due, a Participant's rights to payment are no greater than the rights of a general unsecured creditor.

9. Section 409A

It is intended that any payments under this Plan be exempt from Section 409A of the Internal Revenue Code of 1986, and the Treasury Regulations and IRS guidance thereunder (collectively referred to as “Section 409A”), as “short-term deferrals” (as defined in Section 409A), and the Plan shall be administered, interpreted, and construed consistent with such intent.

10. Withholdings

The Company shall withhold from any Actual Bonus Award any federal, state and local income, employment or other similar taxes or elective deferrals as it may be required to withhold pursuant to any applicable law, regulation or Company policy.

11. At-Will Employment

This document sets forth the terms of the Plan and is not intended to be a contract or employment agreement between any Participant and the Company. Nothing in this Plan shall alter the at-will nature of any Participant’s employment. Participants are free to resign at any time, and for any or no reason. Similarly, subject to the terms of any individual employment agreement between a Participant and the Company, the Company is free to terminate its employment relationship with any Participant at any time, with or without cause.

Adopted and made effective by the Board of Directors on April 3, 2020.

Amended and Restated by the Board of Directors effective as of July 1, 2022.

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a) / RULE 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, John M. Leonard, M.D., certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: August 4, 2022

/s/ John M. Leonard
John M. Leonard, M.D.
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a) / RULE 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Glenn Goddard, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: August 4, 2022

/s/ Glenn Goddard

Glenn Goddard
Executive Vice President, Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

**CERTIFICATIONS OF CEO AND CFO PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with this Quarterly Report on Form 10-Q of Intellia Therapeutics, Inc. (the “Company”) for the period ended June 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), each of the undersigned, John M. Leonard, M.D., President and Chief Executive Officer (Principal Executive Officer) of the Company, and Glenn Goddard, Executive Vice President and Chief Financial Officer (Principal Financial and Accounting Officer) of the Company, hereby certifies, pursuant to 18 U.S.C. (section) 1350, as adopted pursuant to (section) 906 of the Sarbanes-Oxley Act of 2002, that to the best of 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 4, 2022

/s/ John M. Leonard
John M. Leonard, M.D.
President and Chief Executive Officer
(Principal Executive Officer)

/s/ Glenn Goddard
Glenn Goddard
Executive Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)