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

Form 10-Q

(Mark One)

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

For the quarterly period ended March 31, 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: 000-26727

BioMarin Pharmaceutical Inc.

(Exact name of registrant as specified in its charter)

Delaware	**68-0397820**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
770 Lindaro Street San Rafael California	**94901**
(Address of principal executive offices)	**(Zip Code)**

(415) 506-6700
(Registrant's telephone number including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001	BMRN	The Nasdaq Global Select Market

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

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

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

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-accelerated Filer	☐	Smaller Reporting Company	☐
Emerging Growth Company	☐		

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

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

Applicable only to corporate issuers:

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date: 184,995,348 shares of common stock, par value $0.001, outstanding as of April 25, 2022.

Unless the context suggests otherwise, references in this Quarterly Report on Form 10-Q to "BioMarin," the "Company," "we," "us," and "our" refer to BioMarin Pharmaceutical Inc. and, where appropriate, its wholly owned subsidiaries.

BioMarin®, Brineura®, Kuvan®, Naglazyme®, Palynziq®, Vimizim® and Voxzogo® are our registered trademarks. Aldurazyme® is a registered trademark of BioMarin/Genzyme LLC. All other brand names and service marks, trademarks and other trade names appearing in this report are the property of their respective owners.

Forward-Looking Statements

This Quarterly Report on Form 10-Q contains "forward-looking statements" as defined under securities laws. Many of these statements can be identified by the use of terminology such as "believes," "expects," "intends," "anticipates," "plans," "may," "will," "could," would," "projects," "continues," "estimates," "potential," "opportunity" or the negative versions of these terms and other similar expressions. Our actual results or experience could differ significantly from the forward-looking statements. Factors that could cause or contribute to these differences include those discussed in "Risk Factors," in Part II, Item 1A of this Quarterly Report on Form 10-Q as well as information provided elsewhere in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2021, which was filed with the Securities and Exchange Commission (the SEC) on February 25, 2022. You should carefully consider that information before you make an investment decision.

You should not place undue reliance on these types of forward-looking statements, which speak only as of the date that they were made. These forward-looking statements are based on the beliefs and assumptions of the Company's management based on information currently available to management and should be considered in connection with any written or oral forward-looking statements that the Company may issue in the future as well as other cautionary statements the Company has made and may make. Except as required by law, the Company does not undertake any obligation to release publicly any revisions to these forward-looking statements after completion of the filing of this Quarterly Report on Form 10-Q to reflect later events or circumstances or the occurrence of unanticipated events.

The discussion of the Company's financial condition and results of operations should be read in conjunction with the Company's Condensed Consolidated Financial Statements and the related Notes thereto included in this Quarterly Report on Form 10-Q.

Risk Factors Summary

The following is a summary of the principal risks that could adversely affect our business, financial condition, operating results, cash flows or stock price. Discussion of the risks listed below, and other risks that we face, are discussed in the section titled "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q.

Business and Operational Risks

- The COVID-19 pandemic could continue to materially adversely affect our business, results of operations, and financial condition.
- Because the target patient populations for our products are small, we must achieve significant market share and maintain high per-patient prices for our products to achieve and maintain profitability.
- If we fail to obtain and maintain an adequate level of coverage and reimbursement for our products by third-party payers, the sales of our products would be adversely affected or there may be no commercially viable markets for our products.
- If we fail to compete successfully with respect to product sales, we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product and our revenues could be adversely affected.
- Changes in methods of treatment of disease could reduce demand for our products and adversely affect revenues.
- If we fail to develop new products and product candidates or compete successfully with respect to acquisitions, joint ventures, licenses or other collaboration opportunities, our ability to continue to expand our product pipeline and our growth and development would be impaired.

- The sale of generic versions of Kuvan by generic manufacturers has adversely affected and will continue to adversely affect our revenues and may cause a decline in Kuvan revenues faster than expected.
- If we do not achieve our projected development goals in the timeframes we announce and expect, the commercialization of our product candidates may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.

Regulatory Risks

- If we fail to obtain regulatory approval to commercially market and sell our product candidates, or if approval of our product candidates is delayed, we will be unable to generate revenues from the sale of these product candidates, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will increase.
- Any product for which we have obtained regulatory approval, or for which we obtain approval in the future, is subject to, or will be subject to, extensive ongoing regulatory requirements by the Food and Drug Administration, the European Medicines Agency and other comparable international regulatory authorities, and if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, we may be subject to penalties, we will be unable to generate revenues from the sale of such products, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will be increased.
- To obtain regulatory approval to market our products, preclinical studies and costly and lengthy clinical trials are required and the results of the studies and trials are highly uncertain. Likewise, preliminary, initial or interim data from clinical trials should be considered carefully and with caution because the final data may be materially different from the preliminary, initial or interim data, particularly as more patient data become available.
- Government price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our current and future products, which would adversely affect our revenues and results of operations.
- Government healthcare reform could increase our costs and adversely affect our revenues and results of operations.

Risks Related to Valoctocogene Roxaparvovec

- Our valoctocogene roxaparvovec program is based on a gene therapy approach, which, as a novel technology, presents additional development and treatment risks in relation to our other, more traditional drug development programs.
- As compared to our other, more traditional products, our gene therapy product candidate valoctocogene roxaparvovec, if approved, may present additional problems with respect to the pricing, coverage, and reimbursement and acceptance of the product candidate.

Financial and Financing Risks

- If we continue to incur operating losses or are unable to sustain positive cash flows for a period longer than anticipated, we may be unable to continue our operations at planned levels and be forced to reduce our operations.

Manufacturing Risks

- If we fail to comply with manufacturing regulations, our financial results and financial condition will be adversely affected.

- If we are unable to successfully develop and maintain manufacturing processes for our product candidates to produce sufficient quantities at acceptable costs, we may be unable to support a clinical trial or be forced to terminate a program, or if we are unable to produce sufficient quantities of our products at acceptable costs, we may be unable to meet commercial demand, lose potential revenue, have reduced margins or be forced to terminate a program.
- Supply interruptions may disrupt our inventory levels and the availability of our products and product candidates and cause delays in obtaining regulatory approval for our product candidates, or harm our business by reducing our revenues.

Risks Related to International Operations

- We conduct a significant amount of our sales and operations outside of the United States (U.S.), which subjects us to additional business risks that could adversely affect our revenues and results of operations.
- A significant portion of our international sales are made based on special access programs, and changes to these programs could adversely affect our product sales and revenues in these countries.

Intellectual Property Risks

- If we are unable to protect our intellectual property, we may not be able to compete effectively or preserve our market shares.
- Competitors and other third parties may have developed intellectual property that could limit our ability to market and commercialize our products and product candidates, if approved.

BIOMARIN PHARMACEUTICAL INC.

TABLE OF CONTENTS

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

BIOMARIN PHARMACEUTICAL INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

March 31, 2022 and December 31, 2021

(In thousands, except share amounts)

	March 31, 2022	December 31, 2021 [1]
ASSETS	(unaudited)	
Current assets:		
Cash and cash equivalents	$ 605,440	$ 587,276
Short-term investments	450,798	426,599
Accounts receivable, net	430,147	373,399
Inventory	786,356	776,669
Other current assets	121,283	110,442
Total current assets	2,394,024	2,274,385
Noncurrent assets:		
Long-term investments	462,827	507,793
Property, plant and equipment, net	1,039,544	1,035,461
Intangible assets, net	374,251	388,652
Goodwill	196,199	196,199
Deferred tax assets	1,446,676	1,449,075
Other assets	149,186	151,760
Total assets	$ 6,062,707	$ 6,003,325
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$ 426,418	$ 491,590
Short-term contingent consideration	64,000	48,232
Total current liabilities	490,418	539,822
Noncurrent liabilities:		
Long-term convertible debt, net	1,080,061	1,079,077
Long-term contingent consideration	—	15,167
Other long-term liabilities	100,913	98,519
Total liabilities	1,671,392	1,732,585
Stockholders' equity:		
Common stock, $0.001 par value: 500,000,000 shares authorized; 184,901,764 and 183,912,514 shares issued and outstanding, respectively	185	184
Additional paid-in capital	5,206,287	5,191,502
Company common stock held by Nonqualified Deferred Compensation Plan (the NQDC)	(9,389)	(9,689)
Accumulated other comprehensive income (loss)	(877)	14,432
Accumulated deficit	(804,891)	(925,689)
Total stockholders' equity	4,391,315	4,270,740
Total liabilities and stockholders' equity	$ 6,062,707	$ 6,003,325

(1) December 31, 2021 balances were derived from the audited Consolidated Financial Statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on February 25, 2022.

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

Three Months Ended March 31, 2022 and 2021
(In thousands, except per share amounts)
(unaudited)

	Three Months Ended March 31,	
	2022	**2021**
REVENUES:		
Net product revenues	$ 505,525	$ 467,769
Royalty and other revenues	13,834	18,261
Total revenues	519,359	486,030
OPERATING EXPENSES:		
Cost of sales	116,965	120,166
Research and development	160,836	148,725
Selling, general and administrative	194,619	174,318
Intangible asset amortization and contingent consideration	17,612	17,735
Gain on sale of nonfinancial assets, net	(108,000)	—
Total operating expenses	382,032	460,944
INCOME FROM OPERATIONS	137,327	25,086
Interest income	1,820	2,439
Interest expense	(3,806)	(3,804)
Other expense, net	(1,154)	(493)
INCOME BEFORE INCOME TAXES	134,187	23,228
Provision for income taxes	13,389	5,857
NET INCOME	$ 120,798	$ 17,371
NET INCOME PER SHARE, BASIC	$ 0.66	$ 0.10
NET INCOME PER SHARE, DILUTED	$ 0.63	$ 0.09
Weighted average common shares outstanding, basic	183,990	181,772
Weighted average common shares outstanding, diluted	194,886	184,365
COMPREHENSIVE INCOME	$ 105,489	$ 38,514

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
Three Months Ended March 31, 2022 and 2021
(In thousands)
(unaudited)

	Three Months Ended March 31,	
	2022	**2021**
Shares of common stock, beginning balances [1]	183,913	181,741
Issuances under equity incentive plans	989	930
Shares of common stock, ending balances	184,902	182,671
Total stockholders' equity, beginning balances [1]	$ 4,270,740	$ 4,106,002
Common stock:		
Beginning balances [1]	184	182
Issuances under equity incentive plans, net of tax	1	1
Ending balance	185	183
Additional paid-in capital:		
Beginning balance [1]	5,191,502	4,993,407
Issuances under equity incentive plans, net of tax	(33,633)	(29,916)
Stock-based compensation	48,718	47,409
Common stock held by the NQDC	(300)	(281)
Ending balance	5,206,287	5,010,619
Company common stock held by the NQDC:		
Beginning balance [1]	(9,689)	(9,839)
Common stock held by the NQDC	300	281
Ending balance	(9,389)	(9,558)
Accumulated other comprehensive income (loss):		
Beginning balance [1]	14,432	(16,139)
Other comprehensive income (loss)	(15,309)	21,143
Ending balance	(877)	5,004
Accumulated Deficit:		
Beginning balance [1]	(925,689)	(861,609)
Net income	120,798	17,371
Ending balance	(804,891)	(844,238)
Total stockholders' equity, ending balances	$ 4,391,315	$ 4,162,010

(1) The beginning balances for the three-month periods were derived from the audited Consolidated Financial Statements included in Company's Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on February 25, 2022.

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
Three Months Ended March 31, 2022 and 2021
(In thousands)
(unaudited)

	Three Months Ended March 31,	
	2022	**2021**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 120,798	$ 17,371
Adjustments to reconcile net income to net cash (used in) provided by operating activities:		
Depreciation and amortization	27,343	27,983
Non-cash interest expense	1,033	1,043
Amortization of premium on investments	1,652	673
Stock-based compensation	47,833	49,503
Gain on sale of nonfinancial assets, net	(108,000)	—
Deferred income taxes	4,800	3,335
Unrealized foreign exchange (gain) loss	(6,887)	3,950
Non-cash changes in the fair value of contingent consideration	1,989	2,255
Other	700	(871)
Changes in operating assets and liabilities:		
Accounts receivable, net	(54,813)	40,294
Inventory	1,125	(6,425)
Other current assets	(8,011)	42,784
Other assets	1,440	1,617
Accounts payable and accrued liabilities	(78,143)	(72,304)
Other long-term liabilities	1,710	2,304
Net cash (used in) provided by operating activities	(45,431)	113,512
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property, plant and equipment	(28,817)	(25,507)
Maturities and sales of investments	155,818	194,637
Purchases of available-for-sale securities	(147,361)	(237,171)
Proceeds from sale of nonfinancial assets	110,000	—
Purchase of intangible assets	(1,858)	(2,747)
Net cash provided by (used in) investing activities	87,782	(70,788)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from exercises of awards under equity incentive plans	8,235	5,817
Taxes paid related to net share settlement of equity awards	(32,949)	(29,097)
Principal repayments of financing leases	(566)	(1,084)
Net cash used in financing activities	(25,280)	(24,364)
Effect of exchange rate changes on cash	1,093	(205)
NET INCREASE IN CASH AND CASH EQUIVALENTS	18,164	18,155
Cash and cash equivalents:		
Beginning of period	$ 587,276	$ 649,158
End of period	$ 605,440	$ 667,313
SUPPLEMENTAL CASH FLOW DISCLOSURES:		
Cash paid for income taxes	$ 1,316	$ 2,998
Cash paid for interest	$ 1,422	$ 1,465
SUPPLEMENTAL CASH FLOW DISCLOSURES FOR NON-CASH INVESTING AND FINANCING ACTIVITIES:		
Decrease in accounts payable and accrued liabilities related to fixed assets	$ (2,481)	$ (12,795)
Increase (decrease) in accounts payable and accrued liabilities related to intangible assets	$ (637)	$ 1,298

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

(1) BUSINESS OVERVIEW AND SIGNIFICANT ACCOUNTING POLICIES

Nature of Operations

BioMarin Pharmaceutical Inc. (the Company) is a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. The Company selects product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an opportunity to be first-to-market or offer a significant benefit over existing products. The Company's portfolio consists of seven commercial products and multiple clinical and preclinical product candidates for the treatment of various diseases.

Basis of Presentation

The accompanying Condensed Consolidated Financial Statements have been prepared pursuant to United States generally accepted accounting principles (U.S. GAAP) and the rules and regulations of the Securities and Exchange Commission (the SEC) for Quarterly Reports on Form 10-Q and do not include all of the information and note disclosures required by U.S. GAAP for complete financial statements, although the Company believes that the disclosures herein are adequate to ensure that the information presented is not misleading. The Condensed Consolidated Financial Statements should therefore be read in conjunction with the Consolidated Financial Statements and Notes thereto for the fiscal year ended December 31, 2021 included in the Company's Annual Report on Form 10-K. The Condensed Consolidated Financial Statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany transactions have been eliminated. The results of operations for the three months ended March 31, 2022 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2022 or any other period.

Use of Estimates

U.S. GAAP requires management to make estimates and assumptions that affect amounts reported in the Condensed Consolidated Financial Statements and accompanying disclosures. Although these estimates are based on management's best knowledge of current events and actions that the Company may undertake in the future, actual results may be different from those estimates. The Condensed Consolidated Financial Statements reflect all adjustments of a normal, recurring nature that are, in the opinion of management, necessary for a fair presentation of results for these interim periods. The full extent to which the COVID-19 pandemic could continue to directly or indirectly impact the Company's business, results of operations and financial condition, including revenues, expenses, reserves and allowances, manufacturing, clinical trials and research and development costs, will depend on future developments that remain uncertain at this time, particularly as virus variants continue to spread. As events continue to evolve and additional information becomes available, the Company's estimates may change materially in future periods.

Management performed an evaluation of the Company's activities through the date of filing of this Quarterly Report on Form 10-Q, and has concluded that there were no subsequent events or transactions that occurred subsequent to the balance sheet date prior to filing this Quarterly Report on Form 10-Q that would require recognition or disclosure in the Condensed Consolidated Financial Statements.

Significant Accounting Policies

There have been no material changes to the Company's significant accounting policies during the three months ended March 31, 2022, as compared to the significant accounting policies disclosed in Note 1 – *Business Overview and Significant Accounting Policies* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

Recent Accounting Pronouncements

There have been no new accounting pronouncements adopted by the Company or new accounting pronouncements issued by the Financial Accounting Standards Board during the three months ended March 31, 2022, as compared to the recent accounting pronouncements described in Note 1 of the Company's Annual Report on Form 10-K for the year ended December 31, 2021, that the Company believes are of significance or potential significance to the Company.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(2) FINANCIAL INSTRUMENTS

All marketable securities were classified as available-for-sale at March 31, 2022 and December 31, 2021.

The following tables show the Company's cash, cash equivalents and available-for-sale securities by significant investment category for each period presented:

	March 31, 2022						
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities [1]	Long-term Marketable Securities [2]
Level 1:							
Cash	$ 441,957	$ —	$ —	$ 441,957	$ 441,957	$ —	$ —
Level 2:							
Money market instruments	160,485	—	—	160,485	160,485	—	—
Corporate debt securities	585,315	62	(9,815)	575,562	—	240,777	334,785
U.S. government agency securities	237,962	47	(2,059)	235,950	—	155,716	80,234
Commercial paper	50,518	—	(10)	50,508	2,998	47,510	—
Asset-backed securities	51,822	1	(414)	51,409	—	3,785	47,624
Foreign and other	3,080	136	(22)	3,194	—	3,010	184
Subtotal	1,089,182	246	(12,320)	1,077,108	163,483	450,798	462,827
Total	$ 1,531,139	$ 246	$ (12,320)	$ 1,519,065	$ 605,440	$ 450,798	$ 462,827

	December 31, 2021						
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities [1]	Long-term Marketable Securities [2]
Level 1:							
Cash	$ 301,177	$ —	$ —	$ 301,177	$ 301,177	$ —	$ —
Level 2:							
Money market instruments	285,099	—	—	285,099	285,099	—	—
Corporate debt securities	584,000	386	(2,086)	582,300	—	200,304	381,996
U.S. government agency securities	224,774	182	(325)	224,631	—	146,421	78,210
Commercial paper	68,384	—	—	68,384	1,000	67,384	—
Asset-backed securities	56,936	10	(95)	56,851	—	9,451	47,400
Foreign and other	3,097	141	(12)	3,226	—	3,039	187
Subtotal	1,222,290	719	(2,518)	1,220,491	286,099	426,599	507,793
Total	$ 1,523,467	$ 719	$ (2,518)	$ 1,521,668	$ 587,276	$ 426,599	$ 507,793

(1) The Company's short-term marketable securities mature in one year or less.

(2) The Company's long-term marketable securities mature between one and five years.

As of March 31, 2022, the Company had the ability and intent to hold all investments that were in an unrealized loss position until maturity. The Company considered its intent and ability to hold the securities until recovery of amortized cost basis, the extent to which fair value is less than amortized cost basis, conditions specifically related to the security's industry and geography, payment structure and history and changes to the ratings (if any) in determining that the decline in fair value compared to carrying value is not related to a credit loss.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

The Company has certain investments in non-marketable equity securities, measured using unobservable valuation inputs and remeasured on a nonrecurring basis, which are collectively considered strategic investments. As of March 31, 2022 and December 31, 2021, the fair value of the Company's strategic investments was $16.5 million. These investments were recorded in Other Assets in the Company's Condensed Consolidated Balance Sheets.

(3) SUPPLEMENTAL FINANCIAL STATEMENTS INFORMATION

Supplemental Balance Sheet Information

Inventory consisted of the following:

	March 31, 2022	December 31, 2021
Raw materials	$ 92,110	$ 80,269
Work-in-process	402,319	415,261
Finished goods	291,927	281,139
Total inventory	$ 786,356	$ 776,669

Inventory as of March 31, 2022, included manufacturing-related costs for the commercial production of valoctocogene roxaparvovec inventory totaling $11.3 million. Valoctocogene roxaparvovec is an investigational gene therapy product candidate for the treatment of severe hemophilia A. The Company must receive marketing approval from the applicable regulators before the valoctocogene roxaparvovec inventory can be sold commercially. Starting in the first quarter of 2022, the Company believed that material uncertainties related to the ultimate regulatory approval of valoctocogene roxaparvovec by the European Medicines Agency had been significantly reduced and the Company expects to realize economic benefit in the future. A number of factors were taken into consideration, including the current status in the drug development process, pivotal clinical trial results for the underlying product candidate, results from meetings and correspondence with the relevant regulatory authorities following the submission of the additional two-year follow-up safety and efficacy data requested by the regulatory agencies in the third quarter of 2020, historical experience, as well as potential impediments to the approval process such as product safety or efficacy, and commercialization and marketplace trends.

See Note 1 – *Business Overview and Significant Accounting Policies* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021 for additional information related to the Company's policies on inventory produced prior to regulatory approval.

Property, Plant and Equipment, Net consisted of the following:

	March 31, 2022	December 31, 2021
Property, plant and equipment, gross	$ 1,780,711	$ 1,756,035
Accumulated depreciation	(741,167)	(720,574)
Total property, plant and equipment, net	$ 1,039,544	$ 1,035,461

Depreciation expense, net of amounts capitalized into inventory, for the three months ended March 31, 2022 and March 31, 2021 was $11.7 million and $12.5 million, respectively.

Intangible Assets, Net consisted of the following:

	March 31, 2022	December 31, 2021
Finite-lived intangible assets	$ 678,601	$ 677,350
Accumulated amortization	(304,350)	(288,698)
Net carrying value	$ 374,251	$ 388,652

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

Accounts Payable and Accrued Liabilities consisted of the following:

	March 31, 2022	December 31, 2021
Accounts payable and accrued operating expenses	$ 187,810	$ 193,003
Accrued compensation expense	127,938	204,446
Accrued rebates payable	56,295	47,987
Accrued royalties payable	16,026	15,215
Foreign currency exchange forward contracts	12,716	6,263
Lease liabilities	10,829	10,464
Value added taxes payable	5,096	1,935
Accrued income taxes	3,347	1,213
Deferred revenue	306	6,956
Other	6,055	4,108
Total accounts payable and accrued liabilities	$ 426,418	$ 491,590

Supplemental Statement of Comprehensive Income Information

Gain on Sale of Nonfinancial Assets, Net in the first quarter of 2022 consisted of the completed sale of a Rare Pediatric Disease Priority Review Voucher (PRV) the Company received from the FDA in connection with the U.S. approval of Voxzogo. As a result of the PRV sale, the Company recognized a $108.0 million net gain on sale of nonfinancial assets in the Company's Consolidated Statement of Comprehensive Income.

(4) FAIR VALUE MEASUREMENTS

The Company measures certain financial assets and liabilities at fair value in accordance with the policy described in Note 1 – *Business Overview and Significant Accounting Policies* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

The following tables present the classification within the fair value hierarchy of financial assets and liabilities not disclosed elsewhere in these Condensed Consolidated Financial Statements that are remeasured on a recurring basis as of March 31, 2022 and December 31, 2021. Other than the Company's fixed-rate convertible debt disclosed in Note 6 – *Debt*, there were no financial assets or liabilities that were remeasured using a quoted price in active markets for identical assets (Level 1) as of March 31, 2022 or December 31, 2021.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

	Fair Value Measurements as of March 31, 2022		
	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:			
Other current assets:			
NQDC Plan assets	$ 2,859	$ —	$ 2,859
Other assets:			
NQDC Plan assets	22,387	—	22,387
Restricted investments [1]	2,513	—	2,513
Total other assets	24,900	—	24,900
Total assets	$ 27,759	$ —	$ 27,759
Liabilities:			
Current liabilities:			
NQDC Plan liability	$ 2,859	$ —	$ 2,859
Contingent consideration	—	64,000	64,000
Total current liabilities	2,859	64,000	66,859
Other long-term liabilities:			
NQDC Plan liability	22,387	—	22,387
Total liabilities	$ 25,246	$ 64,000	$ 89,246

	Fair Value Measurements as of December 31, 2021		
	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:			
Other current assets:			
NQDC Plan assets	$ 2,043	$ —	$ 2,043
Other assets:			
NQDC Plan assets	23,929	—	23,929
Restricted investments [1]	2,940	—	2,940
Total other assets	26,869	—	26,869
Total assets	$ 28,912	$ —	$ 28,912
Liabilities:			
Current liabilities:			
NQDC Plan liability	$ 2,043	$ —	$ 2,043
Contingent consideration	—	48,232	48,232
Total current liabilities	2,043	48,232	50,275
Other long-term liabilities:			
NQDC Plan liability	23,929	—	23,929
Contingent consideration	—	15,167	15,167
Total other long-term liabilities	23,929	15,167	39,096
Total liabilities	$ 25,972	$ 63,399	$ 89,371

(1) The restricted investments at March 31, 2022 and December 31, 2021 secure the Company's irrevocable standby letters of credit obtained in connection with certain commercial agreements.

There were no transfers between levels during the three months ended March 31, 2022.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

Liabilities measured at fair value using Level 3 inputs consisted of contingent consideration. The following table represents a roll-forward of contingent consideration.

Contingent consideration as of December 31, 2021	$	63,399
Changes in the fair value of contingent consideration		1,989
Foreign exchange remeasurement of Euro denominated contingent consideration		(1,388)
Contingent consideration as of March 31, 2022	$	64,000

(5) DERIVATIVE INSTRUMENTS AND HEDGING STRATEGIES

The Company uses foreign currency exchange forward contracts (forward contracts) to protect against the reduction in value of forecasted foreign currency cash flows resulting from revenues and operating expenses denominated in currencies other than the U.S. Dollar (USD), primarily the Euro. Certain of these forward contracts are designated as cash flow hedges and have maturities of up to one year, nine months. The Company also enters into forward contracts to manage foreign exchange risk related to asset or liability positions denominated in currencies other than USD. Such forward contracts are considered to be economic hedges, are not designated as hedging instruments and have maturities of up to three months. The Company does not use derivative instruments for speculative trading purposes. The Company is exposed to counterparty credit risk on its derivatives. The Company has established and maintains strict counterparty credit guidelines and enters into hedging agreements with financial institutions that are investment grade or better to minimize the Company's exposure to potential defaults. The Company is not required to pledge collateral under these agreements.

The following table summarizes the aggregate notional amounts for the Company's derivatives outstanding as of the periods presented.

Forward Contracts		March 31, 2022		December 31, 2021
Derivatives designated as hedging instruments:				
Sell	$	650,302	$	740,667
Purchase	$	147,206	$	183,256
Derivatives not designated as hedging instruments:				
Sell	$	98,800	$	113,257
Purchase	$	3,565	$	31,068

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

The fair value carrying amounts of the Company's derivatives, as classified within the fair value hierarchy, were as follows:

Balance Sheet Location	March 31, 2022	December 31, 2021
Derivatives designated as hedging instruments:		
Asset Derivatives - Level 2 [1]		
Other current assets	$ 20,763	$ 17,357
Other assets	3,739	4,991
Subtotal	$ 24,502	$ 22,348
Liability Derivatives - Level 2 [1]		
Accounts payable and accrued liabilities	$ 12,670	$ 5,487
Other long-term liabilities	2,984	1,378
Subtotal	$ 15,654	$ 6,865
Derivatives not designated as hedging instruments:		
Asset Derivatives - Level 2 [1]		
Other current assets	$ 98	$ 427
Liability Derivatives - Level 2 [1]		
Accounts payable and accrued liabilities	$ 46	$ 776
Total Derivatives Assets	$ 24,600	$ 22,775
Total Derivatives Liabilities	$ 15,700	$ 7,641

(1) For additional discussion of fair value measurements, see Note 1 – *Business Overview and Significant Accounting Policies* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

The following tables summarize the impact of gains and losses from the Company's derivatives on its Condensed Consolidated Statements of Comprehensive Income for the periods presented.

	Three Months Ended March 31,			
	2022		2021	
Derivatives Designated as Cash Flow Hedging Instruments		**Cash Flow Hedging Gains (Losses) Reclassified into Earnings**		**Cash Flow Hedging Gains (Losses) Reclassified into Earnings**
Net product revenues as reported	$ 505,525	$ 5,572	$ 467,769	$ (2,757)
Operating expenses as reported	$ 382,032	$ (1,379)	$ 460,944	$ 5

Derivatives Not Designated as Hedging Instruments	**Gains (Losses) Recognized in Earnings**	**Gains (Losses) Recognized in Earnings**
Operating expenses	$ 1,292	$ 4,269

As of March 31, 2022, the Company expects to reclassify unrealized gains of $7.6 million from Accumulated Other Comprehensive Income (Loss) (AOCI) to earnings as the forecasted revenues and operating expense transactions occur over the next twelve months. For additional discussion of balances in AOCI see Note 7 – *Accumulated Other Comprehensive Income*.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(6) DEBT

Convertible Notes

As of March 31, 2022, the Company had outstanding fixed-rate notes with varying maturities for an undiscounted aggregate principal amount of $1.1 billion (collectively the Notes). The Notes are senior subordinated convertible obligations, and interest is payable in arrears, semi-annually. The following table summarizes information regarding the Company's convertible debt:

	March 31, 2022	December 31, 2021
1.25% senior subordinated convertible notes due in May 2027 (the 2027 Notes)	$ 600,000	$ 600,000
Unamortized discount net of deferred offering costs	(10,465)	(10,971)
2027 Notes, net	589,535	589,029
0.599% senior subordinated convertible notes due in August 2024 (the 2024 Notes)	495,000	495,000
Unamortized discount net of deferred offering costs	(4,474)	(4,952)
2024 Notes, net	490,526	490,048
Total convertible debt, net	$ 1,080,061	$ 1,079,077
Fair value of fixed-rate convertible debt [1]:		
2027 Notes	$ 604,758	$ 625,122
2024 Notes	497,223	521,082
Total fair value of fixed-rate convertible debt	$ 1,101,981	$ 1,146,204

(1) The fair value of the Company's fixed-rate convertible debt is based on open-market trades and is classified as Level 1 in the fair value hierarchy. For additional discussion of fair value measurements, see Note 1 – *Business Overview and Significant Accounting Policies* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

Interest expense on the Company's convertible debt consisted of the following:

	Three Months Ended March 31,	
	2022	2021
Coupon interest expense	$ 2,616	$ 2,616
Accretion of discount on convertible notes	836	834
Amortization of debt issuance costs	148	148
Total interest expense on convertible debt	$ 3,600	$ 3,598

See Note 10 - *Debt* included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021 for additional information related to the Company's convertible debt.

Revolving Credit Facility

In October 2018, the Company entered into an unsecured revolving credit facility of up to $200.0 million which includes a letter of credit subfacility and a swingline loan subfacility. The credit facility is intended to finance ongoing working capital needs and for other general corporate purposes. In May 2021, the Company entered into an amendment agreement in respect of the credit facility, extending the maturity date from October 19, 2021 to May 28, 2024, among other changes. The amended credit facility contains financial covenants including a maximum leverage ratio and a minimum interest coverage ratio. As of March 31, 2022, there were no amounts outstanding under the credit facility and the Company and certain of its subsidiaries that serve as guarantors were in compliance with all covenants.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(7) ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The following tables summarize changes in the accumulated balances for each component of AOCI, including current-period other comprehensive income (loss) and reclassifications out of AOCI, for the periods presented.

	Three Months Ended March 31, 2022		
	Unrealized Gains (Losses) on Cash Flow Hedges	Unrealized Gains (Losses) on Available for-Sale Debt Securities	Total
AOCI balance at December 31, 2021	$ 15,805	$ (1,373)	$ 14,432
Other comprehensive income (loss) before reclassifications	(3,225)	(10,274)	(13,499)
Less: gain (loss) reclassified from AOCI	4,193	—	4,193
Tax effect	—	2,383	2,383
Net current-period other comprehensive income (loss)	(7,418)	(7,891)	(15,309)
AOCI balance at March 31, 2022	$ 8,387	$ (9,264)	$ (877)

	Three Months Ended March 31, 2021		
	Unrealized Gains (Losses) on Cash Flow Hedges	Unrealized Gains (Losses) on Available for-Sale Debt Securities	Total
AOCI balance at December 31, 2020	$ (20,028)	$ 3,889	$ (16,139)
Other comprehensive income (loss) before reclassifications	19,893	(1,945)	17,948
Less: gain (loss) reclassified from AOCI	(2,752)	—	(2,752)
Tax effect	—	443	443
Net current-period other comprehensive income (loss)	22,645	(1,502)	21,143
AOCI balance at March 31, 2021	$ 2,617	$ 2,387	$ 5,004

For additional discussion of reclassifications from AOCI see Note 5 – *Derivative Instruments and Hedging Strategies*.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(8) REVENUE, CREDIT CONCENTRATIONS AND GEOGRAPHIC INFORMATION

The Company operates in one business segment, which primarily focuses on the development and commercialization of innovative therapies for people with serious and life-threatening rare diseases and medical conditions.

The following table disaggregates total Net Product Revenues by product.

	Three Months Ended March 31,	
	2022	2021
Net product revenues by product:		
Vimizim	$ 183,059	$ 158,298
Naglazyme	128,031	107,336
Kuvan	59,337	70,763
Palynziq	54,885	54,038
Brineura	36,173	27,325
Voxzogo	19,658	—
Total net product revenues marketed by the Company	481,143	417,760
Aldurazyme net product revenues marketed by Sanofi	24,382	50,009
Total net product revenues	505,525	467,769
Royalty and other revenues	13,834	18,261
Total revenues	$ 519,359	$ 486,030

The Company considers there to be revenue concentration risks for regions where Net Product Revenues exceed 10% of consolidated Net Product Revenues. The concentration of the Company's Net Product Revenues within the regions below may have a material adverse effect on the Company's revenues and results of operations if sales in the respective regions experience difficulties. The table below disaggregates total Net Product Revenues by geographic region, which is based on patient location for Company's commercial products sold directly by the Company, except for Aldurazyme, which is sold exclusively by Sanofi worldwide.

	Three Months Ended March 31,	
	2022	2021
Europe	$ 156,832	$ 148,872
United States	150,815	155,064
Middle East	65,607	15,559
Latin America	62,544	59,705
Rest of world	45,345	38,560
Total net product revenues marketed by the Company	$ 481,143	$ 417,760
Aldurazyme net product revenues marketed by Sanofi	24,382	50,009
Total net product revenues	$ 505,525	$ 467,769

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

The following table illustrates the percentage of the Company's total Net Product Revenues attributed to the Company's largest customers for the periods presented.

	Three Months Ended March 31,	
	2022	2021
Customer A	17 %	16 %
Customer B	11 %	12 %
Customer C	8 %	9 %
Customer D	5 %	11 %
Total	41 %	48 %

On a consolidated basis, two customers accounted for 21% and 14% of the Company's March 31, 2022 accounts receivable balance, respectively, compared to December 31, 2021, when two customers accounted for 28% and 16% of the accounts receivable balance, respectively. As of March 31, 2022, and December 31, 2021, the accounts receivable balance for Sanofi included $61.4 million and $67.9 million, respectively, of unbilled accounts receivable, which becomes payable to the Company when the product is sold through by Sanofi. The Company does not require collateral from its customers, but does perform periodic credit evaluations of its customers' financial condition and requires prepayments in certain circumstances.

The Company's global revenue sources and its business operations were impacted by the COVID-19 pandemic during the three months ended March 31, 2022 and 2021, mostly in the form of demand interruptions such as missed patient infusions and delayed treatment starts for new patients, and the Company anticipates a continued impact due to COVID-19 on its financial results in 2022. The extent and duration of such effects remain uncertain and difficult to predict, particularly as virus variants continue to spread. The Company is actively monitoring and managing its response and assessing actual and potential impacts to its operating results and financial condition, as well as developments in its business, which could further impact developments, trends and expectations.

The Company is mindful that conditions in the current macroeconomic environment could affect the Company's ability to achieve its goals. The Company sells its products in countries that face economic volatility and weakness. Although the Company has historically collected receivables from customers in certain countries, sustained weakness or further deterioration of the local economies and currencies and effects of the impact of the ongoing COVID-19 pandemic may cause customers in those countries to delay payment or be unable to pay for the Company's products. The Company believes that the allowances for doubtful accounts related to these countries, if any, are adequate based on its analysis of the specific business circumstances and expectations of collection for each of the underlying accounts in these countries. The Company will continue to monitor these conditions and will attempt to adjust its business processes, as appropriate, to mitigate macroeconomic risks to its business.

(9) STOCK-BASED COMPENSATION

The Company has stockholder-approved equity incentive plans that provide for the granting of service-based restricted stock units (RSUs), market-based RSUs, performance-based RSUs, stock options and other types of awards to its employees, officers and non-employee directors. Compensation expense included in the Company's Condensed Consolidated Statements of Comprehensive Income for all stock-based compensation arrangements was as follows:

	Three Months Ended March 31,	
	2022	2021
Cost of sales	$ 4,326	$ 6,481
Research and development	17,190	17,517
Selling, general and administrative	26,317	25,505
Total stock-based compensation expense	$ 47,833	$ 49,503

Stock-based compensation of $5.2 million and $4.4 million was capitalized into inventory for the three months ended March 31, 2022 and 2021, respectively. Capitalized stock-based compensation is recognized as cost of sales when the related product is sold.

(10) NET INCOME PER COMMON SHARE

Potentially issuable shares of common stock include shares issuable upon the exercise of outstanding employee stock option awards, common stock issuable under the Company's Employee Share Purchase Plan (ESPP), unvested RSUs, the Company's common stock held by the NQDC and contingent issuances of common stock related to the Company's convertible debt.

The following table sets forth the computation of basic and diluted earnings per common share (common shares in thousands):

	Three Months Ended March 31,	
	2022	2021
Numerator:		
Net Income, basic	$ 120,798	$ 17,371
Add: Interest expense, net of tax, on convertible notes	2,763	—
Net Income, diluted	$ 123,561	$ 17,371
Denominator:		
Weighted-average common shares outstanding, basic	183,990	181,772
Effect of dilutive securities:		
Options to purchase common stock	564	1,010
Common stock issuable under the 2027 Notes	4,365	—
Common stock issuable under the 2024 Notes	3,970	—
Unvested RSUs	1,517	1,031
Common stock potentially issuable for ESPP purchases	307	359
The Company's common stock held by the NQDC	173	193
Weighted-average common shares outstanding, diluted	194,886	184,365
Net income per common share, basic	$ 0.66	$ 0.10
Net income per common share, diluted	$ 0.63	$ 0.09

In addition to the equity instruments included in the table above, the table below presents potential shares of common stock that were excluded from the computation of basic and diluted income per common share as they were anti-dilutive (in thousands):

	Three Months Ended March 31,	
	2022	2021
Options to purchase common stock	6,206	6,217
Common stock issuable under the 2027 Notes	—	4,365
Common stock issuable under the 2024 Notes	—	3,970
Unvested RSUs	4,463	3,920
Common stock potentially issuable for ESPP purchases	258	301
Total number of potentially issuable shares	10,927	18,773

(11) COMMITMENTS AND CONTINGENCIES

Contingencies

From time to time the Company is involved in legal actions arising in the normal course of its business. The process of resolving matters through litigation or other means is inherently uncertain and it is possible that an unfavorable resolution of these matters could adversely affect the Company, its results of operations, financial condition or cash flows. The Company's general

practice is to expense legal fees as services are rendered in connection with legal matters, and to accrue for liabilities when losses are probable and reasonably estimable.

Contingent Payments

As of March 31, 2022, the Company was subject to contingent payments considered reasonably possible of $788.5 million, including $389.0 million related to an early stage development program licensed from a third party in the fourth quarter of 2021 and $225.0 million related to an early stage development program licensed from a third party in the second quarter of 2020.

Other Commitments

The Company uses experts and laboratories at universities and other institutions to perform certain R&D activities. These amounts are included as R&D expense as services are provided. In the normal course of business, the Company enters into various firm purchase commitments primarily to procure active pharmaceutical ingredients, certain inventory-related items and certain third-party R&D services, production services and facility construction services. As of March 31, 2022, such commitments were estimated at approximately $117.5 million, all of which were short-term. The Company has also licensed technology, for which it is required to pay royalties upon future sales, subject to certain annual minimums.

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

The following discussion of our financial condition and results of operations should be read in conjunction with our Condensed Consolidated Financial Statements and the related Notes thereto included in this Quarterly Report on Form 10-Q. This discussion contains forward-looking statements that involve risks and uncertainties. When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that could impact our business. In particular, we encourage you to review the risk factor related to the impact of the coronavirus pandemic, "The COVID-19 pandemic could continue to materially adversely affect our business, results of operations and financial condition." described in "Risk Factors" in Part II, Item 1A in this Quarterly Report on Form 10-Q, amongst the other risk factors. These risks and uncertainties could cause actual results to differ significantly from those projected in forward-looking statements contained in this report or implied by past results and trends. Forward-looking statements are statements that attempt to forecast or anticipate future developments in our business, financial condition or results of operations. See the section titled "Forward-Looking Statements" that appears at the beginning of this Quarterly Report on Form 10-Q. These statements, like all statements in this report, speak only as of the date of this Quarterly Report on Form 10-Q (unless another date is indicated), and, except as required by law, we undertake no obligation to update or revise these statements in light of future developments. Our Condensed Consolidated Financial Statements have been prepared in accordance with United States (U.S.) generally accepted accounting principles (U.S. GAAP) and are presented in U.S. Dollars (USD).

Overview

We are a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. We select product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an opportunity to be first-to-market or offer a significant benefit over existing products.

Our portfolio consists of seven commercial therapies and multiple clinical and preclinical product candidates. A summary of our commercial products, as of March 31, 2022, is provided below:

Commercial Products	Indication
Products marketed by BioMarin:	
Vimizim (elosulfase alpha)	MPS IVA [1]
Naglazyme (galsulfase)	MPS VI [2]
Kuvan (sapropterin dihydrochloride)	PKU [3]
Palynziq (pegvaliase-pqpz)	PKU [4]
Brineura (cerliponase alfa)	CLN2 [5]
Voxzogo (vosoritide)	Achondroplasia
Products not marketed by BioMarin:	
Aldurazyme (laronidase)	MPS I [6]

(1) For the treatment of Mucopolysaccharidosis IV Type A
(2) For the treatment of Mucopolysaccharidosis VI
(3) For the treatment of phenylketonuria
(4) For adult patients with PKU
(5) For the treatment of late infantile neuronal ceroid lipofuscinosis type 2
(6) For the treatment of Mucopolysaccharidosis I

A summary of our on-going clinical development programs, as of March 31, 2022, is provided below:

Clinical Development Programs	Target Indication	Stage
Valoctocogene roxaparvovec	Severe Hemophilia A	Clinical Phase 3
BMN 307 [1]	PKU	Clinical Phase 1/2
BMN 255	Primary hyperoxaluria	Clinical Phase 1/2
BMN 331	Hereditary Angioedema	Clinical Phase 1/2

(1) The FDA placed a clinical hold in September 2021 and requested data for additional non-clinical studies in February 2022. We will communicate next steps for the program when available.

(In millions, except as otherwise disclosed)

Financial Highlights

Key components of our results of operations include the following:

	Three Months Ended March 31,	
	2022	2021
Total revenues	$ 519.4	$ 486.0
Cost of sales	$ 117.0	$ 120.2
Research and development (R&D) expense	$ 160.8	$ 148.7
Selling, general and administrative (SG&A) expense	$ 194.6	$ 174.3
Gain on sale of nonfinancial assets, net	$ (108.0)	$ —
Provision for income taxes	$ 13.4	$ 5.9
Net income	$ 120.8	$ 17.4

See "Results of Operations" below for discussion of our results for the periods presented.

Uncertainty Relating to the COVID-19 Pandemic

The COVID-19 pandemic continues to affect economies and business around the world. Our global revenue sources, mostly in the form of demand interruptions such as missed patient infusions and delayed treatment starts for new patients, and our overall business operations were impacted by COVID-19 during the three months ended March 31, 2022 and 2021, and we anticipate a continued impact on our financial results in 2022. The extent and duration of such effects remain uncertain and difficult to predict, particularly as virus variants continue to spread. We are actively monitoring and managing our response and assessing actual and potential impacts to our operating results and financial condition, as well as developments in our business, which could further impact the developments, trends and expectations described below. See the risk factor related to the impact of the coronavirus pandemic, "The COVID-19 pandemic could continue to materially adversely affect our business, results of operations and financial condition." described in "Risk Factors" in Part II, Item 1A of this Quarterly Report, for additional details on the impact of the COVID-19 pandemic.

Business Developments

We continued to grow our commercial business and advance our product candidate pipeline during 2022. We believe that the combination of our internal research programs, acquisitions and partnerships will allow us to continue to develop and commercialize innovative therapies for people with serious and life-threatening rare diseases and medical conditions. Below is a summary of key business developments:

Continued Emphasis on Research and Development

Late-stage Regulatory Portfolio

- Voxzogo: The global launch of Voxzogo is actively underway, with market access and reimbursement progressing as anticipated. Since December 2021, we have seen worldwide increases in the number of children being treated with commercial Voxzogo and in the number of active markets contributing to Voxzogo sales.

  Marketing authorization reviews of Voxzogo are in process in Japan and Australia, with potential approvals in those countries in 2022.

  During the quarter, we provided a top-line update on the Phase 2 randomized, double-blind, placebo-controlled Voxzogo study in infants and young children up to five years of age with achondroplasia. 52-week results trended in favor of Voxzogo compared to placebo on height Z-score and annualized growth velocity, and with no worsening in proportionality in the overall study population. We intend to initiate discussions with regulatory health authorities to discuss next steps regarding efforts to expand access to Voxzogo treatment for this younger age group. We expect to share results from this study at a scientific meeting mid-year 2022.

- Valoctocogene roxaparvovec: The European Medicines Agency (EMA) continues to review our Marketing Authorization Application (MAA) for valoctocogene roxaparvovec and we expect a Committee for Medicinal Products for Human Use opinion mid-year 2022. We have provided the EMA with two-year follow-up safety and efficacy data from the GENEr8-1 study.

  Based on favorable results from the two-year follow-up safety and efficacy data from the GENEr8-1 study, we are targeting BLA resubmission for valoctocogene roxaparvovec in June 2022 followed by an expected six-month

review procedure by the FDA. A pre-submission interaction with the FDA is scheduled later in the second quarter of 2022 to discuss our BLA resubmission efforts.

During the first quarter of 2022, we announced that a subject treated with valoctocogene roxaparvovec in the Phase 2 study over five years ago reported a salivary gland mass in late 2021. The event was reported as unrelated to valoctocogene roxaparvovec by the investigator. The subject was successfully treated and we conducted a genomic analysis from a tissue sample containing the mass. On April 27, 2022, we announced the findings from the completed analysis showed a comparable pattern of integration between healthy and tumor containing tissues, with no evidence emerging that vector integration contributed to the salivary gland mass. These data will be supplied to the EMA, as part of the ongoing review of our MAA, as well as included in the BLA resubmission.

Select Earlier-stage Development Portfolio

- BMN 255 for primary hyperoxaluria type 1, a subset of chronic renal disease: We have completed the single ascending dose arm of the First-in-Human study and are analyzing the results. We believe the availability of a potent, orally bioavailable, small molecule like BMN 255 may be able to significantly reduce disease and treatment burden in certain people with chronic renal disease.
- BMN 331 gene therapy product candidate for Hereditary Angioedema (HAE): During the first quarter of 2022, we announced that we began dosing patients in the Phase 1/2 HAERMONY study to evaluate BMN 331, an investigational AAV5-mediated gene therapy for people living with HAE. The FDA granted Orphan Disease Designation status to BMN 331 in 2021.

Critical Accounting Estimates

In preparing our Condensed Consolidated Financial Statements in accordance with U.S. GAAP and pursuant to the rules and regulations promulgated by the Securities and Exchange Commission (the SEC), we make assumptions, judgments and estimates that can have a significant impact on our net income/loss and affect the reported amounts of certain assets, liabilities, revenues and expenses, and related disclosures. On an ongoing basis, we evaluate our estimates and discuss our critical accounting estimates with the Audit Committee of our Board of Directors. We base our estimates on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ materially from these estimates under different assumptions or conditions. Historically, our assumptions, judgments and estimates relative to our critical accounting estimates have not differed materially from actual results.

The full extent to which the ongoing COVID-19 pandemic could continue to directly or indirectly impact our business, results of operations and financial condition, including revenues, expenses, reserves and allowances, manufacturing, clinical trials and research and development costs will depend on future developments that continue to remain highly uncertain at this time, particularly as virus variants continue to spread. As events continue to evolve and additional information becomes available, our estimates may change materially in future periods.

There have been no significant changes to our critical accounting estimates during the three months ended March 31, 2022, compared to those disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the Securities and Exchange Commission on February 25, 2022.

Recent Accounting Pronouncements

See Note 1 to our accompanying Condensed Consolidated Financial Statements for a description of recent accounting pronouncements, if any, and our expectation of their impact on our results of operations and financial condition.

(In millions of U.S. dollars, except as otherwise disclosed)

Results of Operations

Net Product Revenues

Net Product Revenues consisted of the following:

	Three Months Ended March 31,		
	2022	2021	Change
Net product revenues by product:			
Vimizim	$ 183.0	$ 158.4	$ 24.6
Naglazyme	128.0	107.3	20.7
Kuvan	59.3	70.8	(11.5)
Palynziq	54.9	54.0	0.9
Brineura	36.2	27.3	8.9
Voxzogo	19.7	—	19.7
Total net product revenues marketed by BioMarin	$ 481.1	$ 417.8	$ 63.3
Aldurazyme net product revenues marketed by Sanofi	24.4	50.0	(25.6)
Total net product revenues	$ 505.5	$ 467.8	$ 37.7

Net Product Revenues include revenues generated from our approved products. In the U.S., our commercial products, except for Palynziq and Aldurazyme, are generally sold to specialty pharmacies or end-users, such as hospitals, which act as retailers. Palynziq is distributed in the U.S. through certain certified specialty pharmacies under the Palynziq Risk Evaluation and Mitigation Strategy (REMS) program, and Aldurazyme is marketed worldwide by Sanofi. Outside the U.S., our commercial products are sold to authorized distributors or directly to government purchasers or hospitals, which act as the end-users. In certain countries, governments place large periodic orders for our products. The timing of these large government orders can be inconsistent and can create significant quarter to quarter variation in our revenues.

The increase in Net Product Revenues for the three months ended March 31, 2022 as compared to 2021 was primarily attributed to the following:

- Vimizim and Naglazyme: higher product sales primarily attributed to new patients initiating therapy and timing of orders in the Middle East and Europe;
- Voxzogo: commercial sales due to new patients initiating therapy in Europe and the U.S. following EMA and FDA regulatory approvals in the third and fourth quarters of 2021, respectively;
- Brineura: higher sales primarily due to new patients initiating therapy in Europe; partially offset by
- Aldurazyme: lower product revenues due to timing of bulk lot product fulfillment to Sanofi; and
- Kuvan: lower sales primarily attributed to generic competition as a result of the loss of exclusivity in the U.S. that occurred in October 2020. We anticipated and prepared for this loss of exclusivity and the reduction in our market share, as well as the adverse effect on our revenues and results of operations. We expect to continue to experience adverse effects on our market share and revenues in the future due to the loss of exclusivity in the U.S. and the contracting sapropterin dihydrochloride market.

In certain countries, governments place large periodic orders for our products. We expect that the timing of these large government orders will continue to be inconsistent, which may create significant period to period variation in our revenues. We anticipate the COVID-19 pandemic will have a continued impact on the remainder of 2022 Net Product Revenues as many of our products are administered via infusions in a clinic or hospital setting and/or by a healthcare professional. Although we continue to work with our patient community and health care providers to find alternative arrangements where necessary, such as providing infusions at home, the revenue from the doses of our products that are missed by patients and the lost revenue from delayed treatment starts for new patients will never be recouped.

See the risk factors "The sale of generic versions of Kuvan by generic manufacturers has adversely affected and will continue to adversely affect our revenues and may cause a decline in Kuvan revenues faster than expected" and "The COVID-19 pandemic could continue to materially adversely affect our business, results of operations and financial condition" in "Risk Factors" included in Part II, Item 1A of this Quarterly Report for additional information on risks we face.

(In millions of U.S. dollars, except as otherwise disclosed)

We face exposure to movements in foreign currency exchange rates, primarily the Euro. We use foreign currency exchange forward contracts to hedge a percentage of our foreign currency exposure. The following table shows our Net Product Revenues denominated in USD and foreign currencies:

	Three Months Ended March 31,		
	2022	2021	Change
Sales denominated in USD	$ 259.3	$ 255.4	$ 3.9
Sales denominated in foreign currencies	246.2	212.4	33.8
Total net product revenues	$ 505.5	$ 467.8	$ 37.7

	Three Months Ended March 31,		
	2022	2021	Change
Unfavorable impact of foreign currency exchange rates on product sales denominated in currencies other than USD	$ (9.0)	$ (3.4)	$ (5.6)

The unfavorable impact for the three months ended March 31, 2022 as compared to 2021 was primarily driven by weakness relative to the USD associated with the Euro and Turkish Lira along with currencies from certain Latin American markets.

Royalty and Other Revenues

Royalty and Other Revenues include royalties earned on net sales of products sold by third parties, up-front licensing fees, milestones achieved by licensees or sublicensees and rental income associated with the tenants in our facilities.

	Three Months Ended March 31,		
	2022	2021	Change
Royalty and other revenues	$ 13.8	$ 18.3	$ (4.5)

The decrease in Royalty and Other Revenues for the three months ended March 31, 2022 as compared to 2021 was primarily due the absence of the license payment received from a third party due to their achievement of a regulatory milestone in the first quarter of 2021; partially offset by an increase in royalties earned from net sales of third parties.

We expect to continue to earn royalties from third parties in the future.

Cost of Sales and Gross Margin

Cost of Sales includes raw materials, personnel and facility and other costs associated with manufacturing our commercial products. These costs include production materials, production costs at our manufacturing facilities, third-party manufacturing costs, and internal and external final formulation and packaging costs. Cost of Sales also includes royalties payable to third parties based on sales of our products and charges for inventory valuation reserves.

The following table summarizes our Cost of Sales and gross margin:

	Three Months Ended March 31,		
	2022	2021	Change
Total revenues	$ 519.4	$ 486.0	$ 33.4
Cost of sales	$ 117.0	$ 120.2	$ (3.2)
Gross margin	77.5 %	75.3 %	2.2 %

Cost of Sales decreased for the three months ended March 31, 2022 as compared to 2021 primarily due to lower sales volume of Aldurazyme and lower Palynziq manufacturing costs per unit; partially offset by higher sales volumes of Vimizim and

(In millions of U.S. dollars, except as otherwise disclosed)

Naglazyme. Gross margin increased primarily due to portfolio mix with higher sales volume of products with higher margins, lower inventory reserves and the improved per unit Palynziq manufacturing costs.

We expect gross margin to range between approximately 75% and 77% over the next twelve months.

Research and Development

R&D expense includes costs associated with the research and development of product candidates and post-marketing research commitments related to our approved products. R&D expense primarily includes preclinical and clinical studies, personnel and raw materials costs associated with manufacturing clinical product, quality control and assurance, other R&D activities, facilities and regulatory costs.

We manage our R&D expense by identifying the R&D activities we anticipate will be performed during a given period and then prioritizing efforts based on scientific data, probability of successful development, market potential, available human and capital resources and other similar considerations. We continually review our product pipeline and the development status of product candidates and, as necessary, reallocate resources among the research and development portfolio that we believe will best support the future growth of our business.

We continuously evaluate the recoverability of costs associated with pre-launch or pre-qualification manufacturing activities, and capitalize the costs incurred related to those activities if it is determined that recoverability is highly likely and therefore future revenues are expected. When regulatory approval and the likelihood of future revenues for a product candidate are less certain, the related manufacturing costs are expensed as R&D expenses. We had $11.3 million of manufacturing-related costs for valoctocogene roxaparvovec capitalized as pre-launch inventory as of March 31, 2022. See Note 3 to our accompanying Consolidated Financial Statements for additional information regarding our inventory.

R&D expense consisted of the following:

	Three Months Ended March 31,		
	2022	2021	Change
Research and early development	$ 49.0	$ 29.8	$ 19.2
Valoctocogene roxaparvovec	30.7	25.8	4.9
Voxzogo	29.1	36.3	(7.2)
Other approved products	28.3	26.0	2.3
BMN 307	12.7	15.4	(2.7)
BMN 331	7.0	9.6	(2.6)
BMN 255	2.2	1.8	0.4
Other	1.8	4.0	(2.2)
Total R&D expense	$ 160.8	$ 148.7	$ 12.1

The increase in R&D expense for the three months ended March 31, 2022 as compared to 2021 primarily comprised the following:

- higher spend in research and early development programs due to increased pre-clinical activities and IND-enabling studies for planned IND filings; and
- an increase in clinical trial activities related to continued development of valoctocogene roxaparvovec; partially offset by
- a decrease in Voxzogo related expenses due to increased capitalization of manufacturing costs following the EU and U.S. regulatory approvals in the second half of 2021.

We expect R&D expense to increase in future periods, primarily due to increased activities for our research and early development programs while we continue to develop our later stage programs.

Selling, General and Administrative

Sales and marketing (S&M) expense primarily consisted of employee-related expenses for our sales group, brand marketing, patient support groups and pre-commercialization expenses related to our product candidates. General and

(In millions of U.S. dollars, except as otherwise disclosed)

administrative (G&A) expense primarily consisted of corporate support and other administrative expenses, including employee-related expenses.

SG&A expenses consisted of the following:

	Three Months Ended March 31,		
	2022	2021	Change
S&M expense	$ 104.9	$ 94.2	$ 10.7
G&A expense	89.7	80.1	9.6
Total SG&A expense	$ 194.6	$ 174.3	$ 20.3

S&M expenses by product were as follows:

	Three Months Ended March 31,		
	2022	2021	Change
PKU Products (Kuvan and Palynziq)	$ 29.1	$ 30.8	$ (1.7)
MPS Products (Aldurazyme, Naglazyme and Vimizim)	27.1	24.4	2.7
Voxzogo	22.1	16.5	5.6
Valoctocogene roxaparvovec	15.7	12.2	3.5
Brineura	7.7	8.1	(0.4)
Other	3.2	2.2	1.0
Total S&M expense	$ 104.9	$ 94.2	$ 10.7

The increase in S&M expense for the three months ended March 31, 2022 as compared to 2021 was primarily a result of increased activities in support of Voxzogo commercial launch following EU and U.S. regulatory approvals in the latter half of 2021, and an increase in valoctocogene roxaparvovec commercial launch preparation activities.

The increase in G&A expense was primarily due to increased idle plant time related to maintaining our gene therapy manufacturing facility as well as higher employee-related expenses.

We expect SG&A expense to increase in future periods as a result of preparing to launch new products and support of our global business as it grows.

(In millions of U.S. dollars, except as otherwise disclosed)

Intangible Asset Amortization and Contingent Consideration and Gain on Sale of Nonfinancial Assets, Net

Changes during the periods presented for Intangible Asset Amortization and Contingent Consideration and Gain on Sale of Nonfinancial Assets, Net were as follows:

	Three Months Ended March 31,		
	2022	2021	Change
Changes in the fair value of contingent consideration	$ 2.0	$ 2.3	$ (0.3)
Amortization of intangible assets	15.6	15.4	0.2
Total intangible asset amortization and contingent consideration	$ 17.6	$ 17.7	$ (0.1)
Gain on sale of nonfinancial assets, net	$ 108.0	$ —	$ 108.0

Fair value of contingent consideration – the increase in the fair value of contingent consideration for the three months ended March 31, 2022 as compared to 2021 was attributable to changes in the estimated probability of achieving sales milestones related to our PKU products.

Amortization of intangible assets – the expense for the three months ended March 31, 2022 as compared to 2021 was relatively flat.

Gain on Sale of Nonfinancial Assets, Net – the increase in the three months ended March 31, 2022 as compared to 2021 is due to the sale in the first quarter of 2022 of the Priority Review Voucher (PRV) that we received in connection with the FDA approval of Voxzogo in 2021. In exchange for the PRV, we received lump sum payment of $110.0 million, which was recognized as a gain on the sale of intangible assets, net of broker fees.

Interest Income

We invest our cash equivalents and investments in U.S. government securities and other high credit quality debt securities in order to limit default and market risk.

	Three Months Ended March 31,		
	2022	2021	Change
Interest income	$ 1.8	$ 2.4	$ (0.6)

The decrease in Interest Income for the three months ended March 31, 2022 compared to 2021 was primarily due to lower interest rates. We expect Interest Income to be higher over the next 12 months due to anticipated higher interest rates and yields on our cash equivalents and investments.

Interest Expense

We incur interest expense primarily on our convertible debt. Interest Expense for the periods presented was as follows:

	Three Months Ended March 31,		
	2022	2021	Change
Interest expense	$ 3.8	$ 3.8	$ —

Interest Expense for the three months ended March 31, 2022 was flat as compared to 2021. We do not expect Interest Expense to fluctuate significantly over the next 12 months. See Note 6 to our accompanying Condensed Consolidated Financial Statements for additional information regarding our debt.

(In millions of U.S. dollars, except as otherwise disclosed)

Other Expense, Net

Other Expense, Net for the periods presented was as follows:

	Three Months Ended March 31,		
	2022	2021	Change
Other expense, net	$ (1.2)	$ (0.5)	$ (0.7)

The increase in Other Expense, Net for the three months ended March 31, 2022 compared to 2021 was primarily due to the loss on the fair value of the assets held in our deferred compensation plan.

Provision for Income Taxes

The following table summarizes our income tax expense:

	Three Months Ended March 31,		
	2022	2021	Change
Provision for income taxes	$ 13.4	$ 5.9	$ 7.5

The increase in income tax expense for the three months ended March 31, 2022 as compared to 2021 was primarily due to taxes on increased income recognized in the first quarter of 2022 from the sale of the PRV.

Financial Condition, Liquidity and Capital Resources

Our cash, cash equivalents, and investments as of March 31, 2022 and December 31, 2021 were as follows:

	March 31, 2022	December 31, 2021	Change
Cash and cash equivalents	$ 605.4	$ 587.3	$ 18.1
Short-term investments	450.8	426.6	24.2
Long-term investments	462.8	507.8	(45.0)
Cash, cash equivalents and investments	$ 1,519.0	$ 1,521.7	$ (2.7)

We believe our cash generated from sales of our commercial products, in addition to our cash, cash equivalents and investments will be sufficient to satisfy our liquidity requirements for at least the next 12 months. We believe we will meet longer-term expected future cash requirements and obligations through a combination of cash flows from operating activities, available cash and investments balances and available revolving loan balances. We will need to raise additional funds from equity or debt securities, loans or collaborative agreements if we are unable to satisfy our liquidity requirements. For example, we may require additional financing to fund the repayment of our convertible debt, future milestone payments and our future operations, including the commercialization of our products and product candidates currently under development, preclinical studies and clinical trials, and potential licenses and acquisitions. The timing and mix of our funding alternatives could change depending on many factors, including how much we elect to spend on our development programs, potential licenses and acquisitions of complementary technologies, products and companies or if we settle our convertible debt in cash. Our ability to raise additional capital may also be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, financial markets in the U.S. and worldwide resulting from the ongoing COVID-19 pandemic.

We are mindful that conditions in the current macroeconomic environment could affect our ability to achieve our goals. We sell our products in countries that face economic volatility and weakness. Although we have historically collected receivables from customers in such countries, sustained weakness or further deterioration of the local economies and currencies and adverse effects of the impact of the ongoing COVID-19 pandemic may cause customers in those countries to be unable to pay for our

(In millions of U.S. dollars, except as otherwise disclosed)

products. We will continue to monitor these conditions and will attempt to adjust our business processes, as appropriate, to mitigate macroeconomic risks to our business.

Our cash flows are summarized as follows:

	Three Months Ended March 31,		
	2022	2021	Change
Net cash (used in) provided by operating activities	$ (45.4)	$ 113.5	$ (158.9)
Net cash provided by (used in) investing activities	$ 87.8	$ (70.8)	$ 158.6
Net cash used in financing activities	$ (25.3)	$ (24.4)	$ (0.9)

The decrease in net cash provided by operating activities in the three months ended March 31, 2022 compared to March 31, 2021 was primarily attributed to the timing of cash receipts from our customers, the absence of a tax refund from a Federal carryback claim received in Q1 2021, and higher employee compensation-related payments.

The increase in net cash provided by investing activities in the three months ended March 31, 2022 compared to March 31, 2021 was primarily attributable to the proceeds from the sale of the PRV in the first quarter of 2022 and lower net purchases of available-for-sale debt securities.

Net cash provided by financing activities in the three months ended March 31, 2022 compared to March 31, 2021 was relatively flat.

Financing and Credit Facilities

Our $1.1 billion (undiscounted) of total convertible debt as of March 31, 2022 will impact our liquidity due to the semi-annual cash interest payments as well as the repayment of the principal amount, if not converted. As of March 31, 2022, our indebtedness consisted of our 0.599% senior subordinated convertible notes due in 2024 and our 1.25% senior subordinated convertible notes due in 2027, which, if not converted, will be required to be repaid in cash at maturity in August 2024 and May 2027, respectively. For additional information related to our convertible debt see, Note 6 to our accompanying Condensed Consolidated Financial Statements and Note 10 - *Debt* to our Annual Report on Form 10-K for the year ended December 31, 2021.

In October 2018, we entered into an unsecured revolving credit facility of up to $200.0 million credit subfacility and a swingline loan subfacility. The credit facility is intended to finance ongoing working capital needs and for other general corporate purposes. In May 2021, we amended the credit facility agreement, extending the maturity date from October 19, 2021 to May 28, 2024, among other changes. The amended credit facility contains financial covenants including a maximum leverage ratio and a minimum interest coverage ratio. As of March 31, 2022, there were no amounts outstanding under the credit facility and we and certain of our subsidiaries that serve as guarantors were in compliance with all covenants.

Other Material Sources of Cash

In the first quarter of 2022, we received a lump sum payment of $110.0 million for the sale of the PRV received in connection with the U.S. approval of Voxzogo. See Note 3 to our accompanying Condensed Consolidated Financial Statements for additional discussion.

(In millions of U.S. dollars, except as otherwise disclosed)

Material Cash Requirements

Funding Commitments

Our investment in our research and early development of product candidates and continued development of our existing commercial products has a major impact on our operating performance. R&D expenses for our commercial products and certain product candidates for the period since inception as of March 31, 2022 were as follows:

		Since Program Inception
Valoctocogene roxaparvovec	$	855.8
Voxzogo	$	729.1
BMN 307	$	253.5
BMN 331	$	87.1
BMN 255	$	28.1
Other approved products	$	2,401.5

We cannot estimate with certainty the cost to complete any of our product development programs. We may need or elect to increase our spending above our current long-term plans to be able to achieve our long-term goals. This may increase our capital requirements, including: costs associated with the commercialization of our products; additional clinical trials; investments in the manufacturing of our commercial products; preclinical studies and clinical trials for our product candidates; potential licenses and other acquisitions of complementary technologies, products and companies; and general corporate purposes. Additionally, we cannot precisely estimate the time to complete any of our product development programs or when we expect to receive net cash inflows from any of our product development programs. Please see "Risk Factors" included in Part II, Item 1A of this Quarterly Report on Form 10-Q, for a discussion of the reasons we are unable to estimate such information.

Purchase Obligations

As of March 31, 2022, we had obligations of approximately $117.5 million, all of which was short term and primarily related to firm purchase commitments entered into in the normal course of business to procure active pharmaceutical ingredients, certain inventory-related items and certain third-party R&D services, production services and facility construction services.

Contingent Consideration

As of March 31, 2022, we had $64.0 million of acquisition-related contingent consideration on our Condensed Consolidated Balance Sheet, all of which is Euro denominated and was short term. Of this amount, we expect to pay €30 million in cash in Q2 2022 to a Merck Serono related to our achievement of a Palynziq sales milestone in Q1 2022. For additional information related to our obligation to Merck Serono related to a 2016 arrangement, see Note 17 to our Annual Report on Form 10-K for the year ended December 31, 2021.

Other Obligations

Our lease, contingent obligations and unrecognized tax benefits as of March 31, 2022 have not materially changed from those discussed in "Financial Condition, Liquidity and Capital Resources" in Part II Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2021.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Our market risks during the three months ended March 31, 2022 have not materially changed from those discussed in Part II, Item 7A of our Annual Report on Form 10-K for the year ended December 31, 2021.

Item 4. Controls and Procedures

(a) Controls and Procedures

An evaluation was carried out, under the supervision of and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this report.

Based on the evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that our disclosure controls and procedures were effective, at the reasonable assurance level, as of March 31, 2022.

In designing and evaluating our disclosure controls and procedures, our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and our management must apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure controls system are met.

(b) Change in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, during our most recently completed quarter that have materially affected or are reasonably likely to materially affect our internal control over financial reporting. We continue to utilize the Committee of Sponsoring Organizations of the Treadway Commission (COSO) 2013 Framework on internal control.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

On September 25, 2020, a purported shareholder class action lawsuit was filed against us, our Chief Executive Officer, our President of Worldwide Research and Development and our Chief Financial Officer in the United States District Court in the Northern District of California, alleging violations under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 as amended (the Exchange Act). The complaint alleges that we made materially false or misleading statements regarding the clinical trials and Biologics License Application (BLA) for valoctocogene roxaparvovec by purportedly failing to disclose that differences between the Company's Phase 1/2 and Phase 3 clinical studies limited the ability of the Phase 1/2 study to support valoctocogene roxaparvovec's durability of effect and, as a result, that it was foreseeable that the Food and Drug Administration (FDA) would not approve the BLA without additional data. The complaint seeks an unspecified amount of damages, prejudgment and post-judgment interest, attorneys' fees, expert fees, and other costs. The lead plaintiff filed an amended complaint in February 2021, dropping our Chief Financial Officer as a defendant, and asserting that the Company misled investors about the progress of the FDA's review of our BLA for valoctocogene roxaparvovec. On April 22, 2021, we moved to dismiss the amended complaint. On January 6, 2022, the court denied our motion to dismiss. We answered the amended complaint on February 15, 2022. We believe that the claims have no merit and we intend to vigorously defend this action.

On October 22, 2021, a purported securities class action lawsuit was filed against us, our Chief Executive Officer, our current and prior Chief Financial Officers, and our President of Worldwide Research & Development in the United States District Court for the Northern District of California, alleging violations under Sections 10(b) and 20(a) of the Exchange Act. The complaint alleges that we made materially false or misleading statements regarding BMN 307 by purportedly failing to disclose information about BMN 307's safety profile, and by purportedly overstating BMN 307's clinical and commercial prospects. The complaint seeks an unspecified amount of damages, pre-judgment and post-judgment interest, attorneys' fees, expert fees, and other costs. The Court appointed lead plaintiffs and lead counsel on January 10, 2022. Lead plaintiffs filed an amended complaint on March 25, 2022. We believe that the claims have no merit and we intend to vigorously defend this action.

Item 1A. Risk Factors

An investment in our *securities involves a high degree of risk. We operate in a dynamic and rapidly changing industry that involves numerous risks and uncertainties. The risks and uncertainties described below are not the only ones we face. Other risks and uncertainties, including those that we do not currently consider material, may impair our business. If any of the risks discussed below actually occur, our business, financial condition, operating results or cash flows could be materially adversely affected. This could cause the value of our securities to decline, and you may lose all or part of your investment.*

We have marked with an asterisk (*) those risk factors below that include a substantive change from or update to the risk factors included in our Annual Report on Form 10-K for the year ended December 31, 2021, which was filed with the SEC on February 25, 2022.

Business and Operational Risks

***The COVID-19 pandemic could continue to materially adversely affect our business, results of operations, and financial condition.**

The COVID-19 pandemic has resulted in travel restrictions, quarantines, "work-from-home" and "shelter-in-place" orders and extended shutdown of certain businesses around the world, including in many countries in which we operate. Our global revenue sources, mostly in the form of demand interruptions such as missed patient infusions and delayed treatment starts for new patients, and our overall business operations have been impacted by the COVID-19 pandemic, and we expect that the pandemic will continue to adversely impact our financial results and our business generally in 2022. Ongoing and future effects of the COVID-19 pandemic (or any future pandemic) on all aspects of our business and operations, including revenues, expenses, reserves and allowances, manufacturing, clinical trials and research and development costs, and the duration of such effects, are highly uncertain and difficult to predict.

The COVID-19 pandemic has adversely affected and will likely continue to adversely impact our product development programs, including preclinical study and clinical trial operations. We have been, and will likely continue to be, unable to initiate or continue conducting clinical trials as originally planned in certain countries and regions due to the prioritization of hospital resources toward the pandemic, difficulty in recruiting and retaining healthcare providers and staff due to their diversion toward treating COVID-19 patients or their heightened exposure to COVID-19, potential unwillingness of patients to enroll or continue in trials for fear of exposure to COVID-19 at sites, or the inability of patients to comply with clinical trial protocols as quarantines or travel restrictions impede patient movement or otherwise interrupt healthcare services. For example, we experienced delays in certain clinical trials due to COVID-19 related complications and have had to reevaluate expected timelines for those trials. In addition, we rely on independent clinical investigators, contract research organizations (CROs) and other third-party service providers to assist

us in managing, monitoring and otherwise carrying out our preclinical studies and clinical trials, and the pandemic has impacted, may continue to affect their ability to devote sufficient time and resources to our programs or to travel to sites to perform work for us. Additionally, the COVID-19 pandemic has delayed, and may continue to postpone, necessary regulatory inspections and other interactions with regulators regarding our product candidates, which could delay review or approval of our regulatory submissions.

COVID-19 has adversely affected and will likely continue to affect our ability to source materials and supplies and could adversely impact our ability to manufacture and distribute our product candidates and products. The pandemic has resulted and may continue to result in reduced operations of third-party suppliers of raw materials and supplies upon whom we rely or otherwise limit our ability to obtain sufficient materials and supplies necessary for production of our therapies. Our manufacturing facilities and those of our contract manufacturers are located in areas impacted by the COVID-19 pandemic, which may result in delays or disruptions in our ability to produce product candidates and products. If we or any third party in our supply or distribution chain are adversely impacted by the COVID-19 pandemic, including as a result of required closures, staffing shortages, production slowdowns and disruptions in delivery systems, our operations may be disrupted, limiting our ability to manufacture and distribute our product candidates for clinical trials and research and development operations and our products for commercial sales.

Our commercial operations have also been, and will likely continue to be, adversely impacted by the COVID-19 pandemic. Many of our products are administered via infusions in a clinic or hospital setting and/or by a healthcare professional. Treating COVID-19 patients has become the priority for many healthcare facilities and workers, so it has become, and may continue to be, difficult for some of our patients to receive our therapies that are administered by infusion. Although we are working with our patient community and healthcare providers to find alternative arrangements where necessary, such as providing infusions at home, the revenue from doses of our products that are missed by patients and the lost revenues from delayed treatment starts for new patients will never be recouped. Moreover, some patients may choose to skip infusions because they do not want to risk exposure to COVID-19 by having a healthcare provider administer the therapy at a healthcare facility or at home. The pandemic has also hindered our ability to find new patients and start treating these patients, and it has limited our sales force's ability to promote our products to distributors, hospitals, clinics, doctors and pharmacies, which could adversely affect our revenues and results of operations.

In addition, the COVID-19 pandemic could adversely affect our workforce and the employees of companies with which we do business, thereby disrupting our business operations. Recently, we have implemented a policy of hybrid onsite and remote work for most of our employees who were previously fully remote during the first two years of the COVID-19 pandemic and whose jobs did not require them to be onsite. Continued reliance by us and the companies with which we do business on personnel working fully or partially remotely may negatively impact productivity, increase cyber security risk, create data accessibility issues, increase the risk for communication disruptions, or otherwise disrupt or delay normal business operations. For our employees whose jobs require them to be onsite, we have taken precautions to avoid the spread of COVID-19 among our employees, but we cannot guarantee our workforce will not face an outbreak that could adversely impact our operations.

While the long-term economic impact and the duration of the COVID-19 pandemic may be difficult to predict, the pandemic has resulted in, and may continue to result in, significant disruption of global financial markets, which could reduce our ability to access capital and could negatively affect our liquidity and the liquidity and stability of markets for our common stock and convertible notes. In addition, a recession, further market correction or depression resulting from the COVID-19 pandemic could materially adversely affect our business and the value of our common stock and convertible notes.

To the extent the COVID-19 pandemic continues to adversely affect our business and financial results, it may also have the effect of heightening many of the other risks described in this Risk Factors section, such as those relating to our conducting a significant amount of our sales and operations outside of the U.S., exposure to changes in foreign exchange rates, our substantial indebtedness, our need to generate sufficient cash flows to service our indebtedness and finance our operations, our ability to comply with the covenants contained in the agreements that govern our indebtedness and the volatility of our stock price.

Because the target patient populations for our products are small, we must achieve significant market share and maintain high per-patient prices for our products to achieve and maintain profitability.

All of our products target diseases with small patient populations. As a result, our per-patient prices must be relatively high in order to recover our development and manufacturing costs and achieve and maintain profitability. For Brineura, Naglazyme and Vimizim in particular, we must market worldwide to achieve significant market penetration of the product. In addition, because the number of potential patients in each disease population is small, it is not only important to find patients who begin therapy to achieve significant market penetration of the product, but we also need to be able to maintain these patients on therapy for an extended period of time. Due to the expected costs of treatment for our products, we may be unable to maintain or obtain sufficient market share at a price high enough to justify our product development efforts and manufacturing expenses.

If we fail to obtain and maintain an adequate level of coverage and reimbursement for our products by third-party payers, the sales of our products would be adversely affected or there may be no commercially viable markets for our products.

The course of treatment for patients using our products is expensive. We expect patients to need treatment for extended periods, and for some products throughout the lifetimes of the patients. We expect that most families of patients will not be capable of paying for this treatment themselves. There will be no commercially viable market for our products without coverage and reimbursement from third-party payers. Additionally, even if there is a commercially viable market, if the level of reimbursement is below our expectations, our revenues and gross margin will be adversely affected.

Third-party payers, such as government or private healthcare insurers, carefully review and increasingly challenge the prices charged for drugs. Reimbursement rates from private companies vary depending on the third-party payer, the insurance plan and other factors. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. Reimbursement systems in international markets vary significantly by country and by region, and reimbursement approvals must be obtained on a country-by-country basis.

Government authorities and other third-party payers are developing increasingly sophisticated methods of controlling healthcare costs, such as by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payers are requiring that drug companies provide them with predetermined discounts from list prices as a condition of coverage, are using restrictive formularies and preferred drug lists to leverage greater discounts in competitive classes, and are challenging the prices charged for medical products. Further, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payers in the U.S. Therefore, coverage and reimbursement for drug products can differ significantly from payer to payer. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payer separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

We cannot be sure that coverage and reimbursement will be available for any product that we commercialize or will continue to be available for any product that we have commercialized and, if reimbursement is available, what the level of reimbursement will be. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize any product candidate for which we obtain marketing approval or continue to market any product that has already been commercialized.

Reimbursement in the European Union (EU) and many other territories must be negotiated on a country-by-country basis and in many countries the product cannot be commercially launched until pricing and/or reimbursement is approved. The timing to complete the negotiation process in each country is highly uncertain, and in some countries, we expect that it will exceed 12 months. Even after a price is negotiated, countries frequently request or require reductions to the price and other concessions over time.

For our future products, we will not know what the reimbursement rates will be until we are ready to market the product and we actually negotiate the rates. If we are unable to obtain sufficiently high reimbursement rates for our products, they may not be commercially viable or our future revenues and gross margin may be adversely affected.

If we fail to compete successfully with respect to product sales, we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product and our revenues could be adversely affected.

Our competitors may develop, manufacture and market products that are more effective or less expensive than ours. They may also obtain regulatory approvals for their products faster than we can obtain them (including those products with orphan drug designation, which may prevent us from marketing our product entirely) or commercialize their products before we do. With respect to valoctocogene roxaparvovec, if the product candidate is approved, we will face a highly developed and competitive market for hemophilia A treatments. As we commercialize valoctocogene roxaparvovec, if approved, we may face intense competition from large pharmaceutical companies with extensive resources and established relationships in the hemophilia A community. If we do not compete successfully, our revenues would be adversely affected, and we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product.

Changes in methods of treatment of disease could reduce demand for our products and adversely affect revenues.

Even if our product candidates are approved, if doctors elect a course of treatment which does not include our products, this decision would reduce demand for our products and adversely affect revenues. For example, if gene therapy becomes widely used as a treatment of genetic diseases, the use of enzyme replacement therapy, such as Aldurazyme, Naglazyme, and Vimizim in MPS diseases, could be greatly reduced. Moreover, if we obtain regulatory approval for valoctocogene roxaparvovec, the commercial success of valoctocogene roxaparvovec will still depend, in part, on the acceptance of physicians, patients and healthcare payers of gene therapy products in general, and our product candidate in particular, as medically necessary, cost effective and safe. Changes in treatment method can be caused by the introduction of other companies' products or the development of new technologies or surgical procedures which may not directly compete with ours, but which have the effect of changing how doctors decide to treat a disease.

If we fail to develop new products and product candidates or compete successfully with respect to acquisitions, joint ventures, licenses or other collaboration opportunities, our ability to continue to expand our product pipeline and our growth and development would be impaired.

Our future growth and development depend in part on our ability to successfully develop new products from our research and development activities. The development of biopharmaceutical products is very expensive and time intensive and involves a great degree of risk. The outcomes of research and development programs, especially for innovative biopharmaceuticals, are inherently uncertain and may not result in the commercialization of any products.

Our competitors compete with us to attract organizations for acquisitions, joint ventures, licensing arrangements or other collaborations. To date, several of our former and current product programs have been acquired through acquisitions and several of our former and current product programs have been developed through licensing or collaborative arrangements, such as Aldurazyme, Kuvan and Naglazyme. These collaborations include licensing proprietary technology from, and other relationships with, academic research institutions. Our future success will depend, in part, on our ability to identify additional opportunities and to successfully enter into partnering or acquisition agreements for those opportunities. If our competitors successfully enter into partnering arrangements or license agreements with academic research institutions, we will then be precluded from pursuing those specific opportunities. Because each of these opportunities is unique, we may not be able to find a substitute. Several pharmaceutical and biotechnology companies have already established themselves in the field of genetic diseases. These companies have already begun many drug development programs, some of which may target diseases that we are also targeting, and have already entered into partnering and licensing arrangements with academic research institutions, reducing the pool of available opportunities.

Universities and public and private research institutions also compete with us. While these organizations primarily have educational or basic research objectives, they may develop proprietary technology and acquire patents that we may need for the development of our product candidates. We will attempt to license this proprietary technology, if available. These licenses may not be available to us on acceptable terms, if at all. If we are unable to compete successfully with respect to acquisitions, joint venture and other collaboration opportunities, we may be limited in our ability to develop new products and to continue to expand our product pipeline.

The sale of generic versions of Kuvan by generic manufacturers has adversely affected and will continue to adversely affect our revenues and may cause a decline in Kuvan revenues faster than expected.

Generic versions of Kuvan are available in several countries around the world, including multiple generic versions in the U.S. This generic competition has adversely affected and will continue to adversely affect our revenues from Kuvan, and we cannot accurately predict the rate of decline of Kuvan revenues in these countries. We are also aware that manufacturers are challenging our patent portfolio related to Kuvan in several jurisdictions, and one generic version of Kuvan has been approved by the European Medicines Agency (EMA), although it is not yet commercially available. If these patent challenges are successful, or if a manufacturer chooses to offer a generic version of Kuvan, notwithstanding our existing patents, our revenues may decline faster than expected.

If we do not achieve our projected development goals in the timeframes we announce and expect, the commercialization of our product candidates may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.

For planning purposes, we estimate the timing of the accomplishment of various scientific, clinical, regulatory and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of scientific studies and clinical trials and the submission of regulatory filings. From time to time, we publicly announce the expected timing of some of these milestones. All of these milestones are based on a variety of assumptions. The actual timing of these milestones can vary dramatically compared to our estimates, in many cases for reasons beyond our control. If we do not

meet these milestones as publicly announced, the commercialization of our products may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.

We have in the past and may in the future enter into licensing arrangements, and we may not realize the benefits of such licensing arrangements.

We have in the past and may in the future enter into licensing arrangements with third parties. It is possible that we may not achieve financial or strategic benefits that justify a specific license, or we may otherwise not realize the benefits of such licensing arrangement. Further, licensing arrangements impose various diligence, milestone and royalty payment and other obligations on us. If we fail to comply with our obligations under any current or future licenses, our licensors may have the right to terminate these license agreements, which could harm our business prospects, financial condition and results of operations. Further, counterparties to our license agreements have in the past and may in the future allege that we have breached a license agreement, which can result in litigation or other disputes that can divert management's attention away from our business and require us to expend resources, as well as potentially having to negotiate new or reinstated licenses with less favorable terms. Any such situation could adversely affect our business, financial condition, and results of operations.

Regulatory Risks

If we fail to obtain regulatory approval to commercially market and sell our product candidates, or if approval of our product candidates is delayed, we will be unable to generate revenues from the sale of these product candidates, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will increase.

We must obtain regulatory approval to market and sell our product candidates. For example, in the U.S., we must obtain Food and Drug Administration (FDA) approval for each product candidate that we intend to commercialize, and in the EU we must obtain approval from the European Commission (EC), based on the opinion of the Committee for Medicinal Products for Human Use of the EMA. The FDA and EC approval processes are typically lengthy and expensive, and approval is never certain. To obtain regulatory approval, we must first show that our product candidates are safe and effective for target indications through preclinical studies and clinical trials. Preclinical studies and clinical development are long, expensive and uncertain processes. Completion of clinical trials may take several years, and failure may occur at any stage of development. The length of time required varies substantially according to the type, complexity, novelty and intended use of a product candidate. Interim results of a preclinical test or clinical trial do not necessarily predict final results, and acceptable results in early clinical trials may not be repeated in later clinical trials. Accordingly, there are no assurances that we will obtain regulatory approval for any of our product candidates. Furthermore, there can be no assurance that approval of one of our product candidates by one regulatory authority will mean that other authorities will also approve the same product candidate. Similarly, regulatory authorities may approve a product candidate for fewer or more limited indications than requested. In addition, regulatory authorities may not approve the labeling claims that are necessary or desirable for the successful commercialization of our product candidates.

We have had fewer interactions with regulatory authorities outside the U.S. and the EU as compared to our interactions with the FDA and EMA. The approval procedures vary among countries and can involve additional clinical testing, and the time required to obtain approval may differ from that required to obtain FDA or EC approval. Moreover, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries. Approval by the FDA or EC does not ensure approval by regulatory authorities in other countries, and approval by one or more non-U.S. regulatory authorities does not ensure approval by regulatory authorities in other non-U.S. countries or by the FDA or EC. However, a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. The non-U.S. regulatory approval process may include all of the risks associated with obtaining FDA or EC approval. We may not obtain non-U.S. regulatory approvals on a timely basis, if at all. We may not be able to file for regulatory approvals and even if we file, we may not receive necessary approvals to commercialize our product candidates in any market.

We also rely on independent third-party CROs to file some of our non-U.S. marketing applications, and while we keep a close oversight on the activities we delegate to CROs, important aspects of the services performed for us by the CROs are out of our direct control. If we fail to adequately manage our CROs, if the CRO elects to prioritize work on our projects below other projects or if there is any dispute or disruption in our relationship with our CROs, the filing of our applications may be delayed.

Although the FDA and the EMA have programs to facilitate expedited development and accelerated approval processes, the timelines agreed under legislative goals or mandated by regulations are subject to the possibility of substantial delays. Accordingly, even if any of our applications receives a designation to facilitate expedited development and accelerated approval processes, these designations may not result in faster review or approval for our product candidates compared to product candidates considered for approval under conventional procedures and, in any event, do not assure ultimate approval of our product candidates by regulatory authorities. In addition, the FDA, the EMA and other comparable international regulatory authorities have substantial discretion over the approval process for pharmaceutical products. These regulatory agencies may not agree that we have demonstrated the requisite level of product safety and efficacy to grant approval and may require additional

data. If we fail to obtain regulatory approval for our product candidates, we will be unable to market and sell those product candidates, which would have a negative effect on our business and financial condition.

We may experience challenges specific to gene therapy that cause significant delays or unanticipated costs, or that cannot be solved. Although numerous companies are currently advancing gene therapy product candidates through clinical trials, the FDA has only approved a very small number of vector-based gene therapy products thus far. Moreover, there are very few approved gene therapy products outside the U.S. As a result, it is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our gene therapy product candidates in any jurisdiction. Regulatory requirements governing gene and cell therapy products are still evolving and may continue to change in the future. For example, in October 2020, it was reported that the Director of the Center for Biologics Evaluation and Research, the center of the FDA responsible for reviewing marketing applications for gene therapies, stated that the FDA will assess the importance of durability of effect differently for a gene therapy that treats a disease that has no other available therapies versus a condition for which there are multiple approved treatments. Additionally, in September 2021, the FDA held a Cellular, Tissue, and Gene Therapies Advisory Committee (CTGTAC) to discuss toxicity risks of adeno-associated virus (AAV) vectors for gene therapy and to seek the CTGTAC's insight into strategies to evaluate and mitigate risks in the context of AAV vector-based product design and quality, preclinical studies, and clinical trials. Valoctocogene roxaparvovec and BMN 307 are AAV vector-based product candidates.

Regulatory agencies and the new requirements and guidelines they promulgate may lengthen the regulatory review process, require us to perform additional or larger studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our treatment candidate or lead to significant post-approval studies, limitations or restrictions. For example, on August 18, 2020, the FDA issued a Complete Response Letter (CRL) to our BLA for valoctocogene roxaparvovec for the treatment of adults with severe hemophilia A. In the CRL, the FDA introduced a new request for two-year follow-up safety and efficacy data on all study participants from our ongoing Phase 3 study of valoctocogene roxaparvovec. In January 2022, we announced results from the requested two-year data analysis from our Phase 3 study. We are planning to meet with the FDA to discuss resubmission of our BLA, including this two-year data analysis. The BLA resubmission is targeted for the second quarter of 2022. If the FDA deems our resubmission to be a complete response to the CRL, we expect the resubmission will be followed by a six-month review procedure by the FDA. With respect to BMN 307, in September 2021, the FDA placed a clinical hold on our PHEarless study. The hold was based on pre-clinical study findings from a model designed to understand the durability of BMN 307 activity in mice bearing two germline mutations, one rendering the mice immunodeficient. Of 63 animals treated, six of seven animals administered BMN 307 at the highest dose group (2e14 Vg/kg) had tumors on liver necropsy 52 weeks after dosing with evidence for integration of portions of AAV vector into the genome. No lesions were observed in any mice at 24 weeks. The clinical significance of these findings is being evaluated to assure safe and appropriate use of BMN 307. To date, we have seen no evidence from our studies or scientific literature indicating these findings are translatable to humans, species other than mice or other gene therapy vectors. The durability study was one of multiple pre-clinical studies we conducted and was not designed to test safety. However, we promptly notified the FDA upon availability of the integration site analysis results. The FDA initiated a clinical hold shortly after being notified, and we announced the hold before the next business day after we were informed of the FDA's decision. In February 2022, the FDA requested data from additional non-clinical studies to assess the theoretical oncogenic risk to human study participants, which is expected to take several quarters. We will communicate next steps for the program when available. Continued delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring our gene therapy product candidates to market could have a negative effect on our business and financial condition. Even if we do obtain regulatory approval, ethical, social and legal concerns about gene therapy arising in the future could result in additional regulations restricting or prohibiting sale of our products.

In addition, some of our product candidates are intended to be used in combination with a medical device, such as an injector or other delivery system or companion diagnostic. Such products may be regulated as "combination products" in the U.S. and the EU, which are generally defined as products consisting of components from two or more regulatory categories (e.g., drug/device, device/biologic, drug/biologic). In the U.S., each component of a combination product is subject to the requirements established by the FDA for that type of component, whether a new drug, biologic or device. In order to facilitate pre-market review of combination products, the FDA designates one of its centers to have primary jurisdiction for the pre-market review and regulation of the overall product based upon a determination by the FDA of the primary mode of action of the combination product. The determination whether a product is a combination product or two separately regulated products is made by the FDA on a case-by-case basis. In the EU, if a device intended to administer a medicinal product is sold together with such medicinal product in such a way that they form a single integral product which is intended exclusively for use in the given combination and which is not reusable, that single integral product is regulated as a medicinal product. In addition, the relevant general safety and performance requirements established for medical devices by EU medical devices legislation apply to the device component of such combination products. Our product candidates intended for use with separately regulated devices, or expanded indications that we may seek for our products used with such devices, may not be approved or may be substantially delayed in receiving approval if the devices do not gain and/or maintain their own regulatory approvals or clearances. Where approval of the drug or biologic product and device is sought under a single application, the increased complexity of the review process may delay approval. The FDA review process and criteria are not well-established areas, which could also lead to delays in the approval process. In addition, because these devices are provided by unaffiliated third-party companies, we are dependent on the sustained cooperation and effort of those third-party companies both to obtain regulatory approval and to maintain their own regulatory compliance. Failure of third-party companies to assist in the approval process or to maintain their own regulatory compliance could delay or prevent approval of our product candidates, or limit our ability to sell a product once it is approved.

From time to time during the development and regulatory approval process for our products and product candidates, we engage in discussions with the FDA, the EMA and other comparable international regulatory authorities regarding our development programs, including discussions about the regulatory requirements for approval. As part of these discussions, we sometimes seek advice in the design of our clinical programs from various regulatory agencies globally, but we do not always follow such guidance. This increases the chance of adverse regulatory actions, but we try to always provide appropriate scientific evidence to support approval. Moreover, sometimes different regulatory agencies provide different or conflicting advice. While we attempt to harmonize the advice we receive from multiple regulatory authorities, it is not always practical to do so. Also, we may choose not to harmonize conflicting advice when harmonization would significantly delay clinical trial data or is otherwise inappropriate. If we are unable to effectively and efficiently resolve and comply with the inquiries and requests of the FDA, the EMA and other comparable international regulatory authorities, the approval of our product candidates may be delayed and their value may be reduced.

Any product for which we have obtained regulatory approval, or for which we obtain approval in the future, is subject to, or will be subject to, extensive ongoing regulatory requirements by the FDA, the EMA and other comparable international regulatory authorities, and if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, we may be subject to penalties, we will be unable to generate revenues from the sale of such products, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will be increased.

Aldurazyme, Brineura, Kuvan, Naglazyme and Vimizim have received regulatory approval to be commercially marketed and sold in the U.S., the EU and certain other countries, Palynziq has received regulatory approval to be commercially marketed in the U.S., the EU, and Australia. Voxzogo has received regulatory approval to be commercially marketed in the U.S., the EU, and Brazil. Any product for which we have obtained regulatory approval, or for which we obtain regulatory approval in the future, along with the manufacturing processes and practices, post-approval clinical research, product labeling, advertising and promotional activities for such product, are subject to continual requirements of, and review by, the FDA, the EMA and other comparable international regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, current good manufacturing practices (cGMP) requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, import and export requirements and record keeping.

An example of the ongoing regulatory requirements our products are subject to is the Palynziq Risk Evaluation and Mitigation Strategy (REMS) program. In the U.S., Palynziq is only available through the REMS program, which is required by the FDA to mitigate the risk of anaphylaxis while using the product. Notable requirements of our REMS program include the following:

- prescribers must be certified by enrolling in the REMS program and completing training;
- prescribers must prescribe auto-injectable epinephrine with Palynziq;
- pharmacies must be certified with the REMS program and must dispense Palynziq only to patients who are authorized to receive it;
- patients must enroll in the REMS program and be educated about the risk of anaphylaxis by a certified prescriber to ensure they understand the risks and benefits of treatment with Palynziq; and
- patients must have auto-injectable epinephrine available at all times while taking Palynziq.

Failure of prescribers, pharmacies or patients to enroll in our REMS program or to successfully complete and comply with its requirements may result in regulatory action from the FDA or decreased sales of Palynziq. The restrictions and requirements under our REMS program, as well as potential changes to these restrictions and requirements in the future, subject us to increased risks and uncertainties, any of which could harm our business. The requirement for a REMS program can materially affect the potential market for and profitability of a drug. We cannot predict whether the FDA will request, seek to require or ultimately require modifications to, or impose additional requirements on, the Palynziq REMS program, or whether the FDA will permit modifications to the Palynziq REMS program that we consider warranted. Any modifications required or rejected by the FDA could make it more difficult or expensive for us to distribute Palynziq in the U.S., impair the safety profile of Palynziq, disrupt continuity of care for Palynziq patients and/or negatively affect sales of Palynziq.

Moreover, promotional communications with respect to prescription drugs, including biologics, are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved labeling. In particular, a product may not be promoted for uses that are not approved by the FDA or the EC as reflected in the product's approved labeling. Although the FDA and other comparable international regulatory authorities do not regulate a physician's choice of drug treatment made in the physician's independent medical judgment, they do restrict promotional communications from companies or their sales force with respect to off-label uses of products for which marketing clearance has not been issued. The FDA and other national competent authorities or international regulatory 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 civil, criminal and administrative penalties. Thus, we will not be able to promote any products we develop for indications or uses for which they are not approved. Additionally, in the EU, it is prohibited to promote prescription drugs to the general public and we are therefore limited to promote our products exclusively to healthcare professionals.

Moreover, if original FDA approval for one of our product candidates is granted via the accelerated approval pathway, we will be required to conduct a post-marketing confirmatory trial to verify and describe the clinical benefit in support of full approval. An unsuccessful post-marketing study or failure to complete such a study with due diligence could result in the withdrawal of the FDA's marketing approval for a product candidate. For example, Voxzogo is approved in the U.S. under accelerated approval based on an improvement in annualized growth velocity. Continued approval for this indication may be contingent upon verification and description of clinical benefit in confirmatory studies. To fulfill this post-marketing requirement, we intend to use our ongoing open-label extension studies compared to available natural history. In addition, the FDA and the EC often require post-marketing testing and surveillance to monitor the effects of products. The FDA, the EMA and other comparable international regulatory agencies may condition approval of our product candidates on the completion of such post-marketing clinical studies. These post-marketing studies may suggest that a product causes undesirable side effects or may present a risk to the patient.

Discovery after approval of previously unknown problems with any of our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in actions such as:

- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;
- restrictions on product manufacturing processes;
- restrictions on the marketing of a product;
- restrictions on product distribution;
- requirements to conduct post-marketing clinical trials;
- untitled or warning letters or other adverse publicity;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- refusal to permit the import or export of our products;
- product seizure;
- fines, restitution or disgorgement of profits or revenue;
- injunctions; or
- imposition of civil or criminal penalties.

If such regulatory actions are taken, our value and our operating results will be adversely affected. Additionally, if the FDA, the EMA or any other comparable international regulatory authorities withdraws its approval of a product, we will be unable to generate revenues from the sale of that product in the relevant jurisdiction, our potential for generating positive cash flow will be diminished and the capital necessary to fund our operations will be increased. Accordingly, we continue to expend significant time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance, post-marketing studies and quality control.

To obtain regulatory approval to market our products, preclinical studies and costly and lengthy clinical trials are required and the results of the studies and trials are highly uncertain. Likewise, preliminary, initial or interim data from clinical trials should be considered carefully and with caution because the final data may be materially different from the preliminary, initial or interim data, particularly as more patient data become available.

As part of the drug development process we must conduct, at our own expense, preclinical studies in the laboratory, including studies in animals, and clinical trials on humans for each product candidate. The number of preclinical studies and clinical trials that regulatory authorities require varies depending on the product candidate, the disease or condition the drug is being developed to address and regulations applicable to the particular drug. Generally, new drugs for diseases or conditions that affect larger patient populations, are less severe, or are treatable by alternative strategies must be validated through additional preclinical and clinical trials and/or clinical trials with higher enrollments. With respect to our early stage product candidates, we may need to perform multiple preclinical studies using various doses and formulations before we can begin clinical trials, which could result in delays to our development timeline. Furthermore, even if we obtain favorable results in preclinical studies, the results in humans may be significantly different. After we have conducted preclinical studies, we must demonstrate that our product candidates are safe and efficacious for use in the targeted human patients in order to receive regulatory approval for commercial sale. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials, and favorable data from interim analyses do not ensure the final results of a trial will be favorable. From time to time, we have and may in the future publish or report preliminary, initial or interim data from our clinical trials. Preliminary, initial or interim data from our clinical trials may not be indicative of the final results of the trial and are

subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and/or more patient data become available. In this regard, such data may show initial evidence of clinical benefit, but as patients continue to be followed and more patient data become available, there is a risk that any therapeutic effects will not be durable in patients and/or will decrease over time or cease entirely. Preliminary, initial or interim data also remain subject to audit and verification procedures that may result in the final data being materially different from such preliminary, initial or interim data. As a result, preliminary, initial or interim data should be considered carefully and with caution until the final data are available.

Product candidates may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials, or despite having favorable data in connection with an interim analysis. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Also, as noted above, we do not always follow the advice of regulatory authorities or comply with all of their requests regarding the design of our clinical programs. In those cases, we may choose a development program that is inconsistent with the advice of regulatory authorities, which may limit the jurisdictions where we conduct clinical trials and/or adversely affect our ability to obtain approval in those jurisdictions where we do not follow the regulatory advice.

Adverse or inconclusive clinical results could stop us from obtaining regulatory approval of our product candidates. Additional factors that can cause delay or termination of our clinical trials include:

- slow or insufficient patient enrollment;
- slow recruitment of, and completion of necessary institutional approvals at, clinical sites;
- budgetary constraints or prohibitively high clinical trial costs;
- longer treatment time required to demonstrate efficacy;
- lack of sufficient supplies of the product candidate;
- adverse medical events or side effects in treated patients, including immune reactions;
- lack of effectiveness of the product candidate being tested;
- availability of competitive therapies to treat the same indication as our product candidates;
- regulatory requests for additional clinical trials or preclinical studies;
- deviations in standards for Good Clinical Practice (GCP); and
- disputes with or disruptions in our relationships with clinical trial partners, including CROs, clinical laboratories, clinical sites, and principal investigators.

Moreover, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services reportable to the FDA or other regulatory authority. If the FDA or other regulatory authority concludes that a financial relationship between us and a principal investigator has created a conflict of interest, the FDA or other regulatory authority may question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized.

Similar rules governing clinical trials to those in place in the U.S. apply in the EU. Since January 31, 2022, a new Clinical Trials Regulation (CTR) is in force in the EU. The CTR was adopted with a view to introducing a more uniform set of the rules across the EU for the authorization of clinical trials. The relevant procedures have now been streamlined with a view to facilitating a swifter and more seamless authorization and deployment of multi-center trials occurring in more than one EU Member State. However, such authorization still involves the national regulatory authorities and Ethics Committees of each of the EU Member States where the trial is to be conducted. The CTD will continue to apply in parallel to the CTR for a transitional period. This means that clinical trials in the EU can currently be conducted in accordance with the requirements of the CTD, as implemented in national law by each EU Member State, or the CTR, as applicable, as well as applicable good clinical practice standards.

Government price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our current and future products, which would adversely affect our revenues and results of operations.

We expect that coverage and reimbursement may be increasingly restricted in all the markets in which we sell our products. The escalating cost of healthcare has led to increased pressure on the healthcare industry to reduce costs. In particular, drug pricing by pharmaceutical companies has recently come under increased scrutiny and continues to be subject to intense political and public debate in the U.S. and abroad. Governmental and private third-party payers have proposed healthcare reforms and cost reductions. A number of federal and state proposals to control the cost of healthcare, including the cost of drug treatments, have been made in the U.S. Specifically, there have been several recent U.S. congressional inquiries and proposed bills and enacted legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs.

Further, Congress and the executive branch have each indicated that they will continue to seek new legislative and/or administrative measures to control drug costs. In some international markets, the government controls the pricing, which can affect the profitability of drugs. Current government regulations and possible future legislation regarding healthcare may affect coverage and reimbursement for medical treatment by third-party payers, which may render our products not commercially viable or may adversely affect our future revenues and gross margins.

International operations are also generally subject to extensive price and market regulations, and there are many proposals for additional cost-containment measures, including proposals that would directly or indirectly impose additional price controls or mandatory price cuts or reduce the value of our intellectual property portfolio. As part of these cost containment measures, some countries have imposed and continue to propose revenue caps limiting the annual volume of sales of our products. Some of these caps are significantly below the actual demand in certain countries, and if the trend regarding revenue caps continues, our future revenues and gross margins may be adversely affected. For example, in the EU, governments influence the price of medicinal products through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. EU Member States are free to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed to by the government. An EU Member State may approve a specific price for the medicinal product, or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market, including volume-based arrangements, caps and reference pricing mechanisms. Other EU Member States allow companies to fix their own prices for medicines but monitor and control company profits. The downward pressure on healthcare costs in general, particularly prescription medicines, has become very intense. Pharmaceutical products may face competition from lower-priced products in foreign countries that have placed price controls on pharmaceutical products and may also compete with imported foreign products. Furthermore, there is no assurance that a product will be considered medically reasonable and necessary for a specific indication, will be considered cost-effective by third-party payors, that an adequate level of reimbursement will be established even if coverage is available or that the third-party payors' reimbursement policies will not adversely affect our business.

We cannot predict the extent to which our business may be affected by these or other potential future legislative or regulatory developments. However, future price controls or other changes in pricing regulation or negative publicity related to our product pricing or the pricing of pharmaceutical drugs generally could restrict the amount that we are able to charge for our current and future products or our sales volume, which would adversely affect our revenues and results of operations.

Government healthcare reform could increase our costs and adversely affect our revenues and results of operations.

Our industry is highly regulated and changes in law may adversely impact our business, operations or financial results. In the U.S., there have been and continue to be a number of legislative initiatives to contain healthcare costs. For example, the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the PPACA) is a sweeping measure intended to, among other things, expand healthcare coverage within the U.S., primarily through the imposition of health insurance mandates on employers and individuals and expansion of the Medicaid program. Several provisions of the law have affected us and increased certain of our costs. Since its enactment, there have been executive, judicial and congressional challenges to certain aspects of the PPACA. Although the PPACA has generally been upheld thus far, it is unclear how continued challenges to the law may impact the PPACA and our business. In addition, other legislative changes have been adopted since the PPACA was enacted. Some of these changes have resulted in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our customers and, accordingly, our financial operations.

We anticipate that the PPACA, as well as other healthcare reform measures that may be adopted in the future in the U.S. or abroad, may result in more rigorous coverage criteria and an additional downward pressure on the reimbursement our customers may receive for our products. Recently there has been heightened governmental scrutiny in countries worldwide over the manner in which manufacturers set prices for their marketed products.

In the U.S., there have been several recent congressional inquiries, proposed and enacted federal and state legislation, and executive action designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drug products. Any reduction in reimbursement from Medicare and other government programs may result in a similar reduction in payments from private payers. In addition, individual states in the U.S. have also increasingly passed legislation and implemented regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, price disclosure and reporting requirements, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Moreover, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

Likewise, in many EU Member States, legislators and other policymakers continue to propose and implement healthcare cost-containing measures in response to the increased attention being paid to healthcare costs in the EU. Certain of these changes could impose limitations on the prices we will be able to charge for our products and any approved product candidates or the amounts of reimbursement available for these products from governmental and private third-party payers, may increase the tax obligations on pharmaceutical companies or may facilitate the introduction of generic competition with respect to our products. Further, an increasing number of EU Member States and other non-U.S. countries use prices for medicinal products established in other countries as "reference prices" to help determine the price of the product in their own territory. If the price of one of our products decreases substantially in a reference price country, it could impact the price for that product in other countries. Consequently, a downward trend in prices of our products in some countries could contribute to similar downward trends elsewhere, which would have a material adverse effect on our revenues and results of operations. Moreover, in order to obtain reimbursement for our products in some countries, we may be required to conduct clinical trials that compare the cost-effectiveness of our products to other available therapies.

Legally mandated price controls on payment amounts by governmental and private third-party payers or other restrictions could harm our business, results of operations, financial condition and prospects. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our products.

If we fail to obtain or maintain orphan drug exclusivity for some of our products, our competitors may obtain approval to sell the same drugs to treat the same conditions and our revenues will be reduced.

As part of our business strategy, we have developed and may in the future develop some drugs that may be eligible for FDA and EU orphan drug designation. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is intended to treat a rare disease or condition, defined as a patient population of fewer than 200,000 in the U.S. In the EU, pursuant to the Orphan Regulation, orphan drug designation is available if a sponsor can establish that: (1) the medicine is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition affecting no more than five in 10,000 people in the EU at the time the application is made, or, (2) that it is intended for the diagnosis, prevention or treatment of a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives derived from the orphan status, it is unlikely that the marketing of the medicine in the EU would generate sufficient return to justify the necessary investment. In both cases, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the EU or, if such method exists, the medicine will be of significant benefit to those affected by that condition.

In the U.S., the company that first obtains FDA approval for a designated orphan drug for a given rare disease receives marketing exclusivity for use of that drug for the stated condition for a period of seven years. Orphan drug exclusive marketing rights 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 quantity of the drug. In addition, the FDA may approve another drug during a period of orphan drug exclusivity if the second drug is found to be clinically superior to the first drug. In the EU, a ten-year period of market exclusivity (extendable to twelve years for orphan drugs that have complied with an agreed Pediatric Investigation Plan (PIP) pursuant to Regulation 1901/2006), during which similar medicines for the same indication cannot be placed on the market, is granted. MAs may also be granted to a similar medicinal product with the same orphan indication if: (i) the applicant can establish that the second medicinal product, although similar to the orphan medicinal product already authorized is safer, more effective or otherwise clinically superior to the orphan medicinal product already authorized; (ii) the MA holder for the first orphan medicinal product grants its consent; or (iii) if the MA holder of the orphan medicinal product is unable to supply sufficient quantities. The period of market exclusivity may, in addition, be reduced to six years if, at the end of the fifth year, it can be demonstrated on the basis of available evidence that the criteria for its designation as an orphan medicine are no longer satisfied, for example if the original orphan medicinal product has become sufficiently profitable not to justify maintenance of market exclusivity. Because the extent and scope of patent protection for some of our products is limited, orphan drug designation is especially important for our products that are eligible for orphan drug designation. For eligible products, we plan to rely on the exclusivity period under the Orphan Drug Act and/or the Orphan Regulation, as applicable, to maintain a competitive position. If we do not obtain orphan drug exclusivity for our products that do not have broad patent protection, our competitors may then sell the same drug to treat the same condition and our revenues will be reduced.

Even though we have obtained orphan drug designation for certain of our product candidates and even if we obtain orphan drug designation for our future product candidates, due to the uncertainties associated with developing biopharmaceutical products, we may not be the first to obtain marketing approval for any particular orphan indication, which means that we may not obtain orphan drug exclusivity and could also potentially be blocked from approval of certain product candidates until the competitor product's orphan drug exclusivity period expires. Moreover, with respect to certain biologics and gene therapies, there may be some uncertainty regarding how similarity between product candidates designed to treat the same rare disease or condition may affect such product candidates' orphan drug exclusivities. For biologics and gene therapies, the FDA's determination of whether a drug is the same drug or a different drug will be based on the principal molecular structural features of the products. For gene therapy products, the FDA has stated in guidance that it generally intends to consider certain key features such as transgenes and vectors used in gene therapy products to be principal molecular structural features. Further, even if we obtain

orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition and the same drug can be approved for different conditions and potentially used off-label in the orphan indication. Even after an orphan drug is approved and granted orphan drug exclusivity, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is safer or more effective or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug, nor gives the drug any advantage in the regulatory review or approval process.

We may face competition from biosimilars approved through an abbreviated regulatory pathway.

Our Aldurazyme, Brineura, Naglazyme, Palynziq and Vimizim products are regulated by the FDA as biologics under the Federal Food, Drug, and Cosmetic Act and the Public Health Service Act (the PHS Act). Biologics require the submission of a BLA and approval by the FDA prior to being marketed in the U.S. The Biologics Price Competition and Innovation Act of 2009 (BPCIA) created a regulatory pathway under the PHS Act for the abbreviated approval of biological products that are demonstrated to be “biosimilar” or “interchangeable” with an FDA-approved biological product. A similar abridged MA process is available to biosimilar products in the EU. In particular, applicants for MAs of biosimilars are required to demonstrate through comprehensive comparability studies with the reference biological medicine that: a) their biological medicine is highly similar to the reference medicine, notwithstanding natural variability inherent to all biological medicines; and b) there are no clinically meaningful differences between the biosimilar and the reference medicine in terms of safety, quality and efficacy.

In the U.S., in order to meet the standard of interchangeability, a sponsor must demonstrate that the biosimilar product can be expected to produce the same clinical result as the reference product, and for a product that is administered more than once, that the risk of switching between the reference product and biosimilar product is not greater than the risk of maintaining the patient on the reference product. The BPCIA establishes a period of 12 years of exclusivity for reference products. In the EU, a medicinal product containing a new active substance benefits from eight years of data exclusivity, during which biosimilar applications referring to the data of that product may not be accepted by the regulatory authorities, and a further two years of market exclusivity, during which such biosimilar products may not be placed on the market. The two-year period may be extended to three years if during the first eight years a new therapeutic indication with significant clinical benefit over existing therapies is approved. Our products approved under BLAs in the U.S. or as a result of Marketing Authorization Applications (MAAs) in the EU, as well as our product candidates that may be approved in the future, could be reference products for biosimilar marketing applications.

Changes in funding for the FDA, the EMA, other comparable international regulatory authorities and other government agencies or government shutdowns could hinder the ability of such agencies to hire and retain key leadership and other personnel or otherwise prevent those agencies from performing normal functions on which the operation of our business may rely, which could negatively impact our business.

Changes in funding levels of government agencies can affect their ability to hire and retain key personnel and carry out their normal functions that support our business. For example, the ability of the FDA or the EMA to timely review and approve INDs or MAAs for our product candidates may be hindered by a lack of resources and qualified personnel. In addition, funding of other government agencies on which our operations rely, including those that fund research and development activities, is subject to the political budget process, which is inherently fluid and unpredictable.

Government shutdowns could also impact the ability of government agencies to function normally and support our operations. For example, the U.S. federal government has shut down repeatedly since 1980, including for a period of 35 days beginning on December 22, 2018. During a shutdown, certain regulatory agencies, such as the FDA, have had to furlough key personnel and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Risks Related to Valoctocogene Roxaparvovec

Our valoctocogene roxaparvovec program is based on a gene therapy approach, which, as a novel technology, presents additional development and treatment risks in relation to our other, more traditional drug development programs.

In addition to the risks set forth in this Risk Factors section associated with developing more traditional pharmaceutical drugs, there are additional, unique development and treatment risks associated with gene therapy products like our product candidate valoctocogene roxaparvovec. The goal of gene therapy is to be able to correct an inborn genetic defect through administration of therapeutic genetic material containing non-defective gene copies. The gene copies are designed to reside permanently in a patient, allowing the patient to produce an essential protein or ribonucleic acid (RNA) molecule that a healthy person would normally produce. There is a risk, however, that the new gene copies will produce too little or too much of the desired protein or RNA. Although administration of a gene therapy product like our product candidate valoctocogene roxaparvovec is intended to correct an inborn genetic defect for at least several years, there is a risk that the therapeutic effect will not be durable and production of the desired protein or RNA will decrease more quickly or cease entirely earlier than expected. If the therapeutic

effect decreases significantly or ceases entirely, it is uncertain whether redosing is possible or would be effective. Furthermore, because gene therapy treatment is irreversible, there may be challenges in managing side effects, particularly those caused by potential overproduction of the desired protein. Adverse effects would not be able to be reversed or relieved by stopping dosing, and we may have to develop additional clinical safety procedures. Furthermore, because the new gene copies are designed to reside permanently in a patient, there is a risk that they will disrupt other normal biological molecules and processes, including other healthy genes, and we may not learn the nature and magnitude of these side effects until long after clinical trials have been completed.

As compared to our other, more traditional products, our gene therapy product candidate valoctocogene roxaparvovec, if approved, may present additional problems with respect to the pricing, coverage, and reimbursement and acceptance of the product candidate.

In addition to the risks set forth in this Risk Factors section associated with commercializing more traditional pharmaceutical drugs, there are additional, unique commercial risks associated with gene therapy products like our product candidate valoctocogene roxaparvovec. Due to the relative novelty of gene therapy and the potential to provide extended duration therapeutic treatment with a one-time administration, we face uncertainty with respect to the pricing, coverage and reimbursement of valoctocogene roxaparvovec, if approved. In order to recover our research and development costs and commercialize this one-time treatment on a profitable basis, we expect the cost of a single administration of valoctocogene roxaparvovec to be substantial. Therefore, we expect that coverage and reimbursement by governments and other third-party payers will be essential for the vast majority of patients to be able to afford valoctocogene roxaparvovec. Accordingly, sales of valoctocogene roxaparvovec, if approved, will depend substantially, both domestically and internationally, on the extent to which its cost will be paid by third-party payers. Even if coverage is provided, the reimbursement amounts approved by third-party payers may not be high enough to allow us to realize sufficient revenues from our investment in the development of valoctocogene roxaparvovec.

We also face uncertainty as to whether gene therapy will gain the acceptance of the public or the medical community. Even if we obtain regulatory approval for valoctocogene roxaparvovec, the commercial success of valoctocogene roxaparvovec will depend, in part, on the acceptance of physicians, patients and third-party payers of gene therapy products in general, and our product candidate in particular, as medically necessary, cost-effective and safe. In particular, our success will depend upon physicians prescribing our product candidate in lieu of existing treatments they are already familiar with and for which greater clinical data may be available. Moreover, physicians and patients may delay acceptance of valoctocogene roxaparvovec until the product candidate has been on the market for a certain amount of time. Negative public opinion or more restrictive government regulations could have a negative effect on our business and financial condition and may delay or impair the successful commercialization of, and demand for, valoctocogene roxaparvovec.

We have implemented data access plans for our main clinical trials of valoctocogene roxaparvovec, which restrict our management's review of emerging key efficacy data from these trials. Without access to this ongoing data, management does not have the ability to adjust the trials based on such emerging data, which could adversely impact the ultimate outcome of these trials.

In order to preserve the scientific integrity of our main valoctocogene roxaparvovec clinical trials and to allow us to only report on data at intervals that we believe will be meaningful to investors, we have implemented data access plans related to these ongoing open-label trials, which is designed to significantly mirror blinded trials. Pursuant to the plans, the ongoing emerging data for key endpoints are generally not accessed by us, with the exception that certain specific data points are reviewed by a small group of medical personnel monitoring and managing the trials, and then, only to the extent necessary to allow them to perform their monitoring responsibilities. As we disclose and publicly discuss prior data from one of these trials, such discussions do not incorporate any of the currently emerging data that are being collected and reviewed by personnel monitoring the trial and, accordingly, this prior data may differ significantly from more recent data that are only available to such personnel. Further, because our management does not have access to any of the ongoing key efficacy data and does not have the ability to adjust the trials based on such emerging data, the data access plans could adversely impact the ultimate outcome of the trials.

Financial and Financing Risks

If we continue to incur operating losses or are unable to sustain positive cash flows for a period longer than anticipated, we may be unable to continue our operations at planned levels and be forced to reduce our operations.

Since we began operations in March 1997, we have been engaged in substantial research and development and capital investments, and we have operated at a net loss for each year since our inception, with the exception of 2008, 2010 and 2020. Our future profitability and cash flows depend on our marketing and selling of our products, the receipt of regulatory approval of our product candidates, our ability to successfully manufacture and market any products, either by ourselves or jointly with others, our spending on our development programs, the impact of any possible future business development transactions and other risks set forth in this Risk Factors section. The extent of our future losses and the timing of profitability and positive cash flows are highly uncertain. If we fail to become profitable or are unable to sustain profitability and positive cash flows on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce our operations.

***If we fail to obtain the capital necessary to fund our operations, our financial results and financial condition will be adversely affected and we will have to delay or terminate some or all of our product development programs.**

As of March 31, 2022, we had cash, cash equivalents and investments totaling $1.52 billion and debt obligations of $1.1 billion (undiscounted), which consisted of our 0.599% senior subordinated convertible notes due in 2024 (the 2024 Notes) and our 1.25% senior subordinated convertible notes due in 2027 (the 2027 Notes). The 2024 Notes and the 2027 Notes (collectively, the Notes), if not converted, will be required to be repaid in cash at maturity in August 2024 and May 2027, respectively. We will need cash not only to pay the ongoing interest due on the Notes during their term, but also to repay the principal amount of the Notes if not converted.

In January 2016, we terminated our License and Commercialization Agreement with Ares Trading, S.A. (Merck Serono). Pursuant to the Termination and Transition Agreement related to Kuvan and the Termination Agreement related to Palynziq, we are obligated to make certain payments to Merck Serono if sales and development milestones are achieved. The remaining milestone payments that may become payable include up to a maximum of €60 million, in cash, if future sales milestones are met with respect to Kuvan and Palynziq.

We may require additional financing to fund the repayment of the Notes, future milestone payments and our future operations, including the commercialization of our products and product candidates currently under development, preclinical studies and clinical trials, and potential licenses and acquisitions. We may be unable to raise additional financing due to a variety of factors, including our financial condition, the status of our product programs, and the general condition of the financial markets. If we fail to raise any necessary additional financing we may have to delay or terminate some or all of our product development programs and our financial condition and operating results will be adversely affected.

We expect to continue to spend substantial amounts of capital for our operations for the foreseeable future. The amount of capital we will need depends on many factors, including:

- our ability to successfully market and sell our products;
- the time and cost necessary to develop commercial manufacturing processes, including quality systems, and to build or acquire manufacturing capabilities the progress and success of our preclinical studies and clinical trials (including studies and the manufacture of materials);
- the timing, number, size and scope of our preclinical studies and clinical trials;
- the time and cost necessary to obtain regulatory approvals and the costs of post-marketing studies which may be required by regulatory authorities;
- the progress of research programs carried out by us;
- our possible achievement of development and commercial milestones under agreements with third parties, such as the Kuvan and Palynziq milestones under the termination agreements with Merck Serono;
- any changes made to, or new developments in, our existing collaborative, licensing and other commercial relationships or any new collaborative, licensing and other commercial relationships that we may establish;
- Sanofi's (formerly referred to as Sanofi Genzyme) ability to continue to successfully commercialize Aldurazyme; and
- whether our convertible debt is converted to common stock in the future.

Moreover, our fixed expenses such as rent, license payments, interest expense and other contractual commitments are substantial and may increase in the future. These fixed expenses may increase because we may enter into:

- additional licenses and collaborative agreements;
- additional contracts for product manufacturing; and
- additional financing facilities or arrangements.

We will need to raise additional funds from equity or debt securities, loans or collaborative agreements if we are unable to satisfy our liquidity requirements. The sale of additional equity and/or equity-linked securities will result in additional dilution to our stockholders. Furthermore, additional financing may not be available in amounts or on terms satisfactory to us or at all. This could result in the delay, reduction or termination of our research, which could harm our business.

***We have incurred substantial indebtedness that may decrease our business flexibility, access to capital, and/or increase our borrowing costs, which may adversely affect our operations and financial results.**

As of March 31, 2022, we had $1.1 billion (undiscounted) principal amount of indebtedness, including $495.0 million (undiscounted) principal amount of indebtedness under the 2024 Notes and $600.0 million (undiscounted) principal amount of indebtedness under the 2027 Notes. In October 2018, we also entered into an unsecured credit agreement (the 2018 Credit Agreement) with Bank of America, N.A., as the administrative agent, swingline lender and a lender, Citibank, N.A. as letter of credit issuer and each of Merrill Lynch, Pierce, Fenner & Smith Incorporated, Citibank, N.A. and Wells Fargo Securities, LLC as joint lead arrangers and joint bookrunners, providing up to $200.0 million in revolving loan commitments (the 2018 Credit Facility). In May 2021, we amended the 2018 Credit Facility to, among other things, extend the maturity date of the 2018 Credit Facility from October 18, 2021 to May 28, 2024. Our indebtedness may:

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for future working capital, capital expenditures, acquisitions or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- limit our flexibility to plan for, or react to, changes in our business and industry;
- place us at a competitive disadvantage compared to our less leveraged competitors; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

In addition, the 2018 Credit Facility contains, and any future indebtedness that we may incur may contain, financial and other restrictive covenants that limit our ability to operate our business, raise capital or make payments under our other indebtedness. If we fail to comply with these covenants or to make payments under our indebtedness when due, then we would be in default under that indebtedness, which could, in turn, result in that and our other indebtedness becoming immediately payable in full. If we default under the 2018 Credit Facility, the outstanding borrowings thereunder could become immediately due and payable, the 2018 Credit Facility lenders could refuse to permit additional borrowings under the facility, or it could lead to defaults under agreements governing our current or future indebtedness, including the indentures governing the Notes. If we default under any series of the Notes, such series of Notes could become immediately due and payable and it could lead to defaults under the other series of Notes and/or the 2018 Credit Facility.

In addition, our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time.

Our outstanding indebtedness consists primarily of the 2024 Notes and 2027 Notes, which, if not converted, will be required to be repaid in cash at maturity in August 2024 and May 2027, respectively. While we could seek to obtain additional third-party financing to pay for any amounts due in cash upon maturity of the Notes, we cannot be sure that such third-party financing will be available on commercially reasonable terms, if at all.

In addition, we also may borrow up to $200.0 million in revolving loans under the 2018 Credit Facility, which would be required to be repaid in cash at maturity on May 28, 2024.

Manufacturing Risks

If we fail to comply with manufacturing regulations, our financial results and financial condition will be adversely affected.

Before we can begin commercial manufacture of our products, regulatory authorities must approve marketing applications that identify manufacturing facilities operated by us or our contract manufacturers that have passed regulatory inspection and manufacturing processes that are acceptable to the regulatory authorities. In addition, our pharmaceutical manufacturing facilities are continuously subject to scheduled and unannounced inspection by the FDA, and other comparable EU and other international regulatory authorities, before and after product approval, to monitor and ensure compliance with cGMP and other regulations. Our manufacturing facility in the U.S. has been approved by the FDA and the EC for the manufacture of Palynziq, and it has been approved by the FDA, the EC, and health agencies in other countries for the manufacture of Aldurazyme, Brineura, Naglazyme, Vimizim and Voxzogo. Our manufacturing facility in Shanbally, Cork, Ireland has been approved by the FDA, the EC, and health agencies in other countries for the manufacture of Vimizim and Brineura. In addition, our third-party manufacturers' facilities involved with the manufacture of our products have also been inspected and approved by various regulatory authorities. Although

we are not involved in the day-to-day operations of our contract manufacturers, we are ultimately responsible for ensuring that our products are manufactured in accordance with cGMP regulations.

Due to the complexity of the processes used to manufacture our products and product candidates, we may be unable to continue to pass or initially pass federal or international regulatory inspections in a cost-effective manner. For the same reason, any potential third-party manufacturer of our products or our product candidates may be unable to comply with cGMP regulations in a cost-effective manner and may be unable to initially or continue to pass a federal or international regulatory inspection.

If we, or third-party manufacturers with whom we contract, are unable to comply with manufacturing regulations, we may be subject to delay of approval of our product candidates, warning or untitled letters, fines, unanticipated compliance expenses, recall or seizure of our products, total or partial suspension of production and/or enforcement actions, including injunctions, and criminal or civil prosecution. These possible sanctions would adversely affect our financial results and financial condition.

If we are unable to successfully develop and maintain manufacturing processes for our product candidates to produce sufficient quantities at acceptable costs, we may be unable to support a clinical trial or be forced to terminate a program, or if we are unable to produce sufficient quantities of our products at acceptable costs, we may be unable to meet commercial demand, lose potential revenue, have reduced margins or be forced to terminate a program.

Due to the complexity of manufacturing our product candidates and products, we may not be able to manufacture sufficient quantities. Our inability to produce enough of our product candidate at acceptable costs may result in the delay or termination of development programs. With respect to our commercial portfolio, we may not be able to manufacture our products successfully with a commercially viable process or at a scale large enough to support their respective commercial markets or at acceptable margins.

The development of commercially viable manufacturing processes typically is very difficult to achieve and is often very expensive and may require extended periods of time. Changes in manufacturing processes (including manufacturing cell lines), equipment or facilities (including moving manufacturing from one of our facilities to another one of our facilities or a third-party facility, or from a third-party facility to one of our facilities) may require us to complete clinical trials to receive regulatory approval of any manufacturing modifications.

With respect to valoctocogene roxaparvovec, gene therapy products are relatively novel and complex and have only in limited cases been manufactured at scales sufficient for pivotal trials and commercialization. Few pharmaceutical contract manufacturers specialize in gene therapy products and those that do are still developing appropriate processes and facilities for large-scale production. We invested a considerable amount of capital building our own commercial gene therapy manufacturing facility, which may be subject to significant impairment if our gene therapy programs are unsuccessful. As we develop, seek to optimize and operate the valoctocogene roxaparvovec manufacturing process, we will likely face technical and scientific challenges, considerable capital costs, and potential difficulty in recruiting and hiring experienced, qualified personnel. There may also be unexpected technical or operational issues during clinical or commercial manufacturing campaigns. As a result, we could experience manufacturing delays that prevent us from completing our clinical studies in a timely manner, if at all, or commercializing valoctocogene roxaparvovec on a profitable basis, if at all.

Also, we may be required to demonstrate product comparability between a biological product made after a manufacturing change and the product made before implementation of the change through additional types of analytical and functional testing or may have to complete additional clinical studies. If we contract for manufacturing services with an unproven process, our contractor is subject to the same uncertainties, high standards and regulatory controls, and may therefore experience difficulty if further process development is necessary.

Even a developed manufacturing process can encounter difficulties. Problems may arise during manufacturing for a variety of reasons, including human error, mechanical breakdowns, problems with raw materials and cell banks, malfunctions of internal information technology systems, and other events that cannot always be prevented or anticipated. Many of the processes include biological systems, which add significant complexity, as compared to chemical synthesis. We expect that, from time to time, consistent with biotechnology industry expectations, certain production lots will fail to produce product that meets our quality control release acceptance criteria. To date, our historical failure rates for all of our product programs have been within our expectations, which are based on industry norms. If the failure rate increased substantially, we could experience increased costs, lost revenue, damage to customer relations, time and expense investigating the cause and, depending upon the cause, similar losses with respect to other lots or products. If problems are not discovered before the product is released to the market, recall and product liability costs may also be incurred.

In order to produce product within our time and cost parameters, we must continue to produce product within our expected success rate and yield expectations. Because of the complexity of our manufacturing processes, it may be difficult or impossible for us to determine the cause of any particular lot failure and we must effectively take corrective action in response to any failure in a timely manner.

We currently rely on third parties for portions of the manufacture of each of our commercial products. If those manufacturers are unwilling or unable to fulfill their contractual obligations or satisfy demand outside of or in excess of the contractual obligations, we may be unable to meet demand for these products or sell these products at all and we may lose potential revenue. Further, the availability of suitable contract manufacturing capacity at scheduled or optimum times is not certain.

In addition, our manufacturing processes subject us to a variety of federal, state and local laws and regulations governing the use, generation, manufacture, storage, handling and disposal of hazardous materials and wastes resulting from their use. We incur significant costs in complying with these laws and regulations.

Supply interruptions may disrupt our inventory levels and the availability of our products and product candidates and cause delays in obtaining regulatory approval for our product candidates, or harm our business by reducing our revenues.

We depend on single-source suppliers for critical raw materials and a limited number of manufacturing facilities to manufacture our finished products and product candidates. Numerous factors could cause interruptions in the supply or manufacture of our products and product candidates, including:

- timing, scheduling and prioritization of production by our contract manufacturers or a breach of our agreements by our contract manufacturers;
- labor interruptions;
- changes in our sources for manufacturing;
- the timing and delivery of shipments;
- our failure to locate and obtain replacement suppliers and manufacturers as needed on a timely basis; and
- conditions affecting the cost and availability of raw materials.

If one of our suppliers or manufacturers fails or refuses to supply us with necessary raw materials or finished products or product candidates on a timely basis or at all, it would take a significant amount of time and expense to qualify a new supplier or manufacturer. We may not be able to obtain active ingredients or finished products from new suppliers or manufacturers on acceptable terms and at reasonable prices, or at all.

Any interruption in the supply of finished products could hinder our ability to distribute finished products to meet commercial demand and adversely affect our financial results and financial condition.

With respect to our product candidates, production of product is necessary to perform clinical trials and successful registration batches are necessary to file for approval to commercially market and sell product candidates. Delays in obtaining clinical material or registration batches could adversely impact our clinical trials and delay regulatory approval for our product candidates.

If our Manufacturing, Marketing and Sales Agreement with Sanofi were terminated, we could be prevented from continuing to commercialize Aldurazyme or our ability to successfully commercialize Aldurazyme would be delayed or diminished.

Either party may terminate the Manufacturing, Marketing and Sales Agreement (the MMS Agreement) between Sanofi and us related to Aldurazyme for specified reasons, including if the other party is in material breach of the MMS Agreement, has experienced a change of control, as such term is defined in the MMS Agreement, or has declared bankruptcy and also is in breach of the MMS Agreement. Although we are not currently in breach of the MMS Agreement, there is a risk that either party could breach the MMS Agreement in the future. Either party may also terminate the MMS Agreement upon one-year prior written notice for any reason.

If the MMS Agreement is terminated for breach, the breaching party will transfer its interest in the BioMarin/Genzyme LLC to the non-breaching party, and the non-breaching party will pay a specified buyout amount for the breaching party's interest in Aldurazyme and in the BioMarin/Genzyme LLC. If we are the breaching party, we would lose our rights to Aldurazyme and the related intellectual property and regulatory approvals. If the MMS Agreement is terminated without cause, the non-terminating party would have the option, exercisable for one year, to buy out the terminating party's interest in Aldurazyme and in the BioMarin/Genzyme LLC at a specified buyout amount. If such option is not exercised, all rights to Aldurazyme will be sold and the BioMarin/Genzyme LLC will be dissolved. In the event of termination of the buyout option without exercise by the non-terminating party as described above, all right and title to Aldurazyme is to be sold to the highest bidder, with the proceeds to be split between Sanofi and us in accordance with our percentage interest in the BioMarin/Genzyme LLC.

If the MMS Agreement is terminated by either party because the other party declared bankruptcy, the terminating party would be obligated to buy out the other party and would obtain all rights to Aldurazyme exclusively. If the MMS Agreement is terminated by a party because the other party experienced a change of control, the terminating party shall notify the other party, the offeree, of its intent to buy out the offeree's interest in Aldurazyme and the BioMarin/Genzyme LLC for a stated amount set by the terminating party at its discretion. The offeree must then either accept this offer or agree to buy the terminating party's interest in Aldurazyme and the BioMarin/Genzyme LLC on those same terms. The party who buys out the other party would then have exclusive worldwide rights to Aldurazyme. The Amended and Restated Collaboration Agreement between us and Sanofi will automatically terminate upon the effective date of the termination of the MMS Agreement and may not be terminated independently from the MMS Agreement.

If we were obligated or given the option to buy out Sanofi's interest in Aldurazyme and the BioMarin/Genzyme LLC, and thereby gain exclusive rights to Aldurazyme, we may not have sufficient funds to do so and we may not be able to obtain the financing to do so. If we fail to buy out Sanofi's interest, we may be held in breach of the agreement and may lose any claim to the rights to Aldurazyme and the related intellectual property and regulatory approvals. We would then effectively be prohibited from developing and commercializing Aldurazyme. If this happened, not only would our product revenues decrease, but our share price would also decline.

Risks Related to International Operations

***We conduct a significant amount of our sales and operations outside of the U.S., which subjects us to additional business risks that could adversely affect our revenues and results of operations.**

A significant portion of the sales of Aldurazyme, Brineura, Kuvan, Naglazyme, Palynziq and Vimizim are generated from countries other than the U.S. Similarly, we expect a significant portion of the sales of Voxzogo to be generated from countries other than the U.S. We have operations in Canada and in several European, Middle Eastern, Asian, and Latin American countries. We expect that we will continue to expand our international operations in the future. International operations inherently subject us to a number of risks and uncertainties, including:

- the increased complexity and costs inherent in managing international operations;
- diverse regulatory and compliance requirements, and changes in those requirements that could restrict our ability to manufacture, market and sell our products;
- political and economic instability, such as the instability caused by Russia's invasion of Ukraine;
- diminished protection of intellectual property in some countries outside of the U.S.;
- trade protection measures and import or export licensing requirements;
- difficulty in staffing and managing international operations;
- differing labor regulations and business practices;
- potentially negative consequences from changes in or interpretations of tax laws;
- changes in international medical reimbursement policies and programs;
- financial risks such as longer payment cycles, difficulty collecting accounts receivable, exposure to fluctuations in foreign currency exchange rates and potential currency controls imposed by non-U.S. governments;
- regulatory and compliance risks that relate to maintaining accurate information and control over sales and distributors' and service providers' activities that may fall within the purview of the Foreign Corrupt Practices Act (the FCPA); and
- rapidly evolving global laws and regulations relating to data protection and the privacy and security of commercial and personal information.

Any of these factors may, individually or as a group, have a material adverse effect on our business and results of operations. For example, Russia's invasion of Ukraine and the related impacts to Ukraine's infrastructure and healthcare system has significantly impacted our ability to provide our therapies to patients in Ukraine. Sanctions issued by the U.S. and other countries against Russia in response to its attack on Ukraine and related counter-sanctions issued by Russia have made it very difficult for us to operate in Russia and may have a material adverse impact on our ability to sell our products and/or collect receivables from customers in Russia.

As we continue to expand our existing international operations, we may encounter new risks. For example, as we focus on building our international sales and distribution networks in new geographic regions, we must continue to develop relationships with qualified local distributors and trading companies. If we are not successful in developing and maintaining these relationships, we may not be able to grow sales in these geographic regions. These or other similar risks could adversely affect our revenues and profitability.

A significant portion of our international sales are made based on special access programs, and changes to these programs could adversely affect our product sales and revenues in these countries.

We make a significant portion of our international sales of Brineura, Naglazyme and Vimizim through early access, special access or "named patient sales" programs in markets where we are not required to obtain regulatory approval, and we expect a significant portion of our international sales of Voxzogo will also be through such programs. The specifics of the programs vary from country to country. Generally, special approval must be obtained to initiate such programs, and in some cases, special approval must be obtained for each patient. The approval normally requires an application or a lawsuit accompanied by evidence of medical need.

These programs are not well defined in some countries and are subject to changes in requirements, funding levels, unmet medical need and classification of the disease treated by our product. Any change to these programs could adversely affect our ability to sell our products in those countries and delay sales. If the programs are not funded by the respective government, there could be insufficient funds to pay for all patients. Further, governments have and may continue to undertake unofficial measures to limit purchases of our products, including initially denying coverage for purchasers, delaying orders, requiring additional in-country testing and denying or taking excessively long to approve customs clearance. Any such actions could materially delay or reduce our revenues from such countries.

Without the special access programs, we would need to seek full product approval or official reimbursement to commercially market and sell our products in certain jurisdictions. This can be an expensive and time-consuming process and may subject our products to additional price controls. Because the number of patients is so small in some countries, it may not be economically feasible to seek, obtain and maintain a full product approval or official reimbursement, and therefore the sales in such country would be permanently reduced or eliminated. For all of these reasons, if the special access programs that we are currently using are eliminated or restricted, our revenues could be adversely affected.

***U.S. export control and economic sanctions may adversely affect our business, financial condition and operating results. Moreover, compliance with such regulatory requirements may increase our costs and negatively impact our ability to sell our products and collect cash from customers.**

Our products are subject to U.S. export control laws and regulations, including the U.S. Export Administration Regulations and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control (OFAC). Exports of our products and solutions must be made in compliance with these laws and regulations. Changes to these laws and regulations, or to the countries, governments, persons or activities targeted by such laws, could result in decreased use of our products, or hinder our ability to export or sell our products to existing or potential customers, which would likely adversely affect our results of operations, financial condition or strategic objectives. For example, sanctions issued by the U.S. against Russia in response to its invasion of Ukraine have made it very difficult for us to operate in Russia and may have a material adverse impact on our ability to sell our products and/or collect receivables from customers in Russia. Moreover, if we fail to comply with these laws and regulations, we could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges and fines.

We rely on a general license from OFAC to sell our medicines for eventual use by hospital and clinic end-users in Iran. The use of this OFAC general license requires us to observe strict conditions with respect to products sold, end-user limitations and payment requirements. Although we believe we have maintained compliance with the general license requirements, there can be no assurance that the general license will not be revoked, the general license will be renewed in the future or we will remain in compliance with the general license. A violation of the OFAC general license could result in substantial fines, sanctions, civil or criminal penalties, competitive or reputational harm, litigation or regulatory action and other consequences that might adversely affect our results of operations, financial condition or strategic objectives.

Moreover, U.S. export control and economic sanctions may make operating in certain countries more difficult and expensive. For example, we may be unable to find distributors or financial institutions willing to facilitate the sale of our products and collection of cash from such sales in a cost-effective manner, if at all.

Failure to comply with applicable anti-corruption legislation could result in fines, criminal penalties and materially adversely affect our business, financial condition and results of operations.

We are required to comply with anti-corruption and anti-bribery laws in the jurisdictions in which we operate, including the FCPA in the U.S. and other similar laws in other countries in which we do business. We operate in a number of countries that are

recognized to have a reputation for corruption and pose an increased risk of corrupt practices. We also regularly interact with government regulators in many countries, including those that are considered higher risk for corruption, in order to secure regulatory approval to manufacture and distribute our products. The anti-corruption and anti-bribery laws to which we are subject generally prohibit companies and their intermediaries from making improper payments to non-U.S. government officials or other persons for the purposes of influencing official decisions or obtaining or retaining business and/or other benefits. These laws also require us to make and keep books and records that accurately and fairly reflect our transactions and to devise and maintain an adequate system of internal accounting controls. As part of our business, we deal with state-owned business enterprises, the employees and representatives of which may be considered non-U.S. government officials for purposes of applicable anti-corruption laws.

Although we have adopted policies and procedures designed to ensure that we, our employees and third-party agents will comply with such laws, there can be no assurance that such policies or procedures will work effectively at all times or protect us against liability under these or other laws for actions taken by our employees, partners and other third parties with respect to our business. If we are not in compliance with anti-corruption laws and other laws governing the conduct of business with government entities and/or officials (including local laws), we may be subject to criminal and civil penalties and other remedial measures, which could harm our business, financial condition, results of operations, cash flows and prospects. Investigations of any actual or alleged violations of such laws or policies related to us could harm our business, financial condition, results of operations, cash flows and prospects.

Moreover, there has been enhanced scrutiny of company-sponsored patient assistance programs, including insurance premium and co-pay assistance programs and donations to third-party independent charities that provide such assistance. There has also been enhanced scrutiny by governments on reimbursement support offerings, clinical education programs and promotional speaker programs. If we, our third-party agents or donation recipients are deemed to have failed to comply with laws, regulations or government guidance in any of these areas, we could be subject to criminal or civil sanctions. Any similar violations by our competitors could also negatively impact our industry reputation and increase scrutiny over our business and our products.

Our international operations pose currency risks, which may adversely affect our operating results and net income.

A significant and growing portion of our revenues and earnings, as well as our substantial international net assets, are exposed to changes in foreign exchange rates. As we operate in multiple foreign currencies, including the Euro, the Brazilian Real, the Great British Pound, the Canadian Dollar and several other currencies, changes in those currencies relative to the U.S. Dollar (USD) will impact our revenues and expenses. If the USD were to weaken against another currency, assuming all other variables remained constant, our revenues would increase, having a positive impact on earnings, and our overall expenses would increase, having a negative impact on earnings. Conversely, if the USD were to strengthen against another currency, assuming all other variables remained constant, our revenues would decrease, having a negative impact on earnings, and our overall expenses would decrease, having a positive impact on earnings. In addition, because our financial statements are reported in USD, changes in currency exchange rates between the USD and other currencies have had, and will continue to have, an impact on our results of operations. Therefore, significant changes in foreign exchange rates can impact our results and our financial guidance.

We implement currency hedges intended to reduce our exposure to changes in certain foreign currency exchange rates. However, our hedging strategies may not be successful, and any of our unhedged foreign exchange exposures will continue to be subject to market fluctuations. These risks could cause a material adverse effect on our business, financial position and results of operations and could cause the market value of our common stock to decline.

We face credit risks from government-owned or sponsored customers outside of the U.S. that may adversely affect our results of operations.

Our product sales to government-owned or supported customers in various countries outside of the U.S. are subject to significant payment delays due to government funding and reimbursement practices. This has resulted and may continue to result in an increase in days sales outstanding due to the average length of time that we have accounts receivable outstanding. If significant changes were to occur in the reimbursement practices of these governments or if government funding becomes unavailable, we may not be able to collect on amounts due to us from these customers and our results of operations would be adversely affected.

Intellectual Property Risks

If we are unable to protect our intellectual property, we may not be able to compete effectively or preserve our market shares.

Where appropriate, we seek patent protection for certain aspects of our technology. Patent protection may not be available for some of the products we are developing. If we must spend significant time and money protecting or enforcing our

patents, designing around patents held by others or licensing, potentially for large fees, patents or other proprietary rights held by others, our business and financial prospects may be harmed.

The patent positions of biopharmaceutical products are complex and uncertain. The scope and extent of patent protection for some of our products and product candidates are particularly uncertain because key information on some of our product candidates has existed in the public domain for many years. The composition and genetic sequences of animal and/or human versions of Aldurazyme, Naglazyme and many of our product candidates have been published and are believed to be in the public domain. The chemical structure of 6R-BH4 (the active ingredient in Kuvan) has also been published. Publication of this information may prevent us from obtaining or enforcing patents relating to our products and product candidates, including without limitation composition-of-matter patents, which are generally believed to offer the strongest patent protection.

We own or have licensed patents and patent applications related to our products. However, these patents and patent applications do not ensure the protection of our intellectual property for a number of reasons, including without limitation the following:

- With respect to pending patent applications, unless and until actually issued, the protective value of these applications is impossible to determine. We do not know whether our patent applications will result in issued patents.
- Patents have limited duration and expire.
- Enforcing patents is expensive and may absorb significant time of our management. Management would spend less time and resources on developing products, which could increase our operating expenses and delay product programs.
- Receipt of a patent may not provide much, if any, practical protection. For example, if we receive a patent with a narrow scope, then it will be easier for competitors to design products that do not infringe on our patent.
- The Leahy-Smith America Invents Act of 2011, which reformed certain patent laws in the U.S., may create additional uncertainty. Among the significant changes are switching from a “first-to-invent” system to a “first-to-file” system, and the implementation of new procedures that permit competitors to challenge our patents in the U.S. Patent and Trademark Office after grant.

It is also unclear whether our trade secrets are adequately protected. Our current and former employees, consultants or contractors may unintentionally or willfully disclose trade secrets to competitors. Enforcing a claim that someone else illegally obtained and is using our trade secrets, as with patent litigation, is expensive and time consuming, requires significant resources and has an unpredictable outcome. In addition, courts outside of the U.S. are sometimes less willing to protect trade secrets. Furthermore, our competitors may independently develop equivalent knowledge, methods and know-how, in which case we would not be able to enforce our trade secret rights against such competitors.

In the EU, clinical trial data submitted to the EMA in MAAs that were traditionally regarded as confidential commercial information are now subject to public disclosure. Subject to our ability to review and redact a narrow sub-set of confidential commercial information, the EU policies have resulted and will continue to result in the EMA’s public disclosure of certain of our clinical study reports, clinical trial data summaries and clinical overviews for recently completed and future MAA submissions. The move toward public disclosure of development data could adversely affect our business in many ways, including, for example, resulting in the disclosure of our confidential methodologies for development of our products, preventing us from obtaining intellectual property right protection for innovations, requiring us to allocate significant resources to prevent other companies from violating our intellectual property rights, adding even more complexity to processing health data from clinical trials consistent with applicable data privacy regulations, and enabling competitors to use our data to gain approvals for their own products.

Competitors may interfere with our patent process in a variety of ways. Competitors may claim that they invented the claimed invention prior to us or that they filed their application for a patent on a claimed invention before we did. Competitors may also claim that we are infringing on their patents and therefore we cannot practice our technology. Competitors may also contest our patents by showing the patent examiner or a court that the invention was not original, was not novel or was obvious, for example. In litigation, a competitor could claim that our issued patents are not valid or are unenforceable for a number of reasons. If a court agrees, we would not be able to enforce that patent. Moreover, generic manufacturers may use litigation and regulatory means to obtain approval for generic versions of our products notwithstanding our filed patents or patent applications.

If we are unable to protect our intellectual property, third parties could develop competing products, which could adversely affect our revenues and financial results generally.

Competitors and other third parties may have developed intellectual property that could limit our ability to market and commercialize our products and product candidates, if approved.

Similar to us, competitors continually seek intellectual property protection for their technology. Several of our development programs, such as valoctocogene roxaparvovec, focus on therapeutic areas that have been the subject of extensive research and development by third parties for many years. Due to the amount of intellectual property in our field of technology, we cannot be certain that we do not infringe intellectual property rights of competitors or that we will not infringe intellectual property rights of competitors granted or created in the future. For example, if a patent holder believes our product infringes its patent, the patent holder may sue us even if we have received patent protection for our technology. If someone else claims we infringe its intellectual property, we would face a number of issues, including the following:

- Defending a lawsuit takes significant executive resources and can be very expensive.
- If a court decides that our product infringes a competitor's intellectual property, we may have to pay substantial damages.
- With respect to patents, in addition to requiring us to pay substantial damages, a court may prohibit us from making, selling, offering to sell, importing or using our product unless the patent holder licenses the patent to us. The patent holder is not required to grant us a license. If a license is available, it may not be available on commercially reasonable terms. For example, we may have to pay substantial royalties or grant cross licenses to our patents and patent applications.
- We may need to redesign our product so it does not infringe the intellectual property rights of others.
- Redesigning our product so it does not infringe the intellectual property rights of competitors may not be possible or could require substantial funds and time.

We may also support and collaborate in research conducted by government organizations, hospitals, universities or other educational institutions. These research partners may be unwilling to grant us any exclusive rights to technology or products derived from these collaborations.

If we do not obtain required licenses or rights, we could encounter delays in our product development efforts while we attempt to design around other patents or may be prohibited from making, using, importing, offering to sell or selling products requiring these licenses or rights. There is also a risk that disputes may arise as to the rights to technology or products developed in collaboration with other parties. If we are not able to resolve such disputes and obtain the licenses or rights we need, we may not be able to develop or market our products.

Risks Related to Ownership of Our Securities

Our stock price has been and may in the future be volatile, and an investment in our stock could suffer a decline in value.

Our stock price has been and may in the future be volatile. Our valuation and stock price may have no meaningful relationship to current or historical earnings, asset values, book value or many other criteria based on conventional measures of stock value. The market price of our common stock will fluctuate due to factors including:

- product sales and profitability of our products;
- manufacturing, supply or distribution of our product candidates and commercial products;
- progress of our product candidates through the regulatory process and our ability to successfully commercialize any such products that receive regulatory approval;
- results of clinical trials, announcements of technological innovations or new products by us or our competitors;
- generic competition to Kuvan tablets and powder relating to our settlements with the two pharmaceutical companies described above in this Risk Factors section or potential generic competition from future competitors;
- government regulatory action affecting our product candidates, our products or our competitors' product candidates and products in both the U.S. and non-U.S. countries;

- developments or disputes concerning patent or proprietary rights;
- general market conditions and fluctuations for the emerging growth and pharmaceutical market sectors;
- economic conditions in the U.S. or abroad;
- negative publicity about us or the pharmaceutical industry;
- changes in the structure of healthcare payment systems;
- cybersecurity incidents experienced by us or others in our industry;
- broad market fluctuations in the U.S., the EU or in other parts of the world;
- actual or anticipated fluctuations in our operating results, including due to timing of large periodic orders for our products by governments in certain countries;
- changes in company assessments or financial estimates by securities analysts;
- acquisitions of products, businesses, or other assets; and
- sales of our shares of stock by us, our significant stockholders, or members of our management or Board of Directors.

Furthermore, the stock markets have recently experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. In some cases, these fluctuations have been unrelated or disproportionate to the operating performance of those companies. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. For example, in September 2020, after a substantial drop in our stock price that followed an announcement providing a regulatory update regarding valoctocogene roxaparvovec, we and certain of our officers were sued in a putative class action lawsuit alleging violations of the federal securities laws for allegedly making materially false or misleading statements. In addition, in October 2021, after a drop in our stock price that followed an announcement providing a regulatory update regarding BMN 307, we and certain of our current and former officers were sued in a putative class action lawsuit alleging violations of the federal securities laws for allegedly making materially false or misleading statements. We may be the target of additional litigation of this type in the future as well. Securities litigation against us could result in substantial costs and divert our management's time and attention from other business concerns, which could harm our business.

In addition, our stock price can be materially adversely affected by factors beyond our control, such as disruptions in global financial markets or negative trends in the biotechnology sector of the economy, even if our business is operating well.

Conversion of the Notes will dilute the ownership interest of existing stockholders, including holders who had previously converted their Notes, or may otherwise depress the price of our common stock.

The conversion of some or all of the Notes will dilute the ownership interests of existing stockholders. Any sales in the public market of the common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the Notes may encourage short selling by market participants because the conversion of the Notes could be used to satisfy short positions, or anticipated conversion of the Notes into shares of our common stock could depress the price of our common stock.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us, which may be beneficial to our stockholders, more difficult.

We are incorporated in Delaware. Certain anti-takeover provisions of Delaware law and our charter documents as currently in effect may make a change in control of us more difficult, even if a change in control would be beneficial to the stockholders. Our anti-takeover provisions include provisions in our restated certificate of incorporation and amended and restated bylaws providing that stockholders' meetings may only be called by our Chairman, the lead independent director or the majority of our Board of Directors and that the stockholders may not take action by written consent and requiring that stockholders that desire to nominate any person for election to our Board of Directors or to make any proposal with respect to business to be conducted at a meeting of our stockholders be submitted in appropriate form to our Secretary within a specified period of time in advance of any such meeting. Additionally, our Board of Directors has the authority to issue shares of preferred stock and to determine the terms of those shares of stock without any further action by our stockholders. The rights of holders of our common stock are subject to the rights of the holders of any preferred stock that may be issued. The issuance of preferred stock could make it more difficult for a third party to acquire a majority of our outstanding voting stock. Delaware law also prohibits corporations from engaging in a

business combination with any holders of 15% or more of their capital stock until the holder has held the stock for three years unless, among other possibilities, our Board of Directors approves the transaction. Our Board of Directors may use these provisions to prevent changes in the management and control of us. Also, under applicable Delaware law, our Board of Directors may adopt additional anti-takeover measures in the future.

The fundamental change repurchase feature of the Notes may delay or prevent an otherwise beneficial attempt to take us over.

The terms of the Notes require us to repurchase the Notes in the event of a fundamental change. A takeover of us would trigger options by the respective holders of the applicable Notes to require us to repurchase such Notes. This may have the effect of delaying or preventing a takeover of us that would otherwise be beneficial to our stockholders or investors in the Notes.

Our amended and restated bylaws designate the Court of Chancery of the State of Delaware and the federal district courts of the U.S. as the exclusive forums for the adjudication of certain disputes, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative claim or cause of action brought on our behalf;
- any claim or cause of action for breach of a fiduciary duty owed by any director, officer or other employee of BioMarin to us or our stockholders;
- any claim or cause of action against us or any of our directors, officers or other employees arising pursuant to any provision of the General Corporation Law of the State of Delaware, our restated certificate of incorporation or our amended and restated bylaws; any claim or cause of action seeking to interpret, apply, enforce or determine the validity of our restated certificate of incorporation or our amended and restated bylaws;
- any claim or cause of action as to which the General Corporation Law of the State of Delaware confers jurisdiction to the Court of Chancery of the State of Delaware; and
- any claim or cause of action against us or any of our directors, officers or other employees that is governed by the internal affairs doctrine.

This exclusive-forum provision would not apply to suits brought to enforce a duty or liability created by the Securities Act of 1933, as amended, the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction. In addition, our amended and restated bylaws provide that the federal district courts of the U.S. of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated bylaws. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive forum provisions 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 lawsuits against us and our directors, officers, and other employees. If a court were to find either of our exclusive forum provisions to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business. Our amended and restated bylaws further provide that any person or entity that acquires any interest in shares of our capital stock will be deemed to have notice of and consented to the provisions of such provisions.

General Risk Factors

We depend upon our key personnel and our ability to attract and retain qualified employees.

Our future growth and success will depend in large part on our continued ability to attract, retain, manage and motivate our employees. The loss of the services of a significant portion of our workforce or any member of our senior management or the inability to hire or retain qualified personnel could adversely affect our ability to execute our business plan and harm our operating results.

Because of the specialized nature of our business, we rely heavily on our ability to attract and retain qualified scientific, technical and managerial personnel. In particular, the loss of one or more of our senior executive officers could be detrimental to us if we do not have an adequate succession plan or if we cannot recruit suitable replacements in a timely manner. While our senior executive officers are parties to employment agreements with us, these agreements do not guarantee that they will remain employed with us in the future. In addition, in many cases, these agreements do not restrict our senior executive officers' ability to compete with us after their employment is terminated.

The competition for qualified personnel in the pharmaceutical field is intense, and there is a limited pool of qualified potential employees to recruit. This competition has been exacerbated during the COVID-19 pandemic, and we have recently experienced increased employee turnover like many other employers in the U.S. during the "great resignation." Due to the intense competition for talent, we may be unable to continue to attract and retain qualified personnel necessary for the development of our business or to recruit suitable replacement personnel. If we are unsuccessful in our recruitment and retention efforts, our business may be harmed.

Our success depends on our ability to manage our growth.

Product candidates that we are currently developing or may license or acquire in the future may be intended for patient populations that are significantly larger than any of the patient populations we currently target. In order to continue development and marketing of these products, if approved, we will need to significantly expand our operations. To manage expansion effectively, we need to continue to develop and improve our research and development capabilities, manufacturing and quality capacities, sales and marketing capabilities, financial and administrative systems and standard processes for global operations. Our staff, financial resources, systems, procedures or controls may be inadequate to support our operations and may increase our exposure to regulatory and corruption risks and our management may be unable to manage successfully future market opportunities or our relationships with customers and other third parties.

***New tax laws or regulations that are enacted or existing tax laws and regulations that are interpreted, modified or applied adversely to us or our customers may have a material adverse effect on our business and financial condition.**

New tax laws or regulations could be enacted at any time, and existing tax laws or regulations could be interpreted, modified or applied in a manner that is adverse to us or our customers, which could adversely affect our business and financial condition. For example, legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act (TCJA), as modified in 2020 by the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, enacted many significant changes to the U.S. tax laws, including changes in corporate tax rates, the application of certain tax credits (including a reduction of tax credits under the Orphan Drug Act), the deductibility of expenses, the utilization of net operating losses and other deferred tax assets, and the taxation of non-U.S. earnings. Future guidance from the Internal Revenue Service and other tax authorities with respect to the TCJA, the CARES Act or other existing or future laws may affect us, and certain aspects of existing laws could be repealed or modified in future legislation that is proposed or implemented by the current or a future U.S. presidential administration, Congress or other governmental authorities. In addition, it is uncertain if and to what extent various states will conform to the TCJA, the CARES Act, or any newly enacted tax legislation. The impact of changes under the TCJA, the CARES Act, or future legislation could increase our future U.S. tax expense and could have a material adverse impact on our business and financial condition.

Moreover, changes in the tax laws of non-U.S. jurisdictions could arise, including as a result of the base erosion and profit shifting (BEPS) project that is being led by the Organization for Economic Co-operation and Development (OECD), and other initiatives led by the OECD or the EC. For example, the OECD, which represents a coalition of member countries including the U.S. and other countries in which we have operations, is coordinating the implementation of rules intended to be adopted from 2023 with the aim of addressing the tax challenges arising from the digitalization of the economy, specifically with respect to nexus and profit allocation and global minimum taxation. The implementation of any such rules would fundamentally change the international tax system. These changes, as adopted by countries, may increase tax uncertainty and may adversely affect our provision for income taxes, results of operations and cash flows. It is not uncommon for taxing authorities in different countries to have conflicting views, for instance, with respect to, among other things, the manner in which the arm's length standard is applied for transfer pricing purposes, or with respect to the valuation of intellectual property. If tax authorities successfully challenge our transfer prices as not reflecting arm's length transactions, they could require us to adjust our transfer prices and thereby reallocate our income to reflect these revised transfer prices, resulting in a higher tax liability. In addition, if a country from which income is reallocated does not agree with the reallocation, both that country and the other country to which the income was allocated could tax the same income, potentially resulting in double taxation. If tax authorities were to allocate income to a higher tax jurisdiction, subject our income to double taxation or assess interest and penalties, it would increase our consolidated tax liability, which could adversely affect our business, financial condition, results of operations and cash flows.

If we are found in violation of healthcare laws or privacy and data protection laws, we may be required to pay penalties, be subjected to scrutiny by regulators or governmental entities, or be suspended from participation in

government healthcare programs, which may adversely affect our business, reputation, financial condition and results of operations.

We are subject to various healthcare laws and regulations in the U.S. and internationally, including anti-kickback laws, false claims laws, data privacy and security laws, and laws related to ensuring compliance. In the U.S., the federal Anti-Kickback Statute makes it illegal for any person or entity, including a pharmaceutical company, to knowingly and willfully offer, solicit, pay or receive any remuneration, directly or indirectly, in exchange for or to induce the referral of business, including the purchase, order or prescription of a particular drug, for which payment may be made under federal healthcare programs, such as Medicare and Medicaid. Under the federal Anti-Kickback Statute and related regulations, certain arrangements are deemed not to violate the federal Anti-Kickback Statute if they fit within a statutory exception or regulatory safe harbor. However, the exceptions and safe harbors are drawn narrowly, and practices that involve remuneration not intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor. Our practices may not in all cases meet all of the criteria for safe harbor protection from Anti-Kickback liability, although we seek to comply with these safe harbors. Many states have adopted laws similar to the federal Anti-Kickback Statute, some of which apply to referral of patients for healthcare services reimbursed by any source, not just governmental payers.

Federal and state false claims laws, including the civil False Claims Act and the Civil Monetary Penalties Law, prohibit any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid, or knowingly making, using, or causing to be made or used, a false record or statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws.

Under the Health Insurance Portability and Accountability Act of 1996 (HIPAA), we also are prohibited from, among other things, knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private payers, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

In addition, recent healthcare reform legislation has strengthened these laws in the U.S. For example, the PPACA, among other things, amends the intent requirement of the federal Anti-Kickback Statute and criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of these statutes or specific intent to violate them in order to commit a violation. Moreover, the PPACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, also imposes obligations, including mandatory contractual terms, on certain types of individuals and entities, with respect to safeguarding the privacy, integrity, availability, security and transmission of individually identifiable health information. Many state and non-U.S. laws also govern the privacy and security of health information. They often differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. The global data protection landscape is rapidly evolving, and implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. In the U.S., California recently enacted the California Consumer Privacy Act (CCPA), which took effect on January 1, 2020. The CCPA gives California consumers expanded rights to access and delete their personal information, opt out of certain personal information sales, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA will be expanded substantially on January 1, 2023 when the California Privacy Rights Act of 2020 (CPRA), becomes fully operative. The CPRA will, among other things, give consumers the ability to limit use of information deemed to be sensitive, increase the maximum penalties for violations concerning consumers under age 16, expand an individual's private right of action and establish the California Privacy Protection Agency to implement and enforce the new law and impose administrative fines. In addition to California, other U.S. states have recently adopted consumer data protection and privacy laws, and more U.S. states may do so in the future. Aspects of the CCPA, CPRA and similar laws in other states and their interpretation and enforcement remain uncertain. The potential effects of these laws are far-reaching and may require us to modify our data processing practices and policies and to incur substantial costs and expenses in an effort to comply. Complying with these or other similar laws, regulations, amendments to or re-interpretations of existing laws and regulations, and contractual or other obligations relating to privacy, data protection, data transfers, data localization, or information security may require us to make changes to our services to enable us or our customers to meet new legal requirements, incur substantial operational costs, modify our data practices and policies, and restrict our business operations. Any actual or perceived failure by us to comply with these laws, regulations, or other obligations may lead to significant fines, penalties, regulatory investigations, lawsuits, significant costs for remediation, damage to our reputation, or other liabilities.

The European Regulation 2016/679, known as the General Data Protection Regulation (GDPR), as well as EEA Member State legislations supplementing such regulation, apply to the processing of personal data of individuals located in the EEA, including health-related information, by companies located in the EEA, or in certain circumstances, by companies located outside of the EEA. These laws impose strict obligations on the ability to collect, record, store, disclose, use and transmit personal data, including health-related information. These include several requirements relating to (i) obtaining, in some situations, the informed

consent of the individuals to whom the personal data relates, (ii) the information provided to the individuals about how their personal information is used, (iii) ensuring the security and confidentiality of the personal data, (iv) the obligation to notify regulatory authorities and affected individuals of personal data breaches, (v) extensive internal privacy governance obligations, and (vi) obligations to honor rights of individuals in relation to their personal data (for example, the right to access, correct and delete their data). Switzerland has adopted similar restrictions.

The GDPR and other European data protection laws generally restrict the transfer of personal information from Europe, including the EEA and Switzerland, to the U.S. and most other countries unless the parties to the transfer have implemented specific safeguards to protect the transferred personal information. One of the primary safeguards allowing U.S. companies to import personal information from the EEA has been the EC's Standard Contractual Clauses (SCCs). However, the Court of Justice of the EU (CJEU) issued a decision that called into question whether the SCCs can lawfully be used for transfers of personal information from Europe to the United States or most other countries. At present, there are few, if any, viable alternatives to the SCCs, on which we have relied for personal information transfers from Europe to the United States and other "third countries." After the mentioned CJEU judgment, new sets of SCCs were published on June 4, 2021. Entities having entered into the old SCCs before September 27, 2021 will be able to rely on them for a transition period ending December 27, 2022. Most importantly, the use of SCCs does not any longer automatically ensure compliance with the GDPR. Instead, companies remain required to conduct a data transfer impact assessment for each transfer, which adds a compliance burden.

Potential pecuniary fines for noncompliance with the GDPR may be up to the greater of €20 million or 4% of annual global revenue. The GDPR has increased our responsibility and liability in relation to personal data that we process and has increased our compliance costs.

Substantial new laws and regulations affecting compliance have also been adopted in the U.S. and certain non-U.S. countries, which may require us to modify our business practices with healthcare practitioners. For example, in the U.S., the PPACA, through the Physician Payments Sunshine Act, requires certain drug, biologicals and medical supply manufacturers to collect and report to CMS information on payments or transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other health care professionals (such as physicians assistants and nurse practitioners), and teaching hospitals, as well as investment and ownership interests held by such physicians and their immediate family members during the preceding calendar year. In addition, there has been a recent trend of increased state regulation of payments made to physicians. Certain states and/or local jurisdictions mandate implementation of compliance programs, compliance with the Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers and the Pharmaceutical Research and Manufacturers of America (PhRMA) Code on Interactions with Healthcare Professionals, the registration of pharmaceutical sales representatives and/or the tracking and reporting of gifts, compensation and other remuneration to physicians, marketing expenditures, and drug pricing. Likewise, in many non-U.S. countries there is an increasing focus on the relationship between drug companies and healthcare practitioners. Recently enacted non-U.S. legislation creates reporting obligations on payments, gifts and benefits made to these professionals; however, implementing regulations enacting such laws are still pending and subject to varying interpretations by courts and government agencies. The shifting regulatory environment and the need to implement systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the costs of maintaining compliance and the possibility that we may violate one or more of the requirements and be subject to fines or sanctions.

Due to the breadth of the healthcare and privacy and data protection laws described above, the narrowness of available statutory and regulatory exceptions and safe harbors and the increased focus by law enforcement agencies in enforcing such laws, our business activities could be subject to challenge under one or more of such laws. If we are found in violation of one of these laws, we may be subject to significant criminal, civil or administrative sanctions, including damages, fines, disgorgement, imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, curtailment of our operations, and debarment, suspension or exclusion from participation in government healthcare programs, any of which could adversely affect our business, financial condition and results of operations.

If product liability lawsuits are successfully brought against us, we may incur substantial liabilities.

We are exposed to the potential product liability risks inherent in the testing, manufacturing and marketing of human pharmaceuticals. We currently maintain insurance against product liability lawsuits for the commercial sale of our products and for the clinical trials of our product candidates. Pharmaceutical companies must balance the cost of insurance with the level of coverage based on estimates of potential liability. Historically, the potential liability associated with product liability lawsuits for pharmaceutical products has been unpredictable. Although we believe that our current insurance is a reasonable estimate of our potential liability and represents a commercially reasonable balancing of the level of coverage as compared to the cost of the insurance, we may be subject to claims in connection with our clinical trials and commercial use of our products and product candidates for which our insurance coverage may not be adequate and we may be unable to avoid significant liability if any product liability lawsuit is brought against us. If we are the subject of a successful product liability claim that exceeds the limits of any insurance coverage we obtain, we may incur substantial charges that would adversely affect our earnings and require the

commitment of capital resources that might otherwise be available for the development and commercialization of our product programs.

We rely significantly on information technology systems and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively and have a material adverse effect on our business, reputation, financial condition, and results of operations.

We rely significantly on our information technology systems to effectively manage and maintain our operations, inventory and internal reports, to manufacture and ship products to customers and to timely invoice them. Any failure, inadequacy or interruption of that infrastructure or security lapse (whether intentional or inadvertent) of that technology, including cybersecurity incidents or attacks, could harm our ability to operate our business effectively. Our ability to manage and maintain our operations, inventory and internal reports, to manufacture and ship our products to customers and timely invoice them depends significantly on our enterprise resource planning, production management and other information systems. Our technology systems, including our cloud technologies, continue to increase in multitude and complexity, making them potentially vulnerable to breakdown, cyberattack and other disruptions. Potential problems and interruptions associated with the implementation of new or upgraded technology systems or with maintenance or adequate support of existing systems could disrupt or reduce the efficiency of our operations and expose us to greater risk of security breaches. Cybersecurity incidents, including phishing attacks and attempts to misappropriate or compromise confidential or proprietary information or sabotage enterprise IT systems are becoming increasingly frequent and more sophisticated. Cybersecurity incidents resulting in the failure of our enterprise resource planning system, production management or other systems to operate effectively or to integrate with other systems, or a breach in security or other unauthorized access or unavailability of these systems, have occurred in the past and may affect our ability in the future to manage and maintain our operations, inventory and internal reports, and result in delays in product fulfillment and reduced efficiency of our operations.

As part of our business, we collect, store and transmit large amounts of confidential information, proprietary data, intellectual property and personal data. The information and data processed and stored in our technology systems, and those of our research collaborators, CROs, contract manufacturers, suppliers, distributors, or other third parties for which we depend to operate our business, may be vulnerable to loss, damage, denial-of-service, unauthorized access or misappropriation. Data security breaches may be the result of unauthorized or unintended activity (or lack of activity) by our employees or contractors or malware, hacking, business email compromise, phishing, ransomware or other cyberattacks directed by third parties. Third parties for which we depend on to operate our business have experienced and may continue to experience cybersecurity incidents. While we have implemented measures to protect our information and data stored in our technology systems and those of the third parties that we rely on, our efforts may not be successful.

We have experienced and may continue to experience cybersecurity incidents. Although to our knowledge we have not experienced any material incident or interruption to date, if such an event were to occur it could result in a material disruption of our development programs and commercial operations, including due to a loss, corruption or unauthorized disclosure of our trade secrets, personal data or other proprietary or sensitive information. Further, these cybersecurity incidents can lead to the public disclosure of personal information (including sensitive personal information) of our employees, clinical trial patients and others and result in demands for ransom or other forms of blackmail. Such attacks are of ever-increasing levels of sophistication and are made by groups and individuals with a wide range of motives (including industrial espionage) and expertise, including by organized criminal groups, “hacktivists”, nation states and others. Moreover, the costs to us to investigate and mitigate cybersecurity incidents could be significant. For example, the loss of clinical trial data could result in delays in our product development or regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Any security breach that results in the unauthorized access, use or disclosure of personal data may require us to notify individuals, governmental authorities, credit reporting agencies, or other parties pursuant to privacy and security laws and regulations or other obligations. Such a security compromise could harm our reputation, erode confidence in our information security measures, and lead to regulatory scrutiny. To the extent that any disruption or security breach resulted in a loss of, or damage to, our data or systems, or inappropriate disclosure of confidential, proprietary or personal information, we could be exposed to a risk of loss, enforcement measures, penalties, fines, indemnification claims, litigation and potential civil or criminal liability, which could materially adversely affect our business, financial condition and results of operations.

If a natural disaster, terrorist or criminal activity or other unforeseen event caused significant damage to our facilities or those of our third-party manufacturers and suppliers or significantly disrupted our operations or those of our third-party manufacturers and suppliers, we may be unable to meet demand for our products and lose potential revenue, have reduced margins, or be forced to terminate a program.

The occurrence of an earthquake or other catastrophic disaster could cause damage to our facility and equipment, or that of our third-party manufacturers or single-source suppliers, which could materially impair the ability for us or our third-party manufacturers to manufacture our products and product candidates. Our Galli Drive facility, located in Novato, California, is currently our only manufacturing facility for Aldurazyme, Naglazyme, Voxzogo and Palynziq and is one of two manufacturing facilities for Brineura and Vimizim. Our gene therapy manufacturing facility is also located in Novato, California, and it is currently our only manufacturing facility to support valoctocogene roxaparvovec clinical development activities and the anticipated

commercial demand for valoctocogene roxaparvovec, if approved. These facilities are located in the San Francisco Bay Area near known earthquake fault zones and are vulnerable to significant damage from earthquakes. We, the third-party manufacturers with whom we contract and our single-source suppliers of raw materials, which include many of our critical raw materials, are also vulnerable to damage from other types of disasters, including fires, explosions, floods, and similar events. If any disaster were to occur, or any terrorist or criminal activity caused significant damage to our facilities or the facilities of our third-party manufacturers and suppliers, our ability to manufacture our products, or to have our products manufactured, could be seriously, or potentially completely, impaired, and our commercialization efforts and revenues could be seriously impaired.

Moreover, other unforeseen events, such as power outages, could significantly disrupt our operations or those of our third-party manufacturers and suppliers, which could result in significant delays in the manufacture of our products and adversely impact our commercial operations and revenues. Pacific Gas and Electric Company, the electric utility in the San Francisco Bay Area where many of our facilities are located, commenced widespread blackouts during the fall of 2019 to avoid and contain wildfires sparked during strong wind events by downed power lines or equipment failures. While we have not experienced damage to our facilities or material disruption to our operations as a result of these power outages, ongoing blackouts, particularly if prolonged or frequent, could impact our business going forward. The insurance that we carry, the inventory that we maintain and our risk mitigation plans may not be adequate to cover our losses resulting from disasters or other business interruptions.

Our business is affected by macroeconomic conditions.

Various macroeconomic factors could adversely affect our business and the results of our operations and financial condition, including changes in inflation, interest rates and foreign currency exchange rates and overall economic conditions and uncertainties, including those resulting from the current and future conditions in the global financial markets. For instance, if inflation or other factors were to significantly increase our business costs, it may not be feasible to pass price increases on to our customers due to the process by which healthcare providers are reimbursed for our products by the government. Interest rates, the liquidity of the credit markets and the volatility of the capital markets could also affect the value of our investments and our ability to liquidate our investments in order to fund our operations. We purchase or enter into a variety of financial instruments and transactions, including investments in commercial paper, the extension of credit to corporations, institutions and governments and hedging contracts. If any of the issuers or counter parties to these instruments were to default on their obligations, it could materially reduce the value of the transaction and adversely affect our cash flows.

We sell our products in countries that face economic volatility and weakness. Although we have historically collected receivables from customers in those countries, sustained weakness or further deterioration of the local economies and currencies may cause customers in those countries to be unable to pay for our products. Additionally, if one or more of these countries were unable to purchase our products, our revenues would be adversely affected.

Interest rates and the ability to access credit markets could also adversely affect the ability of our customers/distributors to purchase, pay for and effectively distribute our products. Similarly, these macroeconomic factors could affect the ability of our contract manufacturers, sole-source or single-source suppliers to remain in business or otherwise manufacture or supply product. Failure by any of them to remain a going concern could affect our ability to manufacture products.

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

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit Number	Description
2.1	Amended and Restated Termination and Transition Agreement, dated as of December 23, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on January 7, 2016 as Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.2	Termination and Transition Agreement, dated as of October 1, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on January 7, 2016 as Exhibit 2.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.3	First Amendment, dated as of December 12, 2016, to the Amended and Restated Termination and Transition Agreement, dated as of December 23, 2015 and effective as of October 1, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on February 27, 2017 as Exhibit 2.6 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
3.1	Restated Certificate of Incorporation of BioMarin Pharmaceutical Inc., previously filed with the SEC on June 12, 2017 as Exhibit 3.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
3.2	Amended and Restated Bylaws of BioMarin Pharmaceutical Inc., previously filed with the SEC on December 18, 2020 as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.1*	Asset Purchase Agreement by and between Eli Lilly and Company, BioMarin Pharmaceutical Inc., and BioMarin International Ltd., dated February 8, 2022. Portions of this exhibit have been omitted because they are not material and the type that the registrant treats as private or confidential
31.1*	Certification of Chief Executive Officer pursuant to Rules 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2*	Certification of Chief Financial Officer pursuant to Rules 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1*+	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. This Certification accompanies this report and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed for purposes of §18 of the Securities Exchange Act of 1934, as amended.
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase
101.LAB*	Inline XBRL Taxonomy Extension Labels Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Link Document
104	XBRL tags for the cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, are embedded within the Inline XBRL document.

* Filed herewith

\+ The certifications attached as Exhibit 32.1 accompany this Quarterly Report on Form 10-Q pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed "filed" by

the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not to be incorporated by reference into any of the Registrant's filings under the Securities Act of 1933, as amended, irrespective of any general incorporation language contained in any such filing.

Attached as Exhibit 101 to this report are documents formatted in XBRL (Extensible Business Reporting Language):

(i) Condensed Consolidated Balance Sheets as of March 31, 2022 and December 31, 2021, (ii) Condensed Consolidated Statements of Comprehensive Income for the three months ended March 31, 2022 and 2021, (iii) Condensed Consolidated Statement of Stockholders' Equity for the three months ended March 31, 2022 and 2021, (iv) Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2022 and 2021, and (v) Notes to Condensed Consolidated Financial Statements.

SIGNATURE

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.

BIOMARIN PHARMACEUTICAL INC.

Dated: April 29, 2022

By /S/ BRIAN R. MUELLER

Brian R. Mueller
Executive Vice President, Finance & Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Exhibit 10.1
Execution Version

CERTAIN INFORMATION, IDENTIFIED BY, AND REPLACED WITH, A MARK OF "[***]" HAS BEEN EXCLUDED FROM THIS EXHIBIT BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

Asset Purchase Agreement

by and between

Eli Lilly and Company,

BioMarin Pharmaceutical Inc.,

And

BioMarin International Ltd.

February 8, 2022

Asset Purchase Agreement

This Asset Purchase Agreement (this "***Agreement***") is made and entered into as of February 8, 2022 (the "***Effective Date***") by and among Eli Lilly and Company ("***Buyer***"), BioMarin Pharmaceutical Inc. ("***BPI***"), and BioMarin International Ltd. ("***Seller***"). Buyer, BPI, and Seller may hereinafter be referred to individually as a ***"Party"*** and collectively as the "***Parties***".

Recitals

WHEREAS, Seller is the sole beneficial owner of a Priority Review Voucher (as defined below).

WHEREAS, BPI is the nominal holder of the Priority Review Voucher on behalf of Seller, its wholly-owned Affiliate.

WHEREAS, Seller, BPI, and Buyer each (i) desire that Buyer purchase from Seller, and Seller sell, transfer and assign to Buyer, the Priority Review Voucher and all rights, benefits and entitlements appurtenant thereto, all on the terms set forth herein (such transaction, the "***Asset Purchase***") and (ii), in furtherance thereof, have adopted and approved this Agreement and, upon the terms and subject to the conditions set forth in this Agreement, have approved the Asset Purchase and the other transactions contemplated by this Agreement in accordance with all applicable Legal Requirements.

WHEREAS, Seller, BPI, and Buyer desire to make certain representations, warranties, covenants and other agreements in connection with the Asset Purchase as set forth herein.

NOW, THEREFORE, in consideration of the foregoing and their mutual undertakings hereinafter set forth, and intending to be legally bound, the Parties hereto agree as follows:

ARTICLE I
CERTAIN DEFINITIONS

1.1 Certain Definitions. As used in this Agreement, the following terms shall have the meanings indicated below:

(a) ***"Affiliate"*** means any Person which, directly or indirectly through one or more intermediaries, controls, is controlled by or is under common control with a Party to this Agreement, for so long as such control exists, whether such Person is or becomes an Affiliate on or after the Effective Date. A Person shall be deemed to "control" another Person if it: (i) with respect to such other Person that is a corporation, owns, directly or indirectly, beneficially or legally, at least fifty percent (50%) of the outstanding voting securities or capital stock (or such lesser percentage which is the maximum allowed to be owned by such Person in a particular jurisdiction) of such other Person, or, with respect to such other Person that is not a corporation, has other comparable ownership interest; or (ii) has the power, whether pursuant to contract, ownership of securities or otherwise, to direct the management and policies of such other Person.

(b) "***Business Day***" means a day (i) other than Saturday or Sunday and (ii) on which commercial banks are open for business in New York, New York.

(c) "***Confidential Information***" means (i) any and all confidential and proprietary information, including but not limited to, data, results, conclusions, know-how, experience, financial information, plans and forecasts, that may be delivered, made available or communicated by a Party or its Representatives related to the subject matter hereof or otherwise in connection with this Agreement and (ii) the terms, conditions and existence of this Agreement. "*Confidential Information*" will not include information that (A) is available to the public other than as a result of a disclosure by a receiving Party or its Representatives in breach of this Agreement, (B) becomes available to the recipient of such information from a third party that is not legally or contractually prohibited by the disclosing Party from disclosing such Confidential Information; or (C) was developed by or for the recipient of such information without the use of or reference to any of the Confidential Information of the disclosing Party or its Affiliates. Notwithstanding anything herein to the contrary, all Confidential Information included

within the Purchased Assets shall constitute Confidential Information of the Buyer from and after the Closing Date.

(d) "***Contract***" means any written or oral legally binding contract, agreement, instrument, commitment or undertaking (including leases, licenses, mortgages, notes, guarantees, sublicenses, subcontracts and purchase orders).

(e) "***Encumbrance***" means any lien, pledge, charge, mortgage, easement, encroachment, imperfection of title, title exception, title defect, right of possession, right of negotiation or refusal, lease, security interest, encumbrance, adverse claim, interference or restriction on use or transfer.

(f) ***"FDA"*** means the United States Food and Drug Administration.

(g) ***"FDA Act"*** means the United States Federal Food, Drug, and Cosmetic Act, as amended.

(h) "***FDA Approval Letter***" means the letter, dated November 19, 2021, from the FDA to Seller, Reference ID 4905458, regarding the approval of the NDA 214938 for Voxzogo (vosoritide).

(i) "***Governmental Entity***" means any (i) supranational, national, state, municipal, local or foreign government, (ii) any court, tribunal, arbitrator, administrative agency, commission or other governmental official, authority or instrumentality, in each case whether domestic or foreign, (iii) any stock exchange or similar self-regulatory organization, or (iv) any quasi-governmental or private body exercising any regulatory, taxing or other governmental or quasi-governmental authority.

(j) "***HSR Act***" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder.

(k) "***Knowledge***" means [***].

(l) "***Legal Requirements***" means any federal, state, foreign, local, municipal or other law, statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Entity and any orders, writs, injunctions, awards, judgments and decrees applicable to a Party or to any of its assets, properties or businesses. Legal Requirements shall include, with respect to BPI and Seller, any responsibilities, requirements, conditions, parameters and obligations relating to the Priority Review Voucher set forth in the FDA Approval Letter or in any other correspondence received by Seller, BPI or their respective Affiliates from the FDA regarding the Priority Review Voucher and Section 529 of the FDA Act (21 U.S.C. 360ff).

(m) "***Liabilities***" means all debts, liabilities and obligations, whether presently in existence or arising hereafter, accrued or fixed, absolute or contingent, matured or unmatured, determined or determinable, asserted or unasserted, known or unknown, including those arising under any law, action or governmental order and those arising under any Contract.

(n) "***NDA***" means new drug application.

(o) "***Person***" means any natural person, company, corporation, limited liability company, general partnership, limited partnership, trust, proprietorship, joint venture, business organization or Governmental Entity.

(p) ***"Priority Review"*** means a priority review of and action upon a human drug application by the FDA not later than six (6) months after the filing of such application to the FDA, as defined in the FDA Act (21 U.S.C. 360ff).

(q) ***"Priority Review Voucher"*** means the priority review voucher issued by the FDA to BPI, as evidenced by the FDA Approval Letter and with the tracking number PRV NDA 214938, as the sponsor of a rare pediatric disease product application, that entitles the holder of such voucher to Priority Review of a single human drug application submitted under Section 505(b)(1) of the FDA Act or a single biologic application Section 351 of the United States Public Health Service Act, as further defined in the FDA Act.

(r) "***Proceeding***" means any claim, action, arbitration, audit, hearing, investigation, litigation, proceeding or suit (whether civil, criminal, administrative, judicial or investigative, whether formal or informal, whether public or private) commenced, brought, conducted or heard by or before, or otherwise involving, any Governmental Entity or arbitrator.

(s) ***"Purchased Assets"*** means the Priority Review Voucher. The Purchased Assets shall include any and all rights, benefits and entitlements afforded to the holder thereof.

(t) "***Regulatory Change***" means any (i) new Legal Requirement, amendment or supplement to any then-existing Legal Requirement, or (ii) new, amended or supplemented term or condition imposed on the Priority Review Voucher that is not set forth in the FDA Approval Letter, that in either case (i) or (ii) has been enacted, adopted, approved or imposed between the Effective Date and the Closing Date and adversely impacts the manner in which Buyer may use, receive, hold or otherwise exploit the Priority Review Voucher.

(u) "***Representative***" means, with respect to a particular Person, any director, officer, manager, employee, agent, consultant, advisor, accountant, financial advisor, legal counsel or other representative of that Person.

Other capitalized terms defined elsewhere in this Agreement and not defined in this Section 1.1 shall have the meanings assigned to such terms in this Agreement.

ARTICLE II
PURCHASE AND SALE

2.1 Purchase and Sale. Upon the terms and subject to the conditions of this Agreement, Buyer agrees to purchase (a) from Seller, and Seller agrees to sell, transfer, convey, assign and deliver to Buyer at the Closing, all of Seller's right, title and interest in, to and under the Purchased Assets, free and clear of all Encumbrances and (b) from BPI, and BPI agrees to sell, transfer, convey, assign and deliver to Buyer at the Closing, BPI's nominal record interest in the Purchased Assets, which constitutes BPI's sole interest in the Purchased Assets, free and clear of all Encumbrances. Seller and BPI shall perform all actions necessary to cause the transfer of all right, title and interest in, to and under the Purchased Assets to Buyer. For the avoidance of doubt, the sale, transfer, conveyance and assignment of the Purchased Assets by Seller and BPI to Buyer shall not include the sale, transfer, conveyance or assignment of any Liabilities from BPI or Seller to Buyer and Buyer shall not assume or otherwise be liable for any Liabilities of Seller, BPI or their respective Affiliates, including Liabilities related to the Purchased Assets (collectively, the "***Excluded Liabilities***").

2.2 Closing. The closing of the purchase and sale of the Purchased Assets contemplated hereby (the "***Closing***") shall take place remotely via the exchange of documents and signatures on the fifth (5^{th}) Business Day after all of the conditions set forth in ARTICLE V have been satisfied or waived (other than those conditions which, by their nature are to be satisfied at the Closing, but subject to satisfaction or waiver of such conditions) or at such other time and place as Buyer and Seller agree upon in writing (the "***Closing Date***").

2.3 Purchase Price. The total consideration to be paid by Buyer for all of the Purchased Assets shall be US$110,000,000 (One Hundred and Ten Million U.S. DOLLARS) (the "***Purchase Price***"). All payments to Seller shall be made in cash by wire transfer of immediately available funds to the bank account previously specified by Seller in writing to Buyer or such other bank account specified by Seller in writing to Buyer before the Closing Date. For all tax purposes, the entire Purchase Price shall

be allocated to the Priority Review Voucher, and Buyer and Seller shall make any and all required tax filings consistent therewith.

2.4 Closing Deliverables; Title Passage; Delivery of Purchased Assets.

(a) Seller Deliverables. At the Closing, Seller and BPI shall deliver, or cause to be delivered to Buyer, each of the following:

(i) a Bill of Sale in the form attached hereto as Exhibit A duly executed by Seller and BPI; and

(ii) a letter addressed to Buyer, substantially in the form set forth on Exhibit B hereto and duly executed by BPI, acknowledging the transfer of the Priority Review Voucher from BPI to Buyer, in accordance with applicable Legal Requirements (the "***Seller FDA Letter***").

(b) Buyer Deliverables. At the Closing, Buyer shall deliver, or cause to be delivered to Seller, each of the following:

(i) the Purchase Price; and

(ii) a letter addressed to BPI, substantially in the form set forth on Exhibit C hereto and duly executed by Buyer, acknowledging the transfer of the Priority Review Voucher from BPI to Buyer, in accordance with applicable Legal Requirements (the "***Buyer FDA Letter***").

(c) Title Passage. Upon the Closing, all of the right, title and interest in and to the Purchased Assets shall pass to Buyer, free and clear of all Encumbrances.

(d) Method of Delivery of Assets. If reasonably practicable, on the Closing Date, but in any event within three (3) Business Days after the Closing, BPI shall duly submit to the FDA the Seller FDA Letter and Buyer shall duly submit to the FDA the Buyer FDA Letter.

(e) Filings; Notifications. Buyer, BPI, and Seller agree to cooperate and assist each other with respect to all filings or notifications to any Governmental Entity related to the transfer and assignment of the Purchased Assets.

2.5 Joint and Several Liability. All obligations and other Liabilities of each of Seller and BPI hereunder are joint and several and are enforceable in full against each such Party.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF SELLER AND BPI

Seller and BPI, on a joint and several basis, represent and warrant to Buyer, as of the date hereof and as of the Closing Date, as follows:

3.1 Organization, Standing and Power. Seller is a corporation duly organized and validly existing under the laws of Ireland. Seller has the requisite corporate power and authority to own, operate and lease its properties and to carry on its business as presently conducted and is duly qualified or licensed to do business and is in good standing in each jurisdiction where the character of its properties owned or leased or the nature of its activities make such qualification or licensing necessary, except where the failure to be so qualified or licensed would not, individually or in the aggregate, reasonably be expected to adversely affect any of the Purchased Assets, Seller's or BPI's ability to consummate the transactions contemplated by this Agreement or Buyer's ownership and rights with respect to any of the Purchased Assets after the Closing. Seller is not in violation of its articles of incorporation or bylaws, in each case as amended to date.

3.2 Due Authority. Seller has the requisite corporate power and authority to execute, deliver, perform its obligations under, and consummate the transactions contemplated by, this Agreement. The

execution, delivery and performance of this Agreement, and the consummation of the Asset Purchase, have been duly and validly approved and authorized by all necessary corporate action on the part of Seller, and this Agreement has been duly executed and delivered by Seller. This Agreement, upon execution by the Parties, will constitute a valid and binding obligation of Seller enforceable against Seller in accordance with its terms, subject only to the effect, if any, of (a) applicable bankruptcy and other similar laws affecting the rights of creditors generally and (b) rules of law governing specific performance, injunctive relief and other equitable remedies.

3.3 Noncontravention. The execution and delivery by Seller and BPI of this Agreement does not, and the consummation of the transactions contemplated hereby, including the transfer of title to, ownership in, and possession of the Purchased Assets, will not, (a) result in the creation of any Encumbrance on any of the Purchased Assets or (b) conflict with, or result in any violation of or default under (with or without notice or lapse of time, or both), or give rise to a right of termination, revocation, suspension, cancellation or acceleration of any obligation or loss of any benefit under, or require any consent, approval or waiver from any Person pursuant to, (i) any provision of the articles of incorporation or bylaws of Seller or BPI, in each case as amended to date, (ii) the Priority Review Voucher, the FDA Approval Letter or any Contract that involves or affects in any way any of the Purchased Assets or (iii) except as may be required to comply with the HSR Act, any Legal Requirements applicable to Seller, BPI or any of the Purchased Assets.

3.4 No Consents. Except for the submission of the Seller FDA Letter and the filing of a Premerger Notification and Report Form under the HSR Act, no filing, authorization, consent, approval, permit, order, registration or declaration, governmental or otherwise, is required in connection with, or necessary to enable or authorize Seller or BPI to, enter into, perform its obligations under and consummate the transactions contemplated by this Agreement.

3.5 Title to Purchased Assets. Except for BPI's record ownership of the Purchased Assets, Seller is the sole and exclusive owner of all right, title and interest in and to the Purchased Assets and owns good and transferable title to the Purchased Assets free and clear of any Encumbrances. Seller has performed all actions necessary to perfect its ownership of, and its ability to transfer, the Purchased Assets. Seller has the full right to sell, transfer, convey, assign and deliver the Purchased Assets to Buyer at the Closing, free and clear of all Encumbrances. The right, title and interest in and to the Purchased Assets that is to be sold, transferred, conveyed, assigned and delivered by Seller and BPI to Buyer at the Closing in accordance with this Agreement collectively constitutes the entire right, title and interest in and to the Purchased Assets and immediately following the Closing, Buyer shall have all right, title and interest in and to the Purchased Assets, free and clear of all Encumbrances.

3.6 Contracts. Except for this Agreement, there is no Contract to which Seller or BPI or any Affiliate of Seller or BPI is a party or is otherwise bound by that involves or affects (or may involve or affect) the issuance of, ownership of, transfer of, licensing of, title to, or use of any of the Purchased Assets.

3.7 Compliance With Legal Requirements. Seller, BPI and their respective Affiliates are, and at all times have been, in full compliance with each Legal Requirement that is or was applicable to (a) Seller's, BPI's and their respective Affiliates conduct, acts, or omissions with respect to any the Purchased Assets or (b) any of the Purchased Assets. None of Seller, BPI or their respective Affiliates have received any written notice or other communication or, to its Knowledge, any oral notice or other oral communication, from any Person regarding any actual, alleged, possible or potential violation of, or failure to comply with, any such Legal Requirement.

3.8 Legal Proceedings. There is no pending, or to Seller's or BPI's Knowledge, threatened Proceeding nor has there been an Proceeding involving Seller, BPI or any of their respective Affiliates, and neither Seller, BPI nor any of their respective Affiliates are a party or subject to the provisions of any judgment, and to the Knowledge of Seller and BPI, there are no any facts or circumstances that could reasonably be expected to serve as a basis for a Proceeding involving Seller, BPI or any their respective Affiliates, (a) that involves or affects (or may involve or affect) the ownership of, licensing of, title to, validity of, ability to transfer or use of any of the Purchased Assets or (b) challenging the transactions

contemplated by this Agreement. None of the Purchased Assets are subject to any order of any Governmental Entity or arbitrator.

3.9 Governmental Authorizations. None of Seller, BPI or any of their respective Affiliates is required to hold any license, registration, or permit issued by any Governmental Entity to own, use or transfer the Purchased Assets, other than such licenses, registrations or permits that have already been obtained.

3.10 Solvency. Seller and BPI are not entering into this Agreement with the actual intent to hinder, delay, or defraud any creditor of Seller or BPI. The remaining assets of Seller and BPI after the Closing will not be unreasonably small in relation to the business in which Seller and BPI, respectively, will engage after the Closing. After the Closing, Seller and BPI will each have the ability to pay their debts as they become due.

3.11 Revocation; Use of Purchased Assets. The Priority Review Voucher has not been terminated, cancelled or revoked. None of Seller, BPI or any of their respective Affiliates have taken or refrained from taking any action that, and to Seller's Knowledge there are no facts or circumstances that, could reasonably be expected to (with or without notice or lapse of time, or both) give rise to a right of FDA to revoke, cancel, suspend or terminate the Priority Review Voucher. There is nothing that would preclude or interfere with (i) the transfer of the Purchased Assets to Buyer or (ii) Buyer's ability to use of the Purchased Assets to obtain Priority Review or any other benefit associated with the Purchased Assets following the Closing. There is no term or condition imposed by the FDA on the Priority Review Voucher that is not set forth in the FDA Approval Letter as of the date hereof. Seller and BPI have provided to Buyer true and complete copies of the FDA Approval Letter, the rare pediatric disease designation issued by the FDA for Voxzogo (vosoritide) and all other correspondence received by Seller, BPI or any of their respective Affiliates from the FDA regarding the Priority Review Voucher.

3.12 Intent to Use. None of Seller, BPI or any of their respective Affiliates has filed or submitted to the FDA a notification of intent to use the Priority Review Voucher.

3.13 BPI Organization, Standing and Power; Authority. BPI is a corporation duly organized and validly existing under the laws of the State of Delaware. BPI has the requisite corporate power and authority to own, operate and lease its properties and to carry on its business as presently conducted and is duly qualified or licensed to do business and is in good standing in each jurisdiction where the character of its properties owned or leased or the nature of its activities make such qualification or licensing necessary, except where the failure to be so qualified or licensed would not, individually or in the aggregate, reasonably be expected to adversely affect any of the Purchased Assets, Seller's or BPI's ability to consummate the transactions contemplated by this Agreement or Buyer's ownership and rights with respect to any of the Purchased Assets after the Closing. BPI is not in violation of its certificate of incorporation or bylaws, in each case as amended to date.

3.14 BPI Due Authority. BPI has the requisite corporate power and authority to execute, deliver, perform its obligations under, and consummate the transactions contemplated by, this Agreement. The execution, delivery and performance of this Agreement, and the consummation of the Asset Purchase, have been duly and validly approved and authorized by all necessary corporate action on the part of BPI, and this Agreement has been duly executed and delivered by BPI. This Agreement, upon execution by the Parties, will constitute a valid and binding obligation of BPI, enforceable against BPI in accordance with its terms, subject only to the effect, if any, of (a) applicable bankruptcy and other similar laws affecting the rights of creditors generally and (b) rules of law governing specific performance, injunctive relief and other equitable remedies.

3.15 BPI Title to Purchased Assets. BPI is the record owner of the Purchased Assets as nominee for, and on behalf of, Seller and such record ownership constitutes BPI's sole right, title and interest in and to the Purchased Assets and does not include any beneficial ownership right thereto. BPI has performed all actions necessary to perfect Seller's ownership of, and its ability to transfer, all right, title and interest in the Purchased Assets (other than BPI's record ownership thereof as nominee for, and on behalf of, Seller).

3.16 Marketed Product. BPI has initiated marketing in the United States of the rare pediatric disease product for which the Priority Review Voucher was awarded within the 365-day period beginning on the date of the FDA approval of such rare pediatric disease product and has continuously marketed such product in the United States since its approval.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF BUYER

Buyer represents and warrants to Seller as of the date hereof and as of the Closing Date as follows:

4.1 Organization, Standing and Power. Buyer is a corporation duly formed, validly existing and in good standing under the laws of Indiana.

4.2 Authority. Buyer has the requisite corporate power and authority to execute and deliver this Agreement and to consummate the transactions contemplated by this Agreement. The execution and delivery of this Agreement and the consummation of the transactions contemplated by this Agreement have been duly authorized by all necessary corporate action on the part of Buyer. This Agreement has been duly executed and delivered by Buyer. This Agreement, upon execution by the Parties, will constitute a valid and binding obligation of Buyer, enforceable against Buyer in accordance with its terms, subject only to the effect, if any, of (a) applicable bankruptcy and other similar laws affecting the rights of creditors generally and (b) rules of law governing specific performance, injunctive relief and other equitable remedies.

4.3 Noncontravention. The execution and delivery by Buyer of this Agreement does not, and the consummation of the transactions contemplated hereby will not, conflict with, or result in any violation of or default under (with or without notice or lapse of time, or both), or give rise to a right of termination, cancellation or acceleration of any obligation or loss of any benefit under, or require any consent, approval or waiver from any Person pursuant to, (a) any provision of the organizational or governing documents of Buyer, in each case as amended to date, (b) any Contract (except as would not reasonably be expected to have a material adverse effect on the Buyer's ability to consummate the Asset Purchase) or (c) except as may be required to comply with the HSR Act, any Legal Requirements (except as would not reasonably be expected to have a material adverse effect on the Buyer's ability to consummate the Asset Purchase).

4.4 No Consents. Except for the submission of the Buyer FDA letter and the filing of a Premerger Notification and Report Form under the HSR Act, no filing, authorization, consent, approval, permit order, registration or declaration, governmental or otherwise, is required in connection with, or necessary to enable or authorize Buyer to enter into, perform its obligations under and consummate the transactions contemplated by this Agreement.

ARTICLE V
CONDITIONS TO CLOSING

5.1 Conditions Precedent of Buyer, Seller and BPI. Each Party's obligations to consummate the transactions contemplated by this Agreement are subject to the satisfaction or waiver, at or prior to the Closing Date, of each of the following conditions precedent:

(a) HSR Act. The applicable waiting period under the HSR Act relating to the transactions contemplated by this Agreement shall have expired or been terminated.

(b) No Injunctions or Restraints. No temporary restraining order, preliminary or permanent injunction or other legal restraint or prohibition issued or promulgated by a Governmental Entity preventing, prohibiting or restraining the consummation of the transactions contemplated by this Agreement shall be in effect, and there shall not be any applicable Legal Requirement that makes consummation of the transactions contemplated by this Agreement illegal.

(c) No Governmental Litigation. There shall not be any Proceeding commenced or pending by a Governmental Entity seeking to prohibit, limit, delay, or otherwise restrain the consummation of this Agreement and/or the transactions contemplated hereby.

(d) Deliverables. The Parties shall have made the deliveries contemplated under Section 2.4(a) and Section 2.4(b).

5.2 Buyer's Conditions Precedent. The obligations of Buyer to consummate the transactions contemplated by this Agreement are subject to the satisfaction or waiver, at or prior to the Closing Date, of each of the following conditions precedent:

(a) Accuracy of Representations. Each of the representations and warranties made by Seller and BPI in this Agreement shall be true and correct in all material respects as of the date hereof and at and as of the Closing Date (or, if made as of a specified period or date, as of such period or date), except to the extent that such representations and warranties are qualified by the term "material", or words of similar import, in which case such representations and warranties (as so written, including the terms "material", or words of similar import) shall be true and correct in all respects at and as of the Closing Date (or, if made as of a specified period or date, as of such period or date), provided that any such failure of such representations and warranties to be true and correct in all material respects, or, as applicable, true and correct in all respects, shall be disregarded if it would not, individually or in the aggregate, reasonably be expected to delay, restrict, limit, preclude or otherwise negatively impact in a material manner the transfer and/or use of the Purchased Assets to or by Buyer.

(b) Performance of Covenants. All of the covenants and obligations that Seller and/or BPI is required to comply with or to perform hereunder at or prior to the Closing Date shall have been complied with and performed in all material respects.

(c) Closing Certificate. Seller shall have delivered to Buyer a certificate, dated the Closing Date and duly executed by Seller, certifying that the conditions set forth in Sections 5.2(a) and 5.2(b) have been satisfied.

(d) No Regulatory Change. There shall not have occurred and remain in effect any Regulatory Change.

5.3 Seller's and BPI's Conditions Precedent. The obligations of Seller and BPI to consummate the transactions contemplated by this Agreement are subject to the satisfaction or waiver, at or prior to the Closing Date, of each of the following conditions precedent:

(a) Accuracy of Representations. Each of the representations and warranties made by Buyer in this Agreement shall be true and correct in all material respects at and as of the Closing Date (or, if made as of a specified period or date, as of such period or date), except to the extent that such representations and warranties are qualified by the term "material", or words of similar import, in which case such representations and warranties (as so written, including the terms "material", or words of similar import) shall be true and correct in all respects at and as of the Closing Date (or, if made as of a specified period or date, as of such period or date).

(b) Performance of Covenants. All of the covenants and obligations that Buyer is required to comply with or to perform hereunder at or prior to the Closing Date shall have been complied with and performed in all material respects.

(c) Closing Certificate. Buyer shall have delivered to Seller and BPI a certificate, dated the Closing Date and duly executed by Buyer, certifying that the conditions set forth in Sections 5.3(a) and 5.3(b) have been satisfied.

ARTICLE VI
INDEMNIFICATION

6.1 Indemnification.

(a) Indemnification by Seller. Seller and BPI will, jointly and severally, indemnify, defend and hold Buyer and its Affiliates and their respective directors, officers, employees and agents harmless for, from and against any and all Liabilities, losses, damages, costs and expenses (including reasonable attorneys' fees) (collectively, "***Damages***") arising out of any claims (***"Claims"***) resulting from (i) any breach of Seller's and/or BPI's representations, warranties, covenants or obligations under this Agreement, (ii) Seller's, BPI's or their respective Affiliates' grossly negligent, fraudulent and/or wrongful acts, omissions or misrepresentations, regardless of the form of action, in connection with this Agreement and the transactions contemplated hereunder and/or (iii) all Excluded Liabilities.

(b) Indemnification by Buyer. Buyer will indemnify, defend and hold Seller, BPI, and their Affiliates, and their respective directors, officers, employees and agents harmless for, from and against any and all Damages arising out of any Claims resulting from (i) any breach, of Buyer's representations, warranties, covenants or obligations under this Agreement, (ii) Buyer's grossly negligent, fraudulent and/or wrongful acts, omissions or misrepresentations, regardless of the form of action, in connection with this Agreement and the transactions contemplated hereunder, and (iii) Buyer's, its Affiliates', or any subsequent transferee's use of the Priority Review Voucher.

6.2 Indemnification Procedures. A Person entitled to indemnification pursuant to Section 6.1 will hereinafter be referred to as an ***"Indemnitee."*** A Party obligated to indemnify an Indemnitee hereunder will hereinafter be referred to as an ***"Indemnitor."*** Indemnitee shall inform Indemnitor of any Claim as soon as reasonably practicable after the Claim arises, it being understood and agreed that the failure to give such notice will not relieve the Indemnitor of its indemnification obligation under this Agreement except and only to the extent that such Indemnitor is actually and materially prejudiced as a result of such failure to give notice. The Indemnitee will permit the Indemnitor to assume direction and control of the defense of any Claim instituted or asserted by any third party (***"Third Party Claim"***), at the Indemnitor's expense, provided that (i) the Indemnitor has acknowledged its responsibility for defending such Third Party Claim in writing to the Indemnitee, (ii) such Third Party Claim is not a class action, criminal matter, or a claim in which solely non-monetary, equitable or injunctive relief against the Indemnitee is sought and (iii) the Indemnitor conducts such defense in good faith and in a diligent manner. The Indemnitee, at the Indemnitor's expense, will cooperate as reasonably requested in the defense of such Third Party Claim. The Indemnitee will have the right to participate in the defense, and to retain its own counsel at its own expense, of any Third Party Claim the defense of which is controlled by the Indemnitor pursuant hereto. If the Indemnitee is defending such Third Party Claim, the Indemnitee shall keep the Indemnitor apprised of all material developments with respect to such Third Party Claim and promptly provide the Indemnitor with copies of all correspondence and documents exchanged by the Indemnitee and the opposing party(ies) to such litigation. The Indemnitor may not settle such Claim, or otherwise consent to an adverse judgment in such Third Party Claim, without the Indemnitee's prior written consent; provided, that, the Indemnitor shall not require such consent with respect to the settlement of any Third Party Claim (a) under which settlement the sole relief provided is for monetary damages that are paid in full by the Indemnitor, (b) which settlement would not diminish or limit or otherwise adversely affect the rights, activities or financial interests of the Indemnitee, (c) which settlement includes, as an unconditional term thereof, the giving by each claimant or plaintiff to the Indemnitee of a release from all liability in respect of such Claim; and (d) which does not result in any finding or admission of fault by the Indemnitee.

6.3 Adjustments. Any amount paid under this ARTICLE VI shall be treated as an adjustment to the Purchase Price for all tax purposes unless otherwise required by applicable law.

ARTICLE VII
ADDITIONAL COVENANTS

7.1 Further Assurances. Subject to Section 7.8, the Parties shall use commercially reasonable efforts to cause the conditions set forth in ARTICLE V to be satisfied and to consummate the transactions contemplated herein as promptly as reasonably practical. The Parties shall cooperate reasonably with each other in connection with any steps required to be taken as part of their respective obligations under this Agreement, including without limitation any notifications or filings required to be made to the FDA in connection with the transfer of the Purchased Assets, and shall (a) furnish upon request to each other such further information, (b) execute and deliver to each other such other documents, and (c) do such other acts and things, all as the other Parties may reasonably request for the purpose of carrying out the intent of this Agreement and the transactions contemplated by this Agreement, including the use of the Purchased Assets to obtain Priority Review.

7.2 [***]

7.3 Compliance with Legal Requirements. Seller and BPI shall, and shall cause their respective Affiliates and successors-in-interest to Voxzogo (vosoritde) to, comply with all Legal Requirements relating to the Priority Review Voucher. Without limiting the generality of the foregoing, to the extent required, now or in the future, under applicable Legal Requirements or otherwise by the FDA for the use or transfer of the Priority Review Voucher, or to avoid revocation of the Priority Review Voucher, Seller and BPI shall, and shall cause their Affiliates and each of their respective successors in interest to the rare pediatric disease product for which the Priority Review Voucher was awarded, to submit a post-approval production report to the United States Secretary of Health and Human Services not later than five (5) years after the approval of such rare pediatric disease product in accordance with section 529(e)(2) of the FDA Act.. Each of Seller and BPI shall, and shall cause and their respective Affiliates and successors-in-interest to Voxzogo (vosoritde) to, forward to Buyer any communications it receives from any Governmental Entity in respect of the Priority Review Voucher.

7.4 Nondisclosure.

(a) With respect to Confidential Information received, the Parties will (i) keep the Confidential Information confidential, (ii) not use any Confidential Information for any reason, and (iii) not disclose any Confidential Information to any Person, except in each case as otherwise expressly permitted by this Agreement or with the prior written consent of the disclosing Party.

(b) A Party may disclose Confidential Information only to its Representatives on a need-to-know basis.

(c) A Party will (i) instruct its Representatives to comply with the terms and conditions of this Section 7.3, and (ii) be responsible and liable for any breach of this Section 7.3 by it or its Representatives.

(d) If a Party becomes compelled by a court or is requested by a Governmental Entity to make any disclosure that is prohibited or otherwise constrained by this Section 7.3, such Party shall provide the disclosing Party with prompt notice of such compulsion or request (to the extent legally permitted) so that it may seek an appropriate protective order or other appropriate remedy or waive compliance with the provisions of this Section 7.3. In the absence of a protective order or other remedy, the Party subject to the requirement to disclose may disclose that portion (and only that portion) of the Confidential Information that, based upon advice of its counsel, it is legally compelled to disclose or that has been requested by such Governmental Entity, provided, however, that such Party shall use reasonable efforts to obtain reliable assurance that confidential treatment will be accorded by any Person to whom any Confidential Information is so disclosed.

(e) Nothing herein shall prohibit or otherwise restrict the disclosure of Confidential Information by or on behalf of Buyer or its Affiliates to the FDA or other Governmental Entity as required in connection with any filing, application or request for regulatory approval in which Priority Review is sought.

7.5 Publicity.

(a) Notwithstanding Section 7.3, following the Closing, Seller, BPI, and Buyer (and their Affiliates) shall have the right to issue a press release containing a description of the Asset Purchase and the Purchase Price in the form attached hereto as Exhibit D. The Parties agree not to (and to ensure that their respective Affiliates do not) issue any other press releases or public announcements concerning this Agreement without the prior written consent of the other Parties (which shall not be unreasonably withheld or delayed), except as required by a Governmental Entity or applicable Legal Requirement (including the rules and regulations of the U.S. Securities and Exchange Commission (the "***SEC***") and any stock exchange or trading market on which a Party's securities are traded); provided that the Party intending to disclose such information shall use reasonable efforts to provide the other Parties with advance notice of such required disclosure, and an opportunity to review and comment on such proposed disclosure (which comments shall be considered in good faith by the disclosing Party). Notwithstanding the foregoing, without prior submission to or approval of the other Parties, any Party may issue press releases or public announcements which incorporate information concerning this Agreement which information was included in a press release or public disclosure which was previously disclosed under the terms of this Agreement. Notwithstanding Section 7.3, and the foregoing, a Party may, without the prior consent or review by the other Parties, make filings or disclosures with any applicable tax Governmental Entity that are necessary or desirable to such Party and its Affiliates.

(b) Without limiting the foregoing, the Parties acknowledge that BPI will be required to file this Agreement as an exhibit to its Annual Report on Form 10-K or its Quarterly Report on Form 10-Q as filed with the SEC. BPI shall file a redacted version of the Agreement with its Annual Report on Form 10-K or its Quarterly Report on Form 10-Q with such redactions as BPI deems appropriate pursuant to SEC Regulation S-K Item 601(b)(iv), provided that the Buyer's name shall be redacted and BPI shall provide Lilly with a reasonable opportunity to review and comment on BPI's other proposed redactions in advance of such filing (which timely comments shall be considered in good faith by BPI). Notwithstanding the foregoing, the Parties acknowledge that there is no assurance that the SEC will not subsequently require BPI file a less redacted version of the Agreement or the Agreement in full.

7.6 Use of Name. Except as expressly provided herein, no Party shall mention or otherwise use the name, logo, or trademark of the other Parties or any of their Affiliates (or any abbreviation or adaptation thereof) in any publication, press release, marketing and promotional material, or other form of publicity without the prior written approval of such other Party in each instance. The restrictions imposed by this Section 7.6 shall not prohibit any Party from making any disclosure identifying the other Parties that, in the opinion of the disclosing Party's counsel, is required by applicable Law or the rules of a stock exchange on which the securities of the disclosing Party are listed; provided, that such Party shall submit the proposed disclosure identifying another Party in writing to the such other Party as far in advance as reasonably practicable (to the extent legally permitted) so as to provide a reasonable opportunity to comment thereon. Notwithstanding the foregoing, without prior submission to or approval of the other Parties, any Party may mention or otherwise use the name, logo, or trademark of another Party or any of its Affiliates in connection with referencing or describing the Asset Purchase if such use was previously approved under the terms of this Agreement.

7.7 Other Covenants. Until the earlier of the Closing or the termination of this Agreement, (a) Seller and BPI shall, and shall cause their respective Affiliates to, provide Buyer with prompt written notification of the occurrence of any Regulatory Change and maintain the Priority Review Voucher in full force and effect and (b) Seller and BPI shall not, and shall cause their respective Affiliates not to (i) enter into any Contract with respect to the Purchased Assets or (ii) take or permit, or omit to take any action that could reasonably be expected to (a) prevent the satisfaction of the conditions set forth in ARTICLE V or (b) adversely affect any of the Purchased Assets or Seller's or BPI's ability to consummate the transactions contemplated by this Agreement or Buyer's ownership and rights with respect to any of the Purchased Assets after the Closing.

7.8 Antitrust Notification.

(a) Unless this Agreement shall have been validly terminated in accordance with Section 8.1, Buyer, Seller and BPI shall, as promptly as practicable (but no later than ten (10) Business

Days) after the Effective Date, file with the Federal Trade Commission and the Department of Justice the premerger notification and report form required as a result of the contemplated purchase and sale of the Purchased Assets and the other transactions contemplated hereby, and shall include any supplemental information requested in connection therewith, pursuant to the HSR Act. Any such filing, notification and report form and supplemental information shall be in compliance with the requirements of the HSR Act. The Parties shall work together and shall furnish to one another such necessary information and reasonable assistance as the other may request in connection with its preparation of any filing or submission which is necessary under the HSR Act. The Parties shall (A) cooperate with one another and keep one another apprised of the status of any communications with, and any inquiries or requests for additional information from, the Federal Trade Commission, the Department of Justice or any other applicable Governmental Entity, (B) comply promptly with any such reasonable inquiry or request, (C) subject to applicable Legal Requirements, consult and cooperate with each other in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, and proposals made or submitted to any Governmental Entity regarding the transactions contemplated by this Agreement by or on behalf of any Party, (D) not participate, or permit its Affiliates to participate, in any substantive meeting or discussion with any Governmental Entity in respect of any filings, investigation or inquiry concerning this Agreement unless, to the extent reasonably practicable, it consults with the other Parties in advance and, to the extent permitted by such Governmental Entity, gives the other Parties the opportunity to attend and participate thereat, and (E) furnish the other Parties (or, in respect of competitively sensitive materials, solely to the other Parties' outside counsel) with copies of all correspondence, filings, and communications (and memoranda setting forth the substance thereof) between a Party or its Affiliates, on the one hand, and any Governmental Entity, on the other hand, with respect to the transactions contemplated hereunder or any investigation with respect to the transactions contemplated hereunder. Buyer shall be responsible for all filing fees under the HSR Act; the Parties will individually bear all other costs and expenses required for compliance under the HSR Act. Nothing contained in this Agreement shall require any Party to disclose to the other Parties or their outside counsel (1) documents filed pursuant to Item 4(c) and 4(d) of the Notification and Report Form under the HSR Act or communications regarding the same documents, (2) information submitted in response to any request for additional information, documents which reveal such Party's negotiating objectives or strategies regarding the transactions contemplated hereunder (3) information relating to businesses and investments of Buyer or its Affiliates, (4) any information for which disclosure is prohibited by any Governmental Entity or (5) any information for which disclosure would waive applicable legal privilege.

(b) From and after the date on which the filings are made pursuant to Section 7.8(a), the Parties shall use their respective reasonable efforts to obtain any clearance required under the HSR Act for the purchase and sale of the Purchased Assets and the other transactions contemplated hereby, including replying at the earliest practicable date to any requests for information received from the Federal Trade Commission or the Department of Justice pursuant to the HSR Act and making any permitted request for early expiration or termination of the applicable waiting periods under the HSR Act as soon as possible.

(c) Notwithstanding the foregoing, nothing in this Agreement shall require, or be construed to require, the Parties or any of their respective Affiliates to offer or agree to (a) (i) sell, hold, hold separate, divest, license, discontinue or limit, before or after the Closing Date, any assets, businesses, equity holdings, intellectual property, or other interests or (ii) any conditions relating to, or changes or restrictions in, the operations of any such assets, businesses, equity holdings, intellectual property or interests (including but not limited to any requirements to enter into new contracts or modify or terminate existing contracts) or (b) any material modification or waiver of the terms and conditions of this Agreement.

ARTICLE VIII
TERMINATION

8.1 Termination Prior to Closing. Notwithstanding any contrary provisions of this Agreement, the respective obligations of the Parties hereto to consummate the transactions contemplated by this Agreement may be terminated and abandoned at any time before the Closing only as follows:

(a) Upon the mutual written consent of Buyer and Seller; or

(b) By either Buyer or Seller, by written notice to the other Party if the Closing has not occurred on or before the expiration of six (6) months from the date hereof; provided, however, that the right to terminate this Agreement under this Section 8.1(b) shall not be available to any Party whose material breach of any provision set forth in this Agreement has resulted in the failure of the Closing to occur on or before such date.

8.2 Effect of Termination. In the event of the termination of this Agreement as provided in Section 8.1, written notice thereof shall forthwith be given to the other Parties hereto specifying the provision hereof pursuant to which such termination is made, and this Agreement shall forthwith become null and void (except for the provisions of this Section 8.2, Section 1.1, Section 7.3, and Sections 9.2 - 9.14, which shall survive any such termination) and there shall be no liability on the part of Buyer or Seller except for damages resulting from any breach of this Agreement prior to termination of this Agreement by Buyer or Seller.

ARTICLE IX
GENERAL PROVISIONS

9.1 Survival. Articles I, II, III, IV, VI, VII and IX shall each survive the Closing.

9.2 Taxes and Fees. Notwithstanding any other provision in this Agreement to the contrary, each respective Party shall bear and pay any and all sales taxes, income taxes, value added taxes, stamp taxes, use taxes, transfer taxes, documentary charges, recording fees or similar taxes, charges, or fees (including any penalties, interest and additions thereto) that may become payable by it or its Affiliates in connection with the Asset Purchase. [***]

9.3 No Broker. Other than advisory services provided by [***], the fees and expenses of whom shall be paid by Seller, Seller has not engaged, retained or entered into an agreement with any investment banker, broker, finder or other intermediary who has been authorized to act on behalf of Seller who may be entitled to any fee or commission in connection with the Asset Purchase contemplated by this Agreement.

9.4 Notices. Any notice or other communication required or permitted to be delivered to any Party shall be in writing and shall be deemed properly delivered, given and received: (a) when delivered by hand; or (b) upon such Party's receipt after sent by registered mail, by courier or express delivery service, in any case to the address set forth beneath the name of such Party below (or to such other address as such Party shall have specified in a written notice given to the other parties hereto):

(i) if to Buyer, to:

Eli Lilly and Company
Lilly Corporate Center
Indianapolis, Indiana 46285
Attention: General Counsel

(ii) if to Seller, to:

(ii) if to Seller, to:

BioMarin International Ltd.
William Fry Solicitors
6th Floor
2 Grand Canal Square
Dublin 2,
Ireland

with a copy (which shall not constitute notice) to:

BioMarin Pharmaceutical Inc.
105 Digital Drive
Novato, CA 94949
Attn: General Counsel
Tel: (415) 506-6700

(iii) if to BPI, to:

BioMarin Pharmaceutical Inc.
105 Digital Drive
Novato, CA 94949
Attn: General Counsel
Tel: (415) 506-6700

9.5 Construction.

(a) The Parties agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not be applied in the construction or interpretation of this Agreement.

(b) As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

(c) Except as otherwise indicated, all references in this Agreement to "Articles" and "Sections" are intended to refer to Articles and Sections of this Agreement.

9.6 Counterparts. This Agreement may be executed in two or more counterparts, all of which shall be considered one and the same instrument, and shall become effective when one or more counterparts have been signed by each of the Parties hereto and delivered to the other Parties hereto, it being understood that all Parties hereto need not sign the same counterpart. The exchange of a fully executed Agreement (in counterparts or otherwise) by electronic transmission or facsimile shall be sufficient to bind the Parties hereto to the terms and conditions of this Agreement.

9.7 Entire Agreement. This Agreement, including all exhibits and schedules attached hereto, sets forth the entire understanding of the Parties relating to the subject matter hereof and supersedes all

prior agreements and understandings among or between any of the Parties relating to the subject matter hereof.

9.8 Assignment. No Party will have the right to assign this Agreement, in whole or in part, by operation of law or otherwise, without the other Parties' express prior written consent. Any attempt to assign this Agreement, without such consent, will be null and void and of no effect. Notwithstanding the foregoing, any Party may assign this Agreement without the consent of the other Parties: (a) to a third party that succeeds to all or substantially all of its assets or related business (whether by sale, merger, operation of law or otherwise); or (b) to an Affiliate of such Party. Subject to the foregoing, this Agreement will bind and inure to the benefit of each Party's successors and permitted assigns.

9.9 Severability. If any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement shall continue in full force and effect and shall be interpreted so as reasonably to effect the intent of the parties hereto. The Parties hereto shall use commercially reasonable efforts to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that shall achieve, to the extent possible, the economic, business and other purposes of such void or unenforceable provision.

9.10 Remedies Cumulative. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a Party hereto shall be deemed cumulative with and not exclusive of any other remedy conferred hereby or by law or equity upon such Party, and the exercise by a Party hereto of any one remedy shall not preclude the exercise of any other remedy and nothing in this Agreement shall be deemed a waiver by any Party of any right to specific performance or injunctive relief.

9.11 Governing Law. This Agreement, and all claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to this Agreement, or the negotiation, execution or performance of this Agreement (including any claim or cause of action based upon, arising out of or related to any representation or warranty made in or in connection with this Agreement or as an inducement to enter into this Agreement) shall be governed by, enforced, and construed in accordance with, the laws of the State of New York, including its statutes of limitations, regardless of the laws that might otherwise govern under applicable principles of conflicts of law. The Parties irrevocably and unconditionally submit to the exclusive jurisdiction of the United States District Court in New York County, New York (or if such court does not have subject matter jurisdiction, a State Court of the State of New York located in New York County, New York) solely and specifically for the purposes of any action or proceeding arising out of or in connection with this Agreement.

9.12 WAIVER OF JURY TRIAL. EACH PARTY, TO THE EXTENT PERMITTED BY LAW, KNOWINGLY, VOLUNTARILY, AND INTENTIONALLY WAIVES ITS RIGHT TO A TRIAL BY JURY IN ANY PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT AND THE TRANSACTIONS IT CONTEMPLATES. THIS WAIVER APPLIES TO ANY PROCEEDING, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE.

9.13 Amendment; Extension; Waiver. Subject to the provisions of applicable law, the Parties hereto may amend this Agreement at any time pursuant to an instrument in writing signed on behalf of each of the Parties hereto. At any time, any Party hereto may, to the extent legally allowed, (a) extend the time for the performance of any of the obligations or other acts of the other Parties hereto, (b) waive any inaccuracies in the representations and warranties made to such Party contained herein or (c) waive compliance with any of the agreements or conditions for the benefit of such Party contained herein. Any agreement on the part of a Party hereto to any such extension or waiver shall be valid only if set forth in an instrument in writing signed on behalf of such Party. Without limiting the generality or effect of the preceding sentence, no delay in exercising any right under this Agreement shall constitute a waiver of such right, and no waiver of any breach or default shall be deemed a waiver of any other breach or default of the same or any other provision in this Agreement.

9.14 No Benefit to Third Parties. Covenants and agreements set forth in this Agreement are for the sole benefit of the Parties hereto and their successors and permitted assigns, and they shall not be construed as conferring any rights on any other Persons.

[Signature Page Follows]

IN WITNESS WHEREOF, each of Buyer, BPI, and Seller has caused this Asset Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized, all as of the date first written above.

ELI LILLY AND COMPANY

By: /s/ David A. Ricks
Name: David A. Ricks
Title: Chair and Chief Executive Officer

BIOMARIN INTERNATIONAL LTD.

By: /s/ Michael O'Donnell
Name: Michael O'Donnell
Title: Director

BIOMARIN PHARMACEUTICAL INC.

By: /s/ Brinda Balakrishnan
Name: Brinda Balakrishnan
Title: Group Vice President

Exhibit A

FORM OF BILL OF SALE

This Bill of Sale (this "***Bill of Sale***") is entered into as of February [ ], 2022, by and among Eli Lilly and Company ("***Buyer***"), BioMarin Pharmaceutical Inc. ("***BPI***"), and BioMarin International Ltd. ("***Seller***").

Upon the terms and subject to the conditions of the Asset Purchase Agreement, dated as of February 8, 2022 (the "***Asset Purchase Agreement***"), by and among Buyer, Seller and BPI, Seller has agreed to sell, and Buyer has agreed to purchase, all right, title and interest in, to and under the Purchased Assets, including the Priority Review Voucher, in each case free and clear of all Encumbrances.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Buyer and Seller, intending to be legally bound, hereby agree as follows:

1. Defined Terms; Interpretation. Except as otherwise set forth herein, capitalized terms used in this Bill of Sale shall have the meanings assigned to them in the Asset Purchase Agreement. This Bill of Sale shall be interpreted in accordance with the rules of construction set forth in Section 9.5 of the Asset Purchase Agreement.

2. Transfer of Purchased Assets. Pursuant to the terms and subject to the conditions of the Asset Purchase Agreement, (a) Seller hereby sells, assigns, transfers, and conveys to Buyer and its successors and its assigns, and Buyer hereby does purchase from Seller, all of Seller's right, title and interest in, to and under the Purchased Assets (including the Priority Review Voucher), in each case free and clear of all Encumbrances and (b) BPI hereby sells, assigns, transfers, and conveys to Buyer and its successors and its assigns, and Buyer hereby does purchase from BPI, BPI's record ownership of the Purchased Assets, which constitutes BPI's sole interest in the Purchased Assets, free and clear of all Encumbrances. The right, title and interest in and to the Purchased Assets that is sold, transferred, conveyed, assigned and delivered by Seller and BPI to Buyer hereunder collectively constitutes the entire right, title and interest in and to the Purchased Assets and upon the Closing, Buyer shall have all right, title and interest in and to the Purchased Assets, free and clear of all Encumbrances.

3. Effective Time. This Bill of Sale shall be effective as of the Closing.

4. Binding Effect; Amendments. This Bill of Sale shall be binding upon, inure to the benefit of, and be enforceable by, the parties hereto and their respective legal representatives, successors and permitted assigns. Neither this Bill of Sale, nor any term or provision hereof, may be amended, modified, superseded or cancelled except by an instrument in writing signed by each party hereto.

5. Governing Law. This Bill of Sale and any disputes arising under or related hereto shall be governed by the rules set forth in Section 9.11 of the Asset Purchase Agreement.

6. Counterparts. This Bill of Sale may be executed in one or more counterparts, each of which shall be deemed an original but all of which together will constitute one and the same instrument.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the parties hereto have caused this Bill of Sale to be executed and delivered as of the date first written above.

ELI LILLY AND COMPANY

By:____
Name: __
Title: __

BIOMARIN INTERNATIONAL LTD.

By:____
Name:
Title:

BIOMARIN PHARMACEUTICAL INC.

By:____
Name:
Title:

Exhibit B

BPI's Transfer Acknowledgment Letter

[BPI's Letterhead]

[Date]

Eli Lilly and Company
[Address]

RE: NDA 214938 for Voxzogo (vosoritide) - Transfer of Rare Pediatric Disease Priority Review Voucher PRV NDA 214938 (the "***Voucher***")

Dear [Buyer Contact]:

Reference is made to the subject NDA 214938 and all related correspondence.

Please be advised that as of [Date], Eli Lilly and Company ("***Buyer***") has legally accepted complete ownership of the Voucher from BioMarin Pharmaceutical Inc. ("***BioMarin***"). BioMarin hereby authorizes transfer of ownership of the Voucher to Buyer.

BioMarin has provided Buyer with an unredacted copy of the Voxzogo (vosoritide) (NDA 214938) approval letter from the U.S. Food and Drug Administration to BioMarin (Reference ID 4905458), which includes the Voucher (the "***Approval Letter***"). Buyer agrees to use the Voucher in accordance with the terms of the Approval Letter.

Please do not hesitate to contact me should you have any questions or comments.

Sincerely,

BioMarin Pharmaceutical Inc.

By:____
Name:
Title:

Exhibit C

Buyer's Transfer Acknowledgment Letter

[Eli Lilly and Company Letterhead]

[Date]

BioMarin Pharmaceutical Inc.
105 Digital Drive
Novato, CA 94949

RE: NDA 214938 for Voxzogo (vosoritide) - Transfer of Rare Pediatric Disease Priority Review Voucher PRV NDA 214938 (the "***Voucher***")

Dear [Seller Contact]:

Reference is made to the subject NDA 214938 and all related correspondence

Please be advised that as of [Date], Eli Lilly and Company ("***Buyer***") has legally accepted complete ownership of the Voucher from BioMarin Pharmaceutical Inc. ("***BioMarin***").

BioMarin has provided Buyer with an unredacted copy of the Voxzogo (vosoritide) (NDA 214938) approval letter from the U.S. Food and Drug Administration ("***FDA***") to BioMarin (Reference ID 4905458), which includes the Voucher (the "***Approval Letter***"). Buyer will advise the FDA of the legal transfer of the Voucher from BioMarin to Buyer by providing a copy of this letter to the FDA, and agrees to use the Voucher in accordance with the terms of the Approval Letter.

The regulatory contact information for the Voucher is as follows:

[Buyer Contact]

Please do not hesitate to contact us should you have any questions or comments.

Sincerely,

Eli Lilly and Company

By:____
Name:
Title:

Exhibit D

Press Release

(attached)

Contact:
Investors: *Media:*
Traci McCarty *Debra Charlesworth*
BioMarin Pharmaceutical Inc. *BioMarin Pharmaceutical Inc.*
(415) 455-7558 *(415) 455-7451*

DRAFT NOT For Immediate Release

BioMarin Sells Priority Review Voucher for $110 Million

SAN RAFAEL, Calif., Feb. XX, 2022—SAN RAFAEL, Calif.,—BioMarin Pharmaceutical Inc. (Nasdaq:BMRN) today announced that it has entered into a definitive agreement with an undisclosed purchaser to sell the Rare Pediatric Disease Priority Review Voucher (PRV) it obtained in November 2021 for a lump sum payment of $110,000,000. The Company received the voucher under an FDA program intended to encourage the development of treatments for rare pediatric diseases. BioMarin was awarded the voucher when it received approval of VOXZOGO™ (vosoritide) for Injection, indicated to increase linear growth in pediatric patients with achondroplasia five years of age and older with open epiphyses (growth plates). The transaction remains subject to customary closing conditions, including anti-trust review.

"We are pleased to announce the sale of the PRV and plan to direct the proceeds from this voucher sale towards additional investment in an already robust pipeline of investigational therapies for people with genetic diseases," said Jean-Jacques Bienaimé, Chief Executive Officer of BioMarin. "We are proud to be able to participate in this program and that this voucher will be accelerating the availability of a therapy for patients."

This is the third Priority Review Voucher that BioMarin has received. The FDA also awarded PRVs to the company when Brineura® (cerliponase alfa) and Vimizim® (elosulfase alfa) were approved. Company Management expects that the net gain on the sale of the PRV, after income taxes, will be incremental to the Company's previously communicated expectation to earn positive GAAP net income in 2022.

About the Rare Pediatric Disease Priority Review Voucher Program

The program is intended to encourage development of new drug and biological products for the prevention and treatment of certain rare pediatric diseases. A PRV is issued to the sponsor of a rare pediatric disease product application and entitles the holder to priority review of a single New Drug Application or Biologics License Application. The sponsor receives the voucher upon approval of the rare pediatric disease product application. PRVs may be sold or transferred, and there is no limit on the number of times a PRV can be transferred.

About Food and Drug Administration Standard Review and Priority Review Designations

Prior to approval, each drug marketed in the United States must go through a detailed FDA review process. In 1992, under the Prescription Drug User Act (PDUFA), FDA agreed to specific goals for improving the drug review time and created a two-tiered system of review times - Standard Review and Priority Review. A Priority Review designation is given to drugs that provide a significant improvement in the safety or effectiveness of the treatment, prevention, or diagnosis of a serious condition. The FDA goal for reviewing a drug with Priority Review status is six months from the time the application is filed by the FDA, compared to 10 months under standard review.

About BioMarin

BioMarin is a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare disorders. The company's portfolio consists of seven commercialized products and multiple clinical and pre-clinical product candidates.

For additional information, please visit www.BMRN.com. Information on BioMarin's website is not incorporated by reference into this press release.

Forward-Looking Statements

This press release contains forward-looking statements about the business prospects of BioMarin Pharmaceutical Inc., including, without limitation, statements about: the Company’s plans to use the PRV sale proceeds towards additional investment in BioMarin’s development programs and expectations that the net gain on the sale of the PRV, after income taxes, will be incremental to the Company’s previously communicated expectation to earn positive GAAP net income in 2022. These forward-looking statements are predictions and involve risks and uncertainties such that actual results may differ materially from these statements. Additional important factors to be considered in connection with forward-looking statements are detailed from time to time under the caption "Risk Factors" and elsewhere in BioMarin's Securities and Exchange Commission (SEC) filings, including BioMarin's Quarterly Report on Form 10-Q for the quarter ended September 30, 2021, and future filings and reports by BioMarin. BioMarin undertakes no duty or obligation to update any forward-looking statements contained in this press release as a result of new information, future events or changes in its expectations.

Exhibit 31.1

CERTIFICATION

I, Jean-Jacques Bienaimé, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of BioMarin Pharmaceutical 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: April 29, 2022

/s/ JEAN-JACQUES BIENAIMÉ

Jean-Jacques Bienaimé
Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Brian R. Mueller, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of BioMarin Pharmaceutical 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: April 29, 2022

/s/ BRIAN R. MUELLER

Brian R. Mueller
Executive Vice President, Finance &
Chief Financial Officer

Exhibit 32.1

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

We, Jean-Jacques Bienaimé and Brian R. Mueller, hereby certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that BioMarin Pharmaceutical Inc.'s Quarterly Report on Form 10-Q for the period ended March 31, 2022, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and the information contained in such Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of BioMarin Pharmaceutical Inc.

/s/ JEAN-JACQUES BIENAIMÉ

Jean-Jacques Bienaimé
Chief Executive Officer

Date: April 29, 2022

/s/ BRIAN R. MUELLER

Brian R. Mueller
Executive Vice President, Finance &
Chief Financial Officer

Date: April 29, 2022

This certification accompanies the Quarterly Report on Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of BioMarin Pharmaceutical Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Quarterly Report on Form 10-Q), irrespective of any general incorporation language contained in such filing.