SECURITIES & EXCHANGE COMMISSION EDGAR FILING

MEDICINES CO /DE

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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: September 30, 2017
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 (No Fee Required)**
For the transition period from to

Commission file number 000-31191

THE MEDICINES COMPANY

(Exact name of registrant as specified in its charter)

Delaware	**04-3324394**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
8 Sylvan Way	
Parsippany, New Jersey	**07054**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(973) 290-6000**

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ☑ No ☐

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

Large accelerated filer ☑	Accelerated filer ☐	Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company ☐

Emerging growth company ☐

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes o No ☑

As of November 6, 2017, there were 72,897,295 shares of Common Stock, $0.001 par value per share, outstanding (excluding 3,013,143 shares held in treasury).

THE MEDICINES COMPANY
QUARTERLY REPORT ON FORM 10-Q
For the Quarterly Period Ended September 30, 2017
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Part I. Financial Information

Item 1. Condensed Financial Statements

THE MEDICINES COMPANY
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited, in thousands, except share and per share amounts)

	September 30, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 166,734	$ 541,835
Available for sale securities	42,168	—
Accounts receivable, net of allowances of approximately $6.7 million and $2.9 million at September 30, 2017 and December 31, 2016, respectively	7,793	22,087
Inventory, net	67,169	70,898
Prepaid expenses and other current assets	13,974	19,133
Total current assets	297,838	653,953
Fixed assets, net	18,022	30,961
In-process research & development	—	253,620
Product licenses, net	—	26,987
Developed product rights, net	285,965	334,614
Goodwill	255,629	255,629
Restricted cash	5,048	5,032
Contingent purchase price from sale of businesses	143,700	143,700
Other assets	778	715
Total assets	$ 1,006,980	$ 1,705,211
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 11,698	$ 28,450
Accrued expenses	81,246	88,524
Current portion of contingent purchase price	28,700	55,000
Convertible senior notes	—	53,749
Deferred revenue	7,269	18,902
Total current liabilities	128,913	244,625
Contingent purchase price	34,183	82,289
Convertible senior notes	642,655	623,584
Deferred tax liabilities	—	89,992
Other liabilities	13,174	11,705
Total liabilities	818,925	1,052,195
Equity component of currently redeemable convertible senior notes (Note 10)	—	1,033
Stockholders' equity:		
Preferred stock, $1.00 par value per share, 5,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.001 par value per share, 187,500,000 authorized; 75,791,437 issued and 72,778,294 outstanding at September 30, 2017 and 73,212,545 issued and 71,019,563 outstanding at December 31, 2016	76	73
Additional paid-in capital	1,362,040	1,256,890
Treasury stock, at cost; 3,013,143 and 2,192,982 shares at September 30, 2017 and December 31, 2016, respectively	(90,016)	(50,000)
Accumulated deficit	(1,079,096)	(548,983)
Accumulated other comprehensive loss	(4,949)	(5,479)
Total The Medicines Company stockholders' equity	188,055	652,501
Non-controlling interest in joint venture	—	(518)
Total stockholders' equity	188,055	651,983
Total liabilities and stockholders' equity	$ 1,006,980	$ 1,705,211

See accompanying notes to condensed consolidated financial statements.

THE MEDICINES COMPANY
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited, in thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Net product revenues	$ 10,935	$ 18,843	$ 38,135	$ 80,542
Royalty revenues	5,936	18,756	21,694	62,094
Total net revenues	16,871	37,599	59,829	142,636
Operating expenses:				
Cost of product revenues	9,601	20,777	39,436	54,804
Asset impairment charges	—	—	329,097	—
Research and development	45,838	23,537	117,337	94,595
Selling, general and administrative	47,198	69,022	159,980	242,478
Total operating expenses	102,637	113,336	645,850	391,877
Loss from operations	(85,766)	(75,737)	(586,021)	(249,241)
Co-promotion and license income	769	757	2,283	3,073
Gain on sale of assets	—	—	—	288,301
Loss on extinguishment of debt	—	—	—	(5,380)
Interest expense	(11,886)	(12,089)	(36,898)	(32,198)
Other income	71	865	916	741
(Loss) income from continuing operations before income taxes	(96,812)	(86,204)	(619,720)	5,296
Benefit (provision) for income taxes	66,637	(163)	89,607	(220)
Net (loss) income from continuing operations	(30,175)	(86,367)	(530,113)	5,076
Income (loss) from discontinued operations, net of tax	—	96	—	(1,390)
Net (loss) income	(30,175)	(86,271)	(530,113)	3,686
Net loss attributable to non-controlling interest	—	13	—	50
Net (loss) income attributable to The Medicines Company	$ (30,175)	$ (86,258)	$ (530,113)	$ 3,736
Amounts attributable to The Medicines Company:				
Net (loss) income from continuing operations	$ (30,175)	$ (86,354)	$ (530,113)	$ 5,126
Income (loss) from discontinued operations, net of tax	—	96	—	(1,390)
Net (loss) income attributable to The Medicines Company	$ (30,175)	$ (86,258)	$ (530,113)	$ 3,736
Basic (loss) earnings per common share attributable to The Medicines Company:				
(Loss) earnings from continuing operations	$ (0.42)	$ (1.23)	$ (7.39)	$ 0.07
Loss from discontinued operations	—	—	—	(0.02)
Basic (loss) earnings per share	$ (0.42)	$ (1.23)	$ (7.39)	$ 0.05
Diluted (loss) earnings per common share attributable to The Medicines Company:				
(Loss) earnings from continuing operations	$ (0.42)	$ (1.23)	$ (7.39)	$ 0.07
Loss from discontinued operations	—	—	—	(0.02)
Diluted (loss) earnings per share	$ (0.42)	$ (1.23)	$ (7.39)	$ 0.05
Weighted average number of common shares outstanding:				
Basic	72,286	70,194	71,763	69,711
Diluted	72,286	70,194	71,763	72,920

See accompanying notes to condensed consolidated financial statements.

THE MEDICINES COMPANY
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited, in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Net (loss) income	$ (30,175)	$ (86,271)	$ (530,113)	$ 3,686
Other comprehensive income (loss):				
Foreign currency translation adjustment	487	(70)	527	208
Unrealized gain on available for sale securities	10	—	3	—
Amounts reclassified from accumulated other comprehensive income	—	—	—	(9,665)
Other comprehensive income (loss)	497	(70)	530	(9,457)
Comprehensive loss	(29,678)	(86,341)	(529,583)	(5,771)
Less: comprehensive loss attributable to non-controlling interest	—	13	—	50
Comprehensive loss attributable to The Medicines Company	$ (29,678)	$ (86,328)	$ (529,583)	$ (5,721)

See accompanying notes to condensed consolidated financial statements.

THE MEDICINES COMPANY
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, in thousands)

	Nine Months Ended September 30,	
	2017	2016
Cash flows from operating activities:		
Net (loss) income	$ (530,113)	$ 3,686
Adjustments to reconcile net (loss) income to net cash used in operating activities:		
Depreciation and amortization	17,674	22,517
Asset impairment charges	329,097	—
Amortization of debt discount	20,325	19,392
Unrealized foreign currency transaction losses (gains), net	1,276	(125)
Stock compensation expense	24,078	24,541
Gain on sale of businesses	—	(289,305)
Loss on disposal of fixed assets	72	1
Deferred tax benefit	(89,992)	(1,661)
Extinguishment of debt	—	5,380
Reserve for excess or obsolete inventory	1,797	7,350
Changes in contingent purchase price	(11,788)	13,573
Changes in operating assets and liabilities:		
Accounts receivable	14,476	24,125
Inventory, net	1,976	(14,077)
Prepaid expenses and other current assets	5,886	1,907
Accounts payable	(16,898)	(17,265)
Accrued expenses	(5,245)	(49,110)
Deferred revenue	(11,707)	(5,761)
Payments on contingent purchase price	(52,499)	—
Other liabilities	(3,189)	(6,153)
Net cash used in operating activities	(304,774)	(260,985)
Cash flows from investing activities:		
Purchases of fixed assets	(4,525)	(920)
Purchases of available for sale securities	(131,560)	—
Proceeds from maturities and sales of available for sale securities	89,344	—
Payments for intangible assets	—	(10,000)
Proceeds from sale of businesses	—	437,875
Change in restricted cash	10	(3,660)
Net cash (used in) provided by investing activities	(46,731)	423,295
Cash flows from financing activities:		
Proceeds from issuances of common stock, net	40,708	27,404
Payments on contingent purchase price	(10,119)	(7,921)
Proceeds from the issuance of convertible senior notes	—	402,500
Repayments of convertible senior notes	(55,000)	(323,225)
Purchase of capped call transactions related to convertible senior notes	—	(33,931)
Proceeds from settlement of bond hedges related to convertible senior notes	—	100,459
Settlement of warrants	—	(87,874)
Debt and equity issuance costs	—	(11,725)
Purchase of shares of non-controlling interest	(167)	—
Net cash (used in) provided by financing activities	(24,578)	65,687
Effect of exchange rate changes on cash	982	(814)
(Decrease) increase in cash and cash equivalents	(375,101)	227,183
Cash and cash equivalents at beginning of period	541,835	373,173
Cash and cash equivalents at end of period	$ 166,734	$ 600,356
Supplemental disclosure of cash flow information:		
Interest paid	$ 22,561	$ 11,891
Non-cash investing and financing activities		
Issuance of common stock upon conversion of convertible notes	$ 32,018	$ —
Receipt of common stock upon settlement of 2017 Note hedge	$ 40,015	$ —
Issuance of common stock upon the exercise of the 2017 Warrants	$ 887	$ —

See accompanying notes to condensed consolidated financial statements.

THE MEDICINES COMPANY
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited)

The Medicines Company® name and logo, Angiomax®, Angiox®, Orbactiv® and Vabomere™ are registered trademarks or trademark applications of The Medicines Company in the United States and/or other countries. All other trademarks, service marks or other tradenames appearing in this Quarterly Report on Form 10-Q are the property of their respective owners. Except where otherwise indicated, or where the context may otherwise require, references to "Angiomax" in this Quarterly Report on Form 10-Q mean Angiomax and Angiox, collectively. References to "the Company," "we," "us" or "our" mean The Medicines Company, a Delaware corporation, and its subsidiaries.

1. Nature of Business

The Medicines Company is a global biopharmaceutical company focused on saving lives, alleviating suffering and contributing to the economics of healthcare. The Company markets Angiomax® (bivalirudin), Minocin® (minocycline) for injection and Orbactiv ® (oritavancin), and in August 2017 the U.S. Food and Drug Administration (FDA) approved the new drug application for Vabomere™ (meropenem and vaborbactam). The Company also has a pipeline of products in development, including inclisiran and early stage antibiotic candidates targeting multi-drug resistant bacteria. The Company has the right to develop, manufacture and commercialize inclisiran under its collaboration agreement with Alnylam Pharmaceuticals, Inc. (Alnylam). The Company believes that its products and products in development possess favorable attributes that competitive products do not provide, can satisfy unmet medical needs and offer, or in the case of its products in development have the potential to offer, improved performance.

On November 3, 2015, the Company announced that it was in the process of evaluating its operations with a goal of unlocking stockholder value. In particular, the Company stated its current intention was to explore strategies for optimizing the Company's capital structure and liquidity position and to narrow the Company's operational focus by strategically separating non-core businesses and products in order to generate non-dilutive cash and reduce associated cash burn and capital requirements.

On February 1, 2016, the Company completed the sale of its hemostasis portfolio, consisting of PreveLeak (surgical sealant), Raplixa (fibrin sealant) and Recothrom Thrombin topical (Recombinant) (the Hemostasis Business), to wholly owned subsidiaries of Mallinckrodt plc (collectively, Mallinckrodt) pursuant to the purchase and sale agreement dated December 18, 2015 between the Company and Mallinckrodt. At completion of the sale, the Company received approximately $174.1 million in cash from Mallinckrodt, and may receive up to an additional $235.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of PreveLeak and Raplixa. The financial results of the Hemostasis Business were classified to discontinued operations for the three and nine months ended September 30, 2016 presented in the Company's condensed consolidated financial statements. See Note 16, "Discontinued Operations," for further details.

On June 21, 2016, the Company completed the sale of three non-core cardiovascular products, Cleviprex (clevidipine) injectable emulsion, Kengreal (cangrelor) and rights to Argatroban for Injection (collectively the Non-Core ACC Products) and related assets, to Chiesi USA, Inc. (Chiesi USA) and its parent company Chiesi Farmaceutici S.p.A. (Chiesi) pursuant to the purchase and sale agreement dated May 9, 2016 by and among the Company, Chiesi and Chiesi USA. At the completion of the sale, the Company received approximately $263.8 million in cash, which included the value of product inventory, and may receive up to an additional $480.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of each of Cleviprex and Kengreal. As part of the transaction, the Company sublicensed to Chiesi all of its rights to Cleviprex and Kengreal under the Company's license from AstraZeneca. Subsequent to the completion of the sale, these sublicenses from the Company to Chiesi were terminated, Chiesi purchased from AstraZeneca all or substantially all of AstraZeneca's assets relating to Cleviprex and Kengreal, the parties released certain claims against one another, and the Company paid Chiesi $7.5 million. See Note 15, "Dispositions," for further details.

Consistent with the Company's intentions announced in November 2015, in January 2017 the Company announced that it was seeking opportunities to partner or divest Ionsys and is exploring alternatives for monetizing, in whole or in part, the Company's infectious disease business.

Although the Company continues to seek a partnership or divestiture transaction for Ionsys, on June 1, 2017 the Company voluntarily discontinued and withdrew Ionsys from the market in the United States and ceased related commercialization activities, effective June 19, 2017, with the New Drug Application for Ionsys remaining open to December 31, 2017. Concurrent with this market withdrawal, the Company commenced implementation of a workforce reduction, which resulted in the reduction of 57 employees, representing approximately 15% of the Company's workforce. In the second quarter of 2017, the Company recorded a pre-tax charge of approximately $276.9 million associated with the discontinuation and market withdrawal of Ionsys in the United States market, of which $268.1 million was a non-cash impairment charge (including a write-off of inventory) and $8.8

million relates to cash severance and other exit costs. The non-cash impairment charge includes $11.4 million to reduce the carrying amount of the fixed assets associated with Ionsys to an estimated fair value of zero. The Company has also discontinued and withdrawn Ionsys in the European market. Until October 2017, the Company had an exclusive license with SymBio Pharmaceuticals Ltd. (SymBio) to develop and commercialize Ionsys in Japan. That agreement terminated in connection with a legal dispute with SymBio, as described in Part II, Item 1. Legal Proceedings of this Quarterly Report on Form 10-Q.

The following table presents the impact the discontinuation and market withdrawal of Ionsys had on the Company's statement of operations for the nine months ended September 30, 2017 (amounts in thousands):

Operating expenses:		
Cost of product revenue	$	8,458
Asset impairment charges		264,097
Research and development		1,032
Selling, general and administrative		3,331
Total operating expenses		276,918
Loss from operations		(276,918)
(Loss) income from continuing operations before income taxes		(276,918)
Benefit (provision) for income taxes		—
Net (loss) income from continuing operations	$	(276,918)

In August 2017, the Company announced that it discontinued the clinical development program for MDCO-700, an investigational anesthetic agent. In connection with this decision, the Company's condensed consolidated statement of operations for the nine months ended September 30, 2017 includes the following non-cash adjustments that were recorded during the second quarter of 2017: $65.0 million of asset impairment charges to in-process research and development (IPR&D) acquired from Annovation, a $14.7 million decrease in the carrying value of the contingent purchase price to an estimated fair value of zero, and a $23.0 million benefit for income taxes due to a reduction in the Company's recorded valuation allowance against its deferred tax assets as a result of the impairment charge.

2. Significant Accounting Policies

The Company's significant accounting policies are described in Note 2, "Significant Accounting Policies," in the notes to the audited consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (the 2016 Form 10-K).

Basis of Presentation

The accompanying condensed consolidated financial statements are unaudited and have been prepared in accordance with U.S. generally accepted accounting principles (GAAP) for interim financial information and with the instructions to Form 10-Q. Accordingly, they do not include all the information and footnotes required by GAAP for complete financial statements. In the opinion of management, the accompanying unaudited condensed consolidated financial statements include all adjustments, consisting solely of normal recurring adjustments, considered necessary for a fair presentation of the Company's financial position, results of operations, comprehensive loss, and cash flows for the periods presented.

The accompanying condensed consolidated financial statements include the accounts of the Company and its wholly owned and majority owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation. The Company recorded net loss attributable to non-controlling interest in the Company's condensed consolidated financial statements equal to the percentage of ownership interest retained in the respective operations by the non-controlling parties for the three and nine months ended September 30, 2016 . The Company has no unconsolidated subsidiaries.

The Company's results of operations for the three and nine months ended September 30, 2017 are not necessarily indicative of the results that may be expected from the Company for the entire fiscal year or any other quarter of the fiscal year ending December 31, 2017. These unaudited condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements included in the 2016 Form 10-K.

Going Concern

Due to the introduction of generic competition against Angiomax and the divestiture of certain of the Company's non-core products, the Company's revenues generated from product sales have declined significantly since 2014. Revenues are expected to continue to decline as generic competition for Angiomax increases. The Company has incurred net losses and negative cash flows from operations since 2014 and has an accumulated deficit of $1,079.1 million as of September 30, 2017. The Company expects to incur significant expenses and operating losses for the foreseeable future as it continues to develop, seek regulatory approval for and commercially launch its products and products in development, including inclisiran and Vabomere. The Company believes that its existing cash and cash equivalents and available for sale securities of approximately $208.9 million as of September 30, 2017, together with the cash flows it generates from product sales, will not be sufficient to satisfy the Company's anticipated operating and other funding requirements for the next twelve months from November 9, 2017 (the date of filing this Form 10-Q).

Because the Company expects to continue to incur negative cash flows from operations, the Company will need to raise additional funds through asset sales, including asset sales of products or businesses that generate a material portion of the Company's revenues, engage in other strategic transactions, sell additional equity or debt securities, or seek additional financing through other arrangements in order to meet the Company's anticipated operating and other funding requirements for the next twelve months. There can be no assurances that asset sales or public or private financings may be available in amounts or on terms acceptable to the Company, if at all. The Company's ability to obtain additional equity or debt financing may be limited by market conditions. If the Company were unable to consummate asset sales, obtain additional financing or otherwise increase its cash resources, it may be required to delay, reduce the scope of, or eliminate one or more of its planned research, development or commercialization activities. Due to these uncertainties, there is substantial doubt about the Company's ability to continue as a going concern.

The unaudited condensed consolidated financial statements as of September 30, 2017 have been prepared under the assumption that the Company will continue as a going concern and do not include any adjustments that might result from the outcome of the uncertainty discussed above.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs, expenses and accumulated other comprehensive loss that are reported in the condensed consolidated financial statements and accompanying disclosures. Actual results may be different.

Revenue Recognition

The Company's revenue recognition accounting policy is described in Note 2 of the notes to the consolidated financial statements included in the 2016 Form 10-K. Effective as of September 1, 2017, the Company modified its revenue recognition accounting policy with respect to product sales of Orbactiv and branded Angiomax as follows:

Product Sales for Orbactiv and branded Angiomax. Prior to September 1, 2017, the Company recognized sales from Orbactiv under a deferred revenue model as it did not have sufficient information to develop estimates of expected returns and other adjustments to gross revenue. As a result of the entrance of generic products in the marketplace beginning in the third quarter of 2015, the Company could not reasonably estimate its chargebacks with respect to branded Angiomax between July 1, 2015 and August 30, 2017, and sales of branded Angiomax in the United States were also recognized under a deferred revenue model during that period. Under the deferred revenue model, the Company did not recognize revenue upon product shipment of Orbactiv and branded Angiomax to Integrated Commercialization Solutions (ICS). Instead, upon product shipment, the Company invoiced ICS, recorded deferred revenue at gross invoice sales price, classified the cost basis of the product held by ICS as finished goods inventory held by others and included such cost basis amount within prepaid expenses and other current assets on the consolidated balance sheets. The Company recognized revenue when hospitals purchased the products and the transaction consideration became fixed or determinable. Beginning September 1, 2017, the Company has sufficient market information to reasonably estimate its chargebacks, returns and other adjustments to gross revenues associated with Orbactiv and branded Angiomax and recognizes sales upon shipment to ICS. This change in estimate did not materially impact net product revenues or cost of product revenues for the three and nine months ended September 30, 2017 , and is not expected to materially impact net product revenues or costs of product revenues in future periods.

Contingencies

The Company may be, from time to time, a party to various disputes and claims arising from normal business activities. The Company continually assesses litigation to determine if an unfavorable outcome would lead to a probable loss or reasonably possible loss which could be estimated. In accordance with the guidance of the Financial Accounting Standards Board (FASB) on accounting for loss contingencies, the Company accrues for all contingencies at the earliest date at which the Company deems it probable that a liability has been incurred and the amount of such liability can be reasonably estimated. If the estimate of a probable loss is a range and no amount within the range is more likely than another, the Company accrues the minimum of the range. In the cases where the Company believes that a reasonably possible loss exists, the Company discloses the facts and circumstances of the litigation, including an estimable range, if possible.

Research and Development

Research and development costs are expensed as incurred. Clinical study costs are accrued over the service periods specified in the contracts and adjusted as necessary based upon an ongoing review of the level of effort and costs actually incurred. Payments for a product license prior to regulatory approval of the product and payments for milestones achieved prior to regulatory approval of the product are expensed in the period incurred as research and development. Milestone payments that do not represent payments of contingent purchase price from business combinations that are made in connection with regulatory approvals are capitalized and amortized to cost of revenue over the remaining useful life of the asset.

The Company performs research and development for U.S. government agencies under a cost-reimbursable contract in which the Company is reimbursed for direct costs incurred plus allowable indirect costs. The Company recognizes the reimbursements under research contracts when a contract has been executed, the contract price is fixed or determinable, delivery of services or products has occurred, and collection of the contract price is reasonably assured. The reimbursements are classified as an offset to research and development expenses. Payments received in advance of work performed are deferred. The Company recorded reductions of research and development expenses of $4.4 million and $3.4 million for the three months ended September 30, 2017 and 2016, respectively, and $8.3 million and $11.9 million for the nine months ended September 30, 2017 and 2016, respectively, in the accompanying condensed consolidated statements of operations.

Contingent Purchase Price From Sale of Business

The Company has contingent assets for certain specified calendar year net sales milestones as part of the sale of the Hemostasis Business to Mallinckrodt and the Non-Core ACC Products to Chiesi, which in each case are reflected as contingent purchase price from sale of businesses on the accompany condensed consolidated balance sheets. The Company will recognize any increases in the carrying amount or impairments of the contingent purchase price if and when the milestones are achieved or determined to have no value. The Company noted no indicators of impairment on the carrying amount of the contingent assets. In addition, the Company determined that the fair values of these contingent payments to be received from Mallinckrodt and Chiesi are not readily determinable at September 30, 2017, as the estimated future net sales of each of the respective products are determined by the future actions of Mallinckrodt and Chiesi, respectively.

Recent Accounting Pronouncements

In May 2014, the FASB issued a comprehensive new revenue recognition Accounting Standards Update (ASU), “Revenue from Contracts with Customers (Topic 606)” (ASU No. 2014-09). ASU No. 2014-09 provides guidance to clarify the principles for recognizing revenue. This guidance includes the required steps to achieve the core principle that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In August 2015, the FASB deferred the effective date of the revenue recognition guidance to reporting periods beginning after December 15, 2017. Early adoption of the standard is permitted but not before the original effective date, which was for reporting periods beginning after December 15, 2016. The FASB has further amended guidance related to recording revenue on a gross versus a net basis and on identifying performance obligations and licensing. The FASB has also revised certain SEC guidance primarily related to ASC Topic 815, “Derivatives and Hedging,” and has issued additional improvements and practical expedients to the standard.

The Company, has analyzed the impacts of ASU No. 2014-09 on its revenue streams, specifically focusing on its product revenues, including its arrangement with Sandoz Inc. (Sandoz) to sell in the United States an authorized generic version of Angiomax (bivalirudin), and its collaboration agreements. The Company’s assessment included a review of current accounting policies and practices to identify potential differences that would result from applying the guidance. Currently, the Company uses a deferred

revenue model for sales of its authorized generic version of Angiomax (bivalirudin) as the price is not fixed or determinable and recognizes royalty revenue on an accrual basis in the period in which Sandoz reports sales to its customers. The Company currently records revenue recognized from sales of bivalirudin to Sandoz in both net product revenues and royalty revenues in its consolidated statements of operations. Under the new standard, the promise to provide bivalirudin to Sandoz and the promise to provide exclusivity to Sandoz to distribute bivalirudin in the United States will constitute one performance obligation; as a result, under the new standard, revenue recognized from sales of bivalirudin to Sandoz will be recorded solely in net product revenues in the Company's consolidated statements of operations upon transfer of control of product to Sandoz. The transaction price will reflect the amount the Company expects to be entitled to in connection with the sale of bivalirudin to Sandoz, which will include an estimate of the variable amount of the consideration subject to the constraint that it must be probable that a significant reversal of revenue will not occur. This may result in revenue being recognized earlier provided the Company can reliably estimate the ultimate price expected to be realized from Sandoz's customer. The Company does not expect the adoption of the guidance to have a material impact on revenue recognized related to its collaboration agreements. The Company will continue to assess new customer contracts throughout 2017 and any impact the standard will have on its processes, systems and controls. While the Company's assessment of the impacts of ASU No. 2014-09 is still in process, the adoption of the guidance is not expected to have a material impact on the Company's consolidated financial statements. However, the Company will be required to provide additional disclosures in the notes to the consolidated financial statements upon adoption. The Company currently intends to adopt the standard using the modified retrospective method.

In January 2016 the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" (ASU No. 2016-01). ASU No. 2016-01 amends certain aspects of accounting and disclosure requirements of financial instruments, including the requirement that equity investments with readily determinable fair values be measured at fair value with changes in fair value recognized in a company's results of operations. The new standard does not apply to investments accounted for under the equity method of accounting or those that result in consolidation of the investee. Equity investments that do not have readily determinable fair values may be measured at fair value or at cost minus impairment adjusted for changes in observable prices. A financial liability that is measured at fair value in accordance with the fair value option is required to be presented separately in other comprehensive income for the portion of the total change in the fair value resulting from change in the instrument-specific credit risk. In addition, a valuation allowance should be evaluated on deferred tax assets related to available-for-sale debt securities in combination with other deferred tax assets. ASU No. 2016-01 will be effective for public companies for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. Based on current investment holdings, the Company does not believe the adoption of this standard is expected to have a material impact the consolidated balance sheets and statements of operations.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)" (ASU No. 2016-02). ASU No. 2016-02 will require organizations that lease assets with lease terms of more than 12 months to recognize assets and liabilities for the rights and obligations created by those leases on their balance sheets. The ASU will also require new qualitative and quantitative disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. ASU No. 2016-02 will be effective for public companies for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. The Company expects to adopt this guidance when effective and is currently evaluating the effect that the updated standard will have on its consolidated financial statements and related disclosures.

In March 2016, the FASB issued ASU No. 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" (ASU No. 2016-09). This ASU makes several modifications to Topic 718 related to the accounting for forfeitures, employer tax withholding on share-based compensation, and the financial statement presentation of excess tax benefits or deficiencies. ASU No. 2016-09 also clarifies the statement of cash flows presentation for certain components of share-based awards. On January 1, 2017, the Company adopted ASU No. 2016-09 and has elected to continue its determination of compensation costs recognized in each period based upon an estimate of expected future forfeitures. Upon the settlement of awards during the nine months ended September 30, 2017, the Company recorded excess tax benefits of $5.2 million but was unable to recognize any benefit due to the establishment of a valuation allowance on its net operating loss carry forward deferred tax assets. The Company does not expect to be able to recognize any benefit related to additional excess tax benefits recorded throughout 2017. There was no net impact on the Company's opening accumulated deficit upon application of this guidance using the modified retrospective transition method as the total cumulative-effect adjustment for previously deferred excess tax benefits was offset by a related change in the valuation allowance. The other amended requirements of ASU No. 2016-09 did not have a material impact on the Company's condensed consolidated financial statements and related disclosures.

In August 2016, the FASB issued ASU No. 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments" (ASU No. 2016-15). This guidance clarifies how certain cash receipts and payments should be

presented in the statement of cash flows and is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company does not believe that this guidance will have a material impact on the consolidated financial statements and related disclosures.

In November 2016, the FASB issued ASU 2016-18, “Statement of Cash Flows (Topic 230): Restricted Cash” (ASU No. 2016-18). This amends the guidance in ASC 230, including providing additional guidance related to transfers between cash and restricted cash and how entities present, in their statement of cash flows, the cash receipts and cash payments that directly affect the restricted cash accounts. ASU 2016-18 is effective for annual reporting periods beginning after December 15, 2017, and interim periods within those years, with early adoption permitted. The Company does not believe that this guidance will have an impact on the consolidated financial statements and related disclosures.

In January 2017, the FASB issued ASU 2017-01, Business Combinations (Topic 805): Clarifying the Definition of a Business, which clarifies the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. ASU 2017-01 is effective for annual reporting periods beginning after December 15, 2017, and interim periods within those years, with early adoption permitted. The Company will apply the guidance to applicable transactions after the adoption date. The impact on the Company’s consolidated financial statements will depend on the facts and circumstances of any specific future transactions.

In January 2017, the FASB issued ASU 2017-04, Intangibles-Goodwill and Other, Simplifying the Test for Goodwill Impairment, which eliminates Step 2 from the goodwill impairment test. Under the revised test, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. This ASU is effective for any interim or annual impairment tests for fiscal years beginning after December 15, 2019, with early adoption permitted. The Company does not believe that this guidance will have an impact on the consolidated financial statements and related disclosures.

3. Stock Compensation Expense

The Company recorded stock compensation expense of approximately $7.9 million and $8.1 million for the three months ended September 30, 2017 and 2016, respectively, and $24.1 million and $24.7 million for the nine months ended September 30, 2017 and 2016, respectively. As of September 30, 2017, there was approximately $35.3 million of total unrecognized compensation costs related to non-vested share-based employee compensation arrangements granted under the Company’s equity compensation plans. The Company expects to recognize those costs over a weighted average period of 1.3 years.

During the nine months ended September 30, 2017 and 2016, the Company issued a total of 1,754,744 and 1,322,091, respectively, of shares of its common stock upon the exercise of stock options, grants of restricted stock, and purchases under the Company’s 2010 employee stock purchase plan (ESPP). Cash received from the exercise of stock options and purchases through the ESPP during the nine months ended September 30, 2017 and 2016 was $40.7 million and $27.4 million, respectively, and is included within the financing activities section of the accompanying condensed consolidated statements of cash flows.

4. (Loss) Earnings Per Share

Basic (loss) earnings per share is computed by dividing consolidated net loss attributable to The Medicines Company by the weighted average number of shares of common stock outstanding during the period, excluding unvested restricted common shares. The potentially dilutive effect of the Company’s stock options, unvested restricted common stock, stock purchase warrants, and convertible senior notes due 2017 (which matured on June 1, 2017) and 2022 on earnings per share is computed under the treasury stock method. In addition, the Company analyzes the potential dilutive effect of the convertible senior notes due 2023 on earnings per share under the “if converted” method, in which it is assumed that the outstanding security converts into common stock at the beginning of the period.

For periods of net income when the effects are not anti-dilutive, diluted earnings per share is computed by dividing the net income attributable to The Medicines Company by the weighted average number of shares outstanding and the impact of all potential dilutive common shares, consisting primarily of stock options, unvested restricted common stock, shares issuable upon conversion of convertible senior notes due 2017, 2022 and 2023 and stock purchase warrants.

For periods of net loss from continuing operations, diluted loss per share is calculated similar to basic loss per share as the effect of including all potentially dilutive common share equivalents is anti-dilutive. Due to the periods of net loss from continuing

operations attributable to The Medicines Company, the calculation of diluted loss per share for the three and nine months ended September 30, 2017 excluded 10,703,826 and 13,312,289, respectively, of potentially dilutive stock options, warrants, restricted common shares, and shares issuable upon conversion of the 2017, 2022 and 2023 Notes as their inclusion would have an anti-dilutive effect.

The calculation of diluted loss per share for the three and nine months ended September 30, 2016 excluded 3,930,938 and 3,109,274, respectively, of potentially dilutive stock options, stock purchase warrants, restricted common shares, and shares issuable upon conversion of the 2017, 2022 and 2023 Notes as their inclusion would have an anti-dilutive effect.

5. Income Taxes

For the three months ended September 30, 2017 and 2016, the Company recorded a benefit for income taxes of $66.6 million and a provision for income taxes of $0.2 million, respectively. The worldwide effective income tax rates for the Company for the three months ended September 30, 2017 and 2016 was 68.83% and (0.2)%, respectively.

For the nine months ended September 30, 2017 and 2016, the Company recorded a benefit for income taxes of $89.6 million and a provision for income taxes of $0.2 million, respectively. The worldwide effective income tax rates for the Company for the nine months ended September 30, 2017 and 2016 was 14.5% and 4.1%, respectively. For the three and nine months ended September 30, 2017 , the Company's benefit for income taxes is primarily attributable to a reduction in the Company's recorded valuation allowance against its deferred tax assets as a result of the commencement of amortization of IPR&D associated with Vabomere upon approval by the FDA, which resulted in a discrete benefit of $66.7 million, and the impairment of IPR&D associated with MDCO-700, which resulted in a discrete benefit of $23.0 million. For further details regarding the approval of Vabomere and impairment of IPR&D associated with MDCO-700 see Note 9, "Intangible Assets and Goodwill."

The Company considers all available evidence, both positive and negative, to determine whether, based on the weight of that evidence, a valuation allowance is needed to reduce its deferred tax assets to the amount that is more likely than not to be realized. The Company placed significant weight on the fact that the Company expects to be in a cumulative net book loss for the three-year period ending December 31, 2017 in recording valuation allowances on substantial portions of its deferred tax assets as of September 30, 2017.

The Company will continue to evaluate its ability to realize its deferred tax assets on a periodic basis and will adjust such amounts in light of changing facts and circumstances including, but not limited to, future projections of taxable income, tax legislation, rulings by relevant tax authorities, the progress of ongoing tax audits and the regulatory approval of products currently under development. Any additional changes to the valuation allowance recorded on deferred tax assets in the future would impact the Company's income taxes.

6. Cash and Cash Equivalents and Available for Sale Securities

The Company considers all highly liquid investments purchased with original maturities at the date of purchase of three months or less to be cash equivalents. At September 30, 2017 and December 31, 2016, the Company had cash and cash equivalents of $166.7 million and $541.8 million, respectively, which consisted of cash of $152.0 million and $485.7 million, and money market funds with original maturities of less than three months of $14.7 million and $56.1 million at September 30, 2017 and December 31, 2016, respectively.

At September 30, 2017, the Company held available for sale securities with a fair value totaling $42.2 million. These available for sale securities consist of corporate debt securities and asset backed securities. At September 30, 2017, all of the $42.2 million of available for sale securities are due within one year. The Company evaluates securities with unrealized losses to determine whether such losses are other than temporary.

Available for sale securities, including carrying value and estimated fair values, are summarized as follows:

	As of September 30, 2017		
	Amortized Cost	Fair Value	Unrealized Gain
		(in thousands)	
Asset backed securities	8,192	8,192	—
Corporate debt securities	33,973	33,976	3
Total	$ 42,165	$ 42,168	$ 3

The Company does not intend to sell its corporate debt securities and it is not more likely than not that the Company will be required to sell its corporate debt securities before recovery of their amortized cost basis, which may be maturity.

Restricted Cash

The Company had restricted cash of $5.0 million at September 30, 2017 and December 31, 2016, respectively, which included $3.7 million and $1.0 million reserved for an outstanding letter of credit associated with foreign taxes and the Company's lease for the office space in Parsippany, New Jersey, respectively, at both September 30, 2017 and December 31, 2016, respectively. These funds are invested in certificates of deposit. The letter of credit for the Company's lease for the office space in Parsippany, New Jersey permits draws by the landlord to cure defaults by the Company. In addition, as a result of the acquisition of Targanta Therapeutics Corporation (Targanta) in 2009, the Company had restricted cash of $0.1 million at both September 30, 2017 and December 31, 2016, in the form of a guaranteed investment certificate collateralizing an available credit facility. The Company also had restricted cash of $0.2 million at September 30, 2017 and December 31, 2016, respectively, related to certain foreign tender requirements.

7. Fair Value Measurements

The Company applies a fair value framework in order to measure and disclose its financial assets and liabilities. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The fair value hierarchy requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. There are three levels of inputs that may be used to measure fair value:

Level 1 Quoted prices in active markets for identical assets or liabilities. The Company's Level 1 assets consist of money market investments.

Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Fair values are determined by utilizing quoted prices for similar assets and liabilities in active markets or other market observable inputs such as interest rates and yield curves. The Company's Level 2 assets consist of U.S. government debt, corporate debt securities and asset back securities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. The Company's Level 3 assets and liabilities consist of the contingent purchase prices associated with the Company's business combinations, respectively. The fair value of certain development or regulatory milestone based contingent purchase prices was determined in a discounted cash flow framework by probability weighting the future contractual payment with management's assessment of the likelihood of achieving these milestones and present valuing them using a risk-adjusted discount rate. Certain sales milestone based payments were determined in a discounted cash flow framework where risk-adjusted revenue scenarios were estimated using Monte Carlo simulation models to compute contractual payments which were present valued using a risk-adjusted discount rate.

Financial assets and liabilities measured at fair value on a recurring basis

Financial assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability.

Except for the Company's Level 2 liabilities which are discussed in Note 10, "Convertible Senior Notes," the following table sets forth the Company's assets and liabilities that are measured at fair value on a recurring basis at September 30, 2017 and December 31, 2016, by level, within the fair value hierarchy:

	As of September 30, 2017				As of December 31, 2016			
Assets and Liabilities	Quoted Prices In Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Balance as of September 30, 2017	Quoted Prices In Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Balance as of December 31, 2016
	(in thousands)							
Assets:								
Cash equivalents	$ 14,686		$ —	$ 14,686	$ 56,097	$ —	$ —	$ 56,097
Available for sale securities	—	42,168	—	42,168	$ —	$ —	$ —	—
Total assets at fair value	$ 14,686	$ 42,168	$ —	$ 56,854	$ 56,097	$ —	$ —	$ 56,097
Liabilities:								
Contingent purchase price	$ —	$ —	$ 62,884	$ 62,884	$ —	$ —	$ 137,289	$ 137,289
Total liabilities at fair value	$ —	$ —	$ 62,884	$ 62,884	$ —	$ —	$ 137,289	$ 137,289

Level 3 disclosures

The Company measures contingent purchase price at fair value based on significant inputs not observable in the market, which causes it to be classified as a Level 3 measurement within the fair value hierarchy. The valuation of contingent purchase price uses assumptions and estimates the Company believes would be made by a market participant in making the same valuation. The Company assesses these assumptions and estimates on an on-going basis as additional data impacting the assumptions and estimates are obtained. Changes in the fair value of contingent purchase price related to updated assumptions and estimates are recognized within selling, general and administrative expenses in the accompanying condensed consolidated statements of operations.

The contingent purchase price may change significantly as additional data is obtained, impacting the Company's assumptions regarding probabilities of successful achievement of related milestones used to estimate the fair value of the liability. In evaluating this information, considerable judgment is required to interpret the market data used to develop the assumptions and estimates. The estimates of fair value may not be indicative of the amounts that could be realized in a current market exchange. Accordingly, the use of different market assumptions and/or different valuation techniques may have a material effect on the estimated fair value amounts, and such changes could materially impact the Company's results of operations in future periods.

THE MEDICINES COMPANY
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited) — (Continued)

The following table provides quantitative information associated with the fair value measurements of the Company's Level 3 liabilities:

	Fair Value as of September 30, 2017	Valuation Technique	Unobservable Input	Range (Weighted Average)
	(in thousands)			
Targanta:				
Contingent purchase price	$ 1,584	Probability-adjusted discounted cash flow	Probability of success	5%
			Period in which milestone is expected to be achieved	2021
			Discount rate	11%
Rempex:				
Contingent purchase price: Event-based milestones	$ 47,200	Probability-adjusted discounted cash flow	Probabilities of successes	18% - 90% (71%)
			Period in which milestones are expected to be achieved	2018 - 2024
			Discount rate	4.4% - 7.3%
Contingent purchase price: Sales-based milestones	$ 14,100	Risk-adjusted revenue simulation	Probabilities of successes	15% - 85% (72%)
			Period in which milestones are expected to be achieved	2020 - 2022
			Discount rate	5.5% - 6.7%

THE MEDICINES COMPANY
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (Unaudited) — (Continued)

	Fair Value as of December 31, 2016	Valuation Technique	Unobservable Input	Range (Weighted Average)
	(in thousands)			
Targanta:				
Contingent purchase price	$ 5,857	Probability-adjusted discounted cash flow	Probability of success	20%
			Period in which milestone is expected to be achieved	2021
			Discount rate	11%
Incline:				
Contingent purchase price	$ 1,269	Probability-adjusted discounted cash flow	Probabilities of successes	5%
			Period in which milestones are expected to be achieved	2019
			Discount rate	18%
Rempex:				
Contingent purchase price: Event-based milestones	$ 95,800	Probability-adjusted discounted cash flow	Probabilities of successes	18% - 95% (78%)
			Period in which milestones are expected to be achieved	2017 - 2024
			Discount rate	5.2% - 8.5%
Contingent purchase price: Sales-based milestones	$ 20,300	Risk-adjusted revenue simulation	Probabilities of successes	16% - 65% (56%)
			Period in which milestones are expected to be achieved	2018 - 2022
			Discount rate	6.6% - 8.2%
Annovation:				
Contingent purchase price	$ 14,063	Probability-adjusted discounted cash flow	Probabilities of successes	9% - 50% (34%)
			Period in which milestones are expected to be achieved	2018 - 2031
			Discount rate	6.0% - 10.0%

The fair value of the contingent purchase price represents the fair value of the Company's liability for all potential payments under the Company's acquisition agreements for Targanta, Incline Therapeutics, Inc. (Incline), Rempex Pharmaceuticals, Inc. (Rempex) and Annovation BioPharma, Inc. (Annovation). During the first quarter of 2017, the Company made a $20.0 million payment to the former equity holders of Rempex upon acceptance of the NDA for Vabomere. During the third quarter of 2017, the Company made a $40.0 million payment to the former equity holders of Rempex upon approval of Vabomere in the United States. There were no other changes to the potential future payments under the Company's acquisition agreements. As of September 30, 2017, the remaining potential future payments to the former equity holders of Rempex and Targanta were $224.7 million and $49.4 million, respectively. The remaining potential future payments under the Company's acquisition agreements do not include payments of $175.8 million (which includes $86.3 million to the former equity holders of Incline and Annovation and $89.5 million to other third parties) related to the Ionsys product, which was discontinued and withdrawn in the United States in June 2017 and which has also been discontinued in Europe, and the MDCO-700 development program, which the Company discontinued in August 2017.

The significant unobservable inputs used in the fair value measurement of the Company's contingent purchase prices are the probabilities of successful achievement of development, regulatory, and sales milestones that would trigger payments under the Targanta, Incline, Rempex and Annovation agreements, probabilities as to the periods in which the milestones are expected to be achieved and discount rates. Significant changes in any of the probabilities of success or periods in which milestones will be achieved would result in a significantly higher or lower fair value measurement.

The changes in fair value of the Company's Level 3 contingent purchase price during the three and nine months ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(in thousands)			
Balance at beginning of period	$ 111,171	$ 118,571	$ 137,289	$ 123,757
Payments	(40,616)	(1,564)	(62,618)	(8,811)
Fair value adjustments to contingent purchase prices included in net loss	(7,672)	12,403	(11,788)	14,464
Balance at end of period	$ 62,883	$ 129,410	$ 62,883	$ 129,410

For the three and nine months ended September 30, 2017 and 2016 , changes in the carrying value of the contingent purchase price obligations resulted from changes in the fair value of the contingent consideration due to either the passage of time, changes in discount rates, changes in probabilities of success, or milestone payments. This includes a decrease of $14.7 million in the carrying value of the contingent purchase price to an estimated fair value of zero as a result of the Company's decision to discontinue the clinical development program for MDCO-700 in August 2017. See Note 1, "Nature of Business," for further details.

No other changes in valuation techniques or inputs occurred during the three and nine months ended September 30, 2017 and 2016 .

8. Inventory

The major classes of inventory were as follows:

	September 30, 2017	December 31, 2016
	(in thousands)	
Raw materials	$ 57,818	$ 56,962
Work-in-progress	4,615	12,033
Finished goods	4,736	1,903
Total	$ 67,169	$ 70,898

The Company reviews inventory, including inventory purchase commitments, for slow moving or obsolete amounts based on expected product sales volume and provides reserves against the carrying amount of inventory as appropriate. If annual volume is less than expected, the Company may be required to make additional allowances for excess or obsolete inventory in the future.

9. Intangible Assets and Goodwill

The following table sets forth the carrying amounts and accumulated amortization of the Company's intangible assets:

	As of September 30, 2017			As of December 31, 2016		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	(in thousands)					
Amortizable intangible assets:						
Product licenses[1]	$ —	$ —	$ —	$ 30,000	$ (3,013)	$ 26,987
Developed product rights[2]	309,180	(23,215)	285,965	370,560	(35,946)	334,614
Total amortizable intangible assets	309,180	(23,215)	285,965	400,560	(38,959)	361,601
Intangible assets not subject to amortization:						
In-process research and development	$ —	$ —	$ —	$ 253,620	$ —	$ 253,620
Total intangible assets not subject to amortization	—	—	—	253,620	—	253,620
Total intangible assets	$ 309,180	$ (23,215)	$ 285,965	$ 654,180	$ (38,959)	$ 615,221

(1) The Company amortizes intangible assets related to the product licenses over their expected useful lives.

(2) The Company amortizes intangible assets related to developed product rights over the remaining life of the patents.

In the third quarter of 2017, the Company reclassified $188.6 million of IPR&D assets to developed product rights due to the approval of Vabomere in the United States and commenced amortization over its estimated useful life.

The Company recognized amortization expense of approximately $3.1 million and $6.5 million for the three months ended September 30, 2017 and 2016 , respectively, and approximately $11.6 million and $19.3 million during the nine months ended September 30, 2017 and 2016 , respectively, related to its intangible assets. The Company expects amortization expense related to its intangible assets to be approximately $5.4 million for the last three months of 2017. The Company expects annual amortization expense related to its intangible assets to be approximately $21.4 million, $21.4 million, $21.4 million, $21.4 million and $21.4 million for the years ending December 31, 2018, 2019, 2020, 2021 and 2022, respectively, with the balance of $173.6 million being amortized thereafter. The Company records amortization expense in cost of revenue in the accompanying condensed consolidated statements of operations.

In the second quarter of 2017 the Company recorded impairment charges of $226.5 million and $26.2 million to reduce the unamortized carrying amounts of the developed product rights and product licenses, respectively, associated with Ionsys to their estimated fair values of zero which is a Level 3 fair value measurement, as a result of the discontinuation and market withdrawal of Ionsys which became effective on June 19, 2017. In the second quarter of 2017, the Company recorded impairment charges of $65.0 million to reduce the carrying amount of the in-process research and development associated with MDCO-700 to an estimated fair value of zero, which is a Level 3 fair value measurement, in connection with management's decision to discontinue the MDCO-700 trials. These impairment charges were recorded in asset impairment charges in the accompanying condensed consolidated statements of operations. See Note 1, "Nature of Business," for further details and Note 7, "Fair Value Measurements," for definitions of hierarchy levels.

There were no changes in the carrying amount of goodwill for the nine months ended September 30, 2017 .

10. Convertible Senior Notes

Convertible Senior Notes Due 2023

In June 2016, the Company issued, at par value, $402.5 million aggregate principal amount of 2.75% convertible senior notes due 2023 (the "2023 Notes"). The 2023 Notes bear cash interest at a rate of 2.75% per year, payable semi-annually on January 15 and July 15 of each year, beginning on January 15, 2017. The 2023 Notes will mature on July 15, 2023. The net proceeds to the Company from the offering were $390.8 million after deducting the initial purchasers' discounts and commissions and the offering expenses payable by the Company.

The 2023 Notes are governed by an indenture (the "2023 Notes Indenture") with Wells Fargo Bank, National Association, a national banking association, as trustee (the "2023 Notes Trustee").

The 2023 Notes are senior unsecured obligations of the Company and will rank senior in right of payment to the Company's future indebtedness that is expressly subordinated in right of payment to the 2023 Notes; equal in right of payment to the Company's existing and future unsecured indebtedness that is not so subordinated; effectively junior in right of payment to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all existing and future indebtedness and other liabilities (including trade payables) incurred by the Company's subsidiaries.

Holders may convert their 2023 Notes at their option at any time prior to the close of business on the business day immediately preceding April 15, 2023 only under the following circumstances:

- during any calendar quarter commencing on or after September 30, 2016 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

- during the five business day period after any five consecutive trading day period (the ''measurement period'') in which the trading price (as defined in the 2023 Notes Indenture) per $1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day;

- during any period after the Company has issued notice of redemption until the close of business on the scheduled trading day immediately preceding the relevant redemption date; or

- upon the occurrence of specified corporate events.

On or after April 15, 2023, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their 2023 Notes at any time, regardless of the foregoing circumstances. Upon conversion, the Company will pay or deliver, as the case may be, cash, shares of the Company's common stock or a combination thereof, at the Company's option, based upon a daily conversion value calculated on a proportionate basis for each trading day in a 50 trading day observation period (as more fully described in the 2023 Notes Indenture). The conversion rate for the 2023 Notes was initially, and remains, 20.4198 shares of the Company's common stock per $1,000 principal amount of the 2023 Notes, which is equivalent to an initial conversion price of approximately $48.97 per share of the Company's common stock.

The Company may not redeem the 2023 Notes prior to July 15, 2020. The Company may redeem for cash all or any portion of the 2023 Notes, at its option, on or after July 15, 2020 if the last reported sale price of its common stock has been at least 130% of the conversion price then in effect on the last trading day of, and for at least 19 other trading days (whether or not consecutive) during, any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which the Company provides notice of redemption, at a redemption price equal to 100% of the principal amount of the 2023 Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. No redemption date may be designated that falls on or after the 52nd scheduled trading date prior to maturity. No sinking fund is provided for the 2023 Notes, which means that the Company is not required to redeem or retire the 2023 Notes periodically.

If the Company undergoes a fundamental change (as defined in the 2023 Notes Indenture), subject to certain conditions, holders of the 2023 Notes may require the Company to repurchase for cash all or part of their 2023 Notes at a repurchase price equal to

100% of the principal amount of the 2023 Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

The 2023 Notes Indenture governing the 2023 Notes contains customary events of default with respect to the 2023 Notes, including that upon certain events of default (including the Company's failure to make any payment of principal or interest on the 2023 Notes when due and payable) occurring and continuing, the 2023 Notes Trustee by notice to the Company, or the holders of at least 25% in principal amount of the outstanding 2023 Notes by notice to the Company and the 2023 Notes Trustee, may, and the 2023 Notes Trustee at the request of such holders (subject to the provisions of the 2023 Notes Indenture) shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the 2023 Notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization, involving the Company or a significant subsidiary, 100% of the principal of and accrued and unpaid interest on the 2023 Notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

In accounting for the issuance of the 2023 Notes, the Company separated the 2023 Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar liability that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was determined by deducting the fair value of the liability component from the par value of the 2023 Notes as a whole. The excess of the principal amount of the liability component over its carrying amount, referred to as the debt discount, is amortized to interest expense over the seven-year term of the 2023 Notes. The equity component is not re-measured as long as it continues to meet the conditions for equity classification. The equity component related to the 2023 Notes is $101.0 million and is recorded in additional paid-in capital on the accompanying condensed consolidated balance sheet.

In accounting for the transaction costs related to the issuance of the 2023 Notes, the Company allocated the total costs incurred to the liability and equity components of the 2023 Notes based on their relative values. Transaction costs attributable to the liability component are amortized to interest expense over the seven-year term of the 2023 Notes, and transaction costs attributable to the equity component are netted with the equity components in stockholders' equity. Additionally, the Company initially recorded a net deferred tax liability of $33.5 million in connection with the 2023 Notes.

The 2023 Notes consist of the following:

Liability component	September 30, 2017	December 31, 2016
	(in thousands)	
Principal	$ 402,500	$ 402,500
Less: Debt discount, net[1]	(93,778)	(103,162)
Net carrying amount	$ 308,722	$ 299,338

(1) Included in the accompanying condensed consolidated balance sheets within convertible senior notes (due 2023) and amortized to interest expense over the remaining life of the 2023 Notes using the effective interest rate method.

The fair value of the 2023 Notes was approximately $424.3 million as of September 30, 2017. The Company estimates the fair value of its 2023 Notes utilizing market quotations for debt that have quoted prices in active markets. Since the 2023 Notes do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities, which are classified as Level 2 measurements within the fair value hierarchy. See Note 7, "Fair Value Measurements," for definitions of hierarchy levels. As of September 30, 2017, the remaining contractual life of the 2023 Notes is approximately 5.8 years.

The following table sets forth total interest expense recognized related to the 2023 Notes:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(in thousands)		(in thousands)	
Contractual interest expense	$ 2,767	$ 2,777	$ 8,293	$ 3,381
Amortization of debt discount	3,205	2,923	9,384	3,650
Total	$ 5,972	$ 5,700	$ 17,677	$ 7,031
Effective interest rate of the liability component	7.5%	7.5%	7.5%	7.5%

Capped call transactions

In June 2016, the Company entered into capped call transactions with certain counterparties of the 2023 Notes or their respective affiliates or other financial institutions. The Company used approximately $33.9 million of the net proceeds from the offering to pay the cost of the capped call transactions, which is included as a net reduction to additional paid-in capital on the accompanying condensed consolidated balance sheet.

The capped call transactions are expected to reduce the potential dilution with respect to shares of the Company's common stock upon any conversion of the 2023 Notes and/or offset any cash payments the Company is required to make in excess of the principal amount of converted 2023 Notes, as the case may be, if the market price of the Company's common stock is then greater than the strike price of the capped call transactions. Such reduction of potential dilution or offset of cash payments is subject to a cap based on the cap price of the capped call transactions. The cap price of the capped calls is currently $64.68.

For any conversions of the 2023 Notes prior to the close of business on the 52 nd scheduled trading day immediately preceding the stated maturity date of the 2023 Notes, including without limitation upon an acquisition of the Company or similar business combination, a corresponding portion of the capped calls will be terminated. Upon such termination, the portion of the capped calls being terminated will be settled at fair value (subject to certain limitations), as determined by the counterparties to the capped calls and no payments will be due from the Company to such counterparties. The capped calls expire on the earlier of (i) the last day on which any Convertible Securities remain outstanding and (ii) the second "Scheduled Trading Day" (as defined in the 2023 Notes Indenture) immediately preceding the "Maturity Date" (as defined in the 2023 Notes Indenture).

Convertible Senior Notes Due 2022

The 2022 Notes bear cash interest at a rate of 2.5% per year, payable semi-annually on January 15 and July 15 of each year, beginning on July 15, 2015. The 2022 Notes will mature on January 15, 2022. The net proceeds to the Company from the offering were $387.2 million after deducting the initial purchasers' discounts and commissions and the offering expenses payable by the Company.

The 2022 Notes are governed by an indenture (the "2022 Notes Indenture") with Wells Fargo Bank, National Association, a national banking association, as trustee (the "2022 Notes Trustee").

The 2022 Notes are senior unsecured obligations of the Company and will rank senior in right of payment to the Company's future indebtedness that is expressly subordinated in right of payment to the 2022 Notes; equal in right of payment to the Company's existing and future unsecured indebtedness that is not so subordinated; effectively junior in right of payment to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all existing and future indebtedness and other liabilities (including trade payables) incurred by the Company's subsidiaries.

Holders may convert their 2022 Notes at their option at any time prior to the close of business on the business day immediately preceding October 15, 2021 only under the following circumstances:

- during any calendar quarter commencing on or after March 31, 2015 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

- during the five business day period after any five consecutive trading day period (the measurement period) in which the trading price (as defined in the 2022 Notes Indenture) per $1,000 principal amount of 2022 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day;

- during any period after the Company has issued notice of redemption until the close of business on the scheduled trading day immediately preceding the relevant redemption date; or

- upon the occurrence of specified corporate events.

During the first quarter of 2017, the conditional conversion feature of the 2022 Notes was triggered based on the trading price of the Company's common stock during the first quarter of 2017, and the holders were entitled to convert the 2022 Notes through June 30, 2017. In any period when holders of the 2022 Notes are eligible to exercise their conversion option, the liability component related to the 2022 Notes is classified as current and the difference between (1) the amount of cash deliverable upon conversion (i.e., par value of debt) and (2) the carrying value of the liability component is classified as mezzanine (temporary) equity, as the Company is required to settle the aggregate principal amount of the notes in cash. If in any future period the conversion threshold requirements of the 2022 Notes are not met, then the liability component of the 2022 Notes will be classified as non-current and the difference between (1) the amount of cash deliverable upon conversion (i.e., par value of debt) and (2) the carrying value of the debt component will be reclassified from mezzanine equity to permanent equity, and will continue to be reported as permanent equity for any period in which the debt is not currently convertible.

During the second quarter of 2017 an immaterial amount of the 2022 Notes were submitted for conversion. On July 1, 2017, the conditional conversion feature of the 2022 Notes was no longer triggered based on the trading price of the Company's common stock.

On or after October 15, 2021, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their 2022 Notes at any time, regardless of the circumstances described above. Upon conversion, the Company will pay cash up to the aggregate principal amount of the 2022 Notes to be converted and deliver shares of its common stock in respect of the remainder, if any, of its conversion obligation in excess of the aggregate principal amount of 2022 Notes being converted, subject to a daily share cap.

The conversion rate for the 2022 Notes was initially, and remains, 29.8806 shares of the Company's common stock per $1,000 principal amount of the 2022 Notes, which is equivalent to an initial conversion price of approximately $33.47 per share of the Company's common stock.

The Company may not redeem the 2022 Notes prior to January 15, 2019. The Company may redeem for cash all or any portion of the 2022 Notes, at its option, on or after January 15, 2019 if the last reported sale price of its common stock has been at least 130% of the conversion price then in effect on the last trading day of, and for at least 19 other trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which the Company provides notice of redemption, at a redemption price equal to 100% of the principal amount of the 2022 Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. No sinking fund is provided for the 2022 Notes, which means that the Company is not required to redeem or retire the 2022 Notes periodically.

If the Company undergoes a "fundamental change" (as defined in the Indenture governing the 2022 Notes Indenture), subject to certain conditions, holders of the 2022 Notes may require the Company to repurchase for cash all or part of their 2022 Notes at a repurchase price equal to 100% of the principal amount of the 2022 Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

The 2022 Notes Indenture contains customary events of default with respect to the 2022 Notes, including that upon certain events of default (including the Company's failure to make any payment of principal or interest on the 2022 Notes when due and payable) occurring and continuing, the 2022 Notes Trustee by notice to the Company, or the holders of at least 25% in principal amount of the outstanding 2022 Notes by notice to the Company and the 2022 Notes Trustee, may, and the 2022 Notes Trustee at the request of such holders (subject to the provisions of the 2022 Notes Indenture) shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the 2022 Notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization, involving the Company or a significant subsidiary, 100% of the principal of and accrued and unpaid interest on the 2022 Notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

In accounting for the issuance of the 2022 Notes, the Company separated the 2022 Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar liability that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was determined by deducting the fair value of the liability component from the par value of the 2022 Notes as a whole. The excess of the principal amount of the liability component over its carrying amount, referred to as the debt discount, is amortized to interest expense over the seven-year term of the 2022 Notes. The equity component is not re-measured as long as it continues to meet the conditions for equity classification. The equity component related to the 2022 Notes was $88.9 million and was recorded in additional paid-in capital on the accompanying condensed consolidated balance sheets.

In accounting for the transaction costs related to the issuance of the 2022 Notes, the Company allocated the total costs incurred to the liability and equity components of the 2022 Notes based on their relative values. Transaction costs attributable to the liability component are amortized to interest expense over the seven-year term of the 2022 Notes, and transaction costs attributable to the equity component are netted with the equity components in stockholders' equity. Additionally, the Company initially recorded a net deferred tax liability of $31.8 million in connection with the 2022 Notes.

The 2022 Notes consist of the following:

Liability component	September 30, 2017	December 31, 2016
	(in thousands)	
Principal	$ 399,997	$ 400,000
Less: Debt discount, net[1]	(66,064)	(75,754)
Net carrying amount	$ 333,933	$ 324,246

(1) Included in the accompanying condensed consolidated balance sheets within convertible senior notes (due 2022) and amortized to interest expense over the remaining life of the 2022 Notes using the effective interest rate method.

The fair value of the 2022 Notes was approximately $504.7 million as of September 30, 2017. The Company estimates the fair value of its 2022 Notes utilizing market quotations for debt that have quoted prices in active markets. Since the 2022 Notes do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities, which are classified as Level 2 measurements within the fair value hierarchy. See Note 7, "Fair Value Measurements," for definitions of hierarchy levels. As of September 30, 2017, the remaining contractual life of the 2022 Notes is approximately 4.3 years.

The following table sets forth total interest expense recognized related to the 2022 Notes:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(in thousands)		(in thousands)	
Contractual interest expense	$ 2,500	$ 2,500	$ 7,500	$ 7,500
Amortization of debt discount	3,298	3,078	9,690	9,043
Total	$ 5,798	$ 5,578	$ 17,190	$ 16,543
Effective interest rate of the liability component	6.5%	6.5%	6.5%	6.5%

Convertible Senior Notes Due 2017

In June 2012, the Company issued, at par value, $275.0 million aggregate principal amount of 1.375% convertible senior notes due June 1, 2017 (the "2017 Notes"). The net proceeds to the Company from the offering were $266.2 million after deducting the initial purchasers' discounts and commissions and the offering expenses payable by the Company. The 2017 Notes were senior unsecured obligations of the Company and paid cash interest at a rate of 1.375% per year, payable semi-annually on June 1 and December 1 of each year. The conversion rate for the 2017 Notes was 35.8038 shares of the Company's common stock per $1,000 principal amount of the 2017 Notes, which is equivalent to an initial conversion price of $27.93 per share of the Company's common stock.

In June 2016, the Company used approximately $323.2 million of the net proceeds of the 2023 Notes to repurchase $220.0 million in aggregate principal amount of the 2017 Notes in privately negotiated transactions effected through the initial purchasers of the 2017 Notes. As part of the June 2016 repurchase of the 2017 Notes, the Company settled a proportionate amount of outstanding bond hedges and warrants related to the 2017 Notes for a net cash receipt of $12.6 million. The Company recorded a loss of $5.4 million on the extinguishment of debt during the three months ended June 30, 2016 and accounted for the difference of $108.7 million between the consideration transferred to the holder and the fair value of the liability component of the 2017 Notes as a reduction of additional paid-in capital on the accompany condensed consolidated balance sheet.

The 2017 Notes that remained outstanding after the 2016 repurchase matured on June 1, 2017. In connection with the maturity of the 2017 Notes, the holders converted substantially all of the outstanding principal amount of the 2017 Notes, the Company paid cash to the converting 2017 Note holders equal to $55.4 million in respect of principal, interest and fractional shares on the 2017 Notes to be converted and delivered 819,901 shares of the Company's common stock.

The 2017 Notes consist of the following:

Liability component	September 30, 2017	December 31, 2016
	(in thousands)	
Principal	$ —	$ 55,000
Less: Debt discount, net[1]	—	(1,251)
Net carrying amount	$ —	$ 53,749

(1) Included in the accompanying condensed consolidated balance sheets within convertible senior notes (due 2017) and amortized to interest expense over the remaining life of the 2017 Notes using the effective interest rate method.

The following table sets forth total interest expense recognized related to the 2017 Notes:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(in thousands)		(in thousands)	
Contractual interest expense	$ —	$ 189	$ 315	$ 1,912
Amortization of debt discount	—	621	1,251	6,699
Total	$ —	$ 810	$ 1,566	$ 8,611
Effective interest rate of the liability component	6.02%	6.02%	6.02%	6.02%

Note Hedges

In June 2012, the Company paid an aggregate amount of $58.2 million for the 2017 Note Hedges, which was recorded as a reduction of additional paid-in-capital in stockholders' equity. As part of the June 2016 repurchase of $220.0 million in aggregate principal amount of the 2017 Notes, the Company settled the related hedges and received cash of approximately $100.5 million. The remaining 2017 Note Hedges covered approximately two million shares of the Company's common stock, subject to anti-dilution adjustments substantially similar to those applicable to the 2017 Notes, had a strike price that corresponded to the initial conversion price of the 2017 Notes, and were exercisable upon conversion of the 2017 Notes. The 2017 Note Hedges were separate transactions entered into by the Company with the 2017 Hedge Counterparties and were not part of the terms of the 2017 Notes or the 2017 Warrants. Holders of the 2017 Notes and 2017 Warrants did not have any rights with respect to the 2017 Note Hedges. On June 1, 2017, in connection with the maturity of the 2017 Notes, the Company redeemed the 2017 Note Hedges and received from the Note Hedge counterparties approximately 820,000 shares at a weighted average price of $48.79 per share. The redemption offset the dilution with respect to shares of the Company's common stock issued upon the conversion of the 2017 Notes. The shared delivered to the Company in connection with the redemption of the 2017 Notes Hedges are held by the Company as treasury shares.

Warrants

In June 2012, the Company received aggregate proceeds of $38.4 million from the sale of warrants to the 2017 Hedge Counterparties, which the Company recorded as additional paid-in-capital in stockholders' equity. The 2017 Warrants are separate transactions entered into by the Company with the 2017 Hedge Counterparties and are not part of the terms of the 2017 Notes or 2017 Note Hedges. Holders of the 2017 Notes and 2017 Note Hedges did not have any rights with respect to the 2017 Warrants. The 2017 Warrants also meet the definition of a derivative. Because the 2017 Warrants are indexed to the Company's common stock and are recorded in equity in the Company's condensed consolidated balance sheets, the 2017 Warrants are exempt from the scope and fair value provisions related to accounting for derivative instruments.

As part of the June 2016 repurchase of $220.0 million in aggregate principal amount of the 2017 Notes, the Company paid $87.9 million to settle the related warrants. The remaining 2017 Warrants, which continued to remain outstanding after the maturity of the 2017 Notes, are to purchase up to approximately two million shares of the Company's common stock, subject to customary

anti-dilution adjustments, at a strike price of $34.20 per share. The 2017 Warrants will have a dilutive effect with respect to the Company's common stock to the extent that the market price per share of the Company's common stock, as measured under the terms of the 2017 Warrants, exceeds the applicable strike price. The warrants will be net-settled, provided that subject to certain conditions the Company may elect to settle all of the 2017 Warrants in cash. The 2017 Warrants expired beginning in August 2017 and will continue to expire on a series of expiration dates through December 2017. During the three months ended September 30, 2017, the holders of the 2017 Warrants exercised 443,070 warrants on a net basis and as a result the Company issued 24,217 shares of common stock. The Company has 1,427,679 warrants outstanding as of September 30, 2017.

11. Accumulated Other Comprehensive Loss

The following tables provide a reconciliation of the components of accumulated other comprehensive loss, net of tax, attributable to The Medicines Company for the three and nine months ended September 30, 2017 and 2016:

	Three Months Ended September 30,					
	2017			2016		
	Foreign currency translation adjustment	Unrealized loss on available for sale securities	Total	Foreign currency translation adjustment	Unrealized loss on available for sale securities	Total
	(in thousands)					
Balance at beginning of period	$ (5,439)	$ (7)	$ (5,446)	$ (5,414)	$ —	$ (5,414)
Other comprehensive loss before reclassifications	487	10	497	(70)	—	(70)
Total other comprehensive loss	487	10	497	(70)	—	(70)
Balance at end of period	$ (4,952)	$ 3	$ (4,949)	$ (5,484)	$ —	$ (5,484)

	Nine Months Ended September 30,					
	2017			2016		
	Foreign currency translation adjustment	Unrealized loss on available for sale securities	Total	Foreign currency translation adjustment	Unrealized gain (loss) on available for sale securities	Total
	(in thousands)					
Balance at beginning of period	$ (5,479)	$ —	$ (5,479)	$ 3,924	$ 49	$ 3,973
Other comprehensive income before reclassifications	527	3	530	208	—	208
Amounts reclassified from accumulated other comprehensive income[1] [2]	—	—	—	(9,616)	(49)	(9,665)
Total other comprehensive (loss) income	527	3	530	(9,408)	(49)	(9,457)
Balance at end of period	$ (4,952)	$ 3	$ (4,949)	$ (5,484)	$ —	$ (5,484)

(1) Amounts were reclassified to other income in the accompanying condensed consolidated statements of operations. There is generally no tax impact related to foreign currency translation adjustments, as earnings are considered permanently reinvested. In addition, there were no material tax impacts related to unrealized gains or losses on available for sale securities in the periods presented.

(2) See Note 16, "Discontinued Operations," for a discussion of this reclass of foreign currency translation adjustment.

12. Segment and Geographic Information

The Company manages its business and operations as one segment and is focused on advancing the treatment of acute and intensive care patients through the delivery of innovative, cost-effective medicines to the worldwide hospital marketplace. The Company allocates resources and assesses financial performance on a consolidated basis. Revenues reported below are derived primarily from sales of Angiomax in the United States, including royalty revenue from Sandoz.

The geographic segment information provided below is classified based on the major geographic regions in which the Company operates. Long-lived assets are comprised of the Company's noncurrent assets.

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017		2016		2017		2016	
	($ in thousands)							
Net revenues:								
United States	$ 15,460	91.6%	$ 35,662	94.8%	$ 55,062	92.0%	$ 133,273	93.3%
Europe	1,208	7.2%	1,726	4.6%	4,355	7.3%	7,544	5.3%
Rest of world	203	1.2%	211	0.6%	412	0.7%	1,819	1.4%
Total net revenues	$ 16,871	100%	$ 37,599	100.0%	$ 59,829	100.0%	$ 142,636	100.0%

	September 30, 2017		December 31, 2016	
	($ in thousands)			
Long-lived assets:				
United States	$ 708,309	99.9%	$ 1,047,098	99.6%
Europe	833	0.1%	4,160	0.4%
Total long-lived assets	$ 709,142	100.0%	$ 1,051,258	100.0%

13. Contingencies

The Company may be, from time to time, a party to various disputes and claims arising from normal business activities. The Company accrues for loss contingencies when available information indicates that it is probable that a liability has been incurred and the amount of such loss can be reasonably estimated. In the cases where the Company believes that a reasonably possible loss exists, the Company discloses the facts and circumstances of the litigation, including an estimable range, if possible.

The Company is currently party to the legal proceedings described in Part II, Item 1, Legal Proceedings, of this Quarterly Report on Form 10-Q, which include patent litigation matters and litigation related to a license agreement. The Company has assessed such legal proceedings and does not believe that it is probable that a liability has been incurred or that the amount of any potential liability can be reasonably estimated. As a result, the Company did not record a loss contingency related to any of these legal proceedings. Particularly with respect to the litigation related to a license agreement, the Company is presently unable to predict the outcome of such lawsuit or to reasonably estimate the possible loss, or range of potential losses, if any, related to such lawsuit. While it is not possible to determine the outcome of the matters described in Part II, Item 1, Legal Proceedings, of this Quarterly Report on Form 10-Q, the Company believes that the resolution of all such matters could have a material adverse effect on its financial condition or results of operations and cash flows.

14. Restructuring

On June 1, 2017, the Company voluntarily discontinued and withdrew Ionsys from the market in the United States and ceased related commercialization activities, effective June 19, 2017, with the New Drug Application for Ionsys remaining open to December 31, 2017. Concurrent with this market withdrawal, the Company commenced implementation of a workforce reduction, which resulted in the reduction of 57 employees, representing approximately 15% of the Company's workforce. The Company recorded a pre-tax charge of approximately $276.9 million associated with the discontinuation and market withdrawal of Ionsys in the United States market, of which $268.1 million was a non-cash impairment charge (including a write-off of inventory), $5.8 million relates to cash severance and $3.0 million relates to other exit costs. The Company has also discontinued Ionsys in the European market.

The impacted employees are eligible to receive severance payments in specified amounts, health benefits and outplacement services. The Company has and will record these charges in cost of goods sold, research and development and selling, general and administrative expenses based on responsibilities of the impacted employees.

The following table sets forth details regarding the activities described above during the nine months ended September 30, 2017 :

	Balance as of January 1, 2017	Expenses, Net	Cash	Noncash	Balance as of September 30, 2017
			(in thousands)		
Employee severance and other personnel benefits:	$ —	$ 5.9	$ (5.1)	$ (0.1)	$ 0.7

15. Dispositions

On June 21, 2016, the Company completed the sale of its Non-Core ACC Products pursuant to the purchase and sale agreement dated May 9, 2016 by and among the Company, Chiesi USA and Chiesi. At the completion of the sale, the Company received approximately $263.8 million in cash, which included the value of product inventory, and may receive up to an additional $480.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of each of Cleviprex and Kengreal.

The following table presents the consideration received, major classes of assets sold and the gain recognized on the sale of the Non-Core ACC Products:

	(in thousands)
Sale price:	
Cash	$ 263,807
Contingent purchase price from sale of business	65,700
Total sale price	329,507
Assets:	
Inventory	2,184
Intangibles	5,210
Goodwill	33,812
Total assets sold	41,206
Gain on sale of business	$ 288,301

The Company recognized a gain on sale of business of approximately $288.3 million for the nine months ended September 30, 2016 in continuing operations. Disposition related costs during 2016 of approximately $7.9 million for advisory, legal and regulatory fees incurred in connection with the sale of the Non-Core ACC Products were recorded in selling, general and administrative expenses. See Note 7, “Fair Value Measurements,” for further details on the contingent purchase price from sale of businesses.

16. Discontinued Operations

Sale of Hemostasis Business

On February 1, 2016, the Company completed the sale of its Hemostasis Business to Mallinckrodt pursuant to the purchase and sale agreement dated December 18, 2015 between the Company and Mallinckrodt. At the completion of the sale, the Company received approximately $174.1 million in cash from Mallinckrodt, and may receive up to an additional $235.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of PreveLeak and Raplixa.

Financial results of the Hemostasis Business are presented as “Income (loss) from discontinued operations, net of tax” on the accompanying condensed consolidated statements of operations for the three and nine months ended September 30, 2016 .

The following table presents key financial results of the Hemostasis Business included in " Income (loss) from discontinued operations, net of tax" for the three and nine months ended September 30, 2016:

	Three Months Ended September 30,	Nine Months Ended September 30,
	2016	2016
Net product revenues	$ 28	$ 78
Operating expenses:		
Cost of product revenue	(9)	1,695
Research and development	(15)	104
Selling, general and administrative	(44)	634
Total operating expenses	(68)	2,433
Income (loss) from operations	96	(2,355)
Gain from sale of business	—	1,004
Other expense, net	—	(39)
Income (loss) from discontinued operations before income taxes	96	(1,390)
Benefit for income taxes	—	—
Income (loss) from discontinued operations, net of tax	$ 96	$ (1,390)

Cumulative translation adjustment ("CTA") gains or losses of foreign subsidiaries related to divested businesses are reclassified into income once the liquidation of the respective foreign subsidiaries is substantially complete. At the completion of the sale of the Hemostasis Business, the Company reclassified $9.6 million, net of tax, of CTA gains from accumulated comprehensive loss to the Company's results of discontinued operations. Of this amount, $8.4 million was included in the impairment loss recorded to reduce the Hemostasis Business disposal group's carrying value to its estimated fair value, less costs to sell as of December 31, 2015 and $1.2 million was included in "Gain from sale of business" for the nine months ended September 30, 2016 .

17. Subsequent Events

On October 25, 2017, the Company announced its intention to commence a series of workforce reductions, independent of the potential divestiture of the Company's infectious disease business (the "Workforce Reductions"), to improve efficiencies and better align its costs and structure. As a result of the Workforce Reductions and the potential infectious disease business divestiture, the Company plans to reduce its personnel to less than 60 employees. Upon signing release agreements, affected employees will receive the Company's severance package, including reduction payments and fully paid health care coverage and outplacement services for six months to a year. The Company expects to substantially implement the Workforce Reductions in December 2017.

The Company expects to record, in the aggregate, charges of approximately $13 million to $18 million associated with the Workforce Reductions, which will be recognized beginning in the fourth quarter of 2017 and through the second quarter of 2018. Substantially all of these charges are expected to represent cash expenditures. In addition to the Workforce Reductions, additional restructuring charges are expected to be incurred but cannot be estimated at this time.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and accompanying notes included elsewhere in this Quarterly Report on Form 10-Q. In addition to the historical information, the discussion in this Quarterly Report on Form 10-Q contains certain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated by the forward-looking statements due to our critical accounting estimates discussed below and important factors set forth in this Quarterly Report on Form 10-Q, including under "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q.

Overview

Our Business

We are a global biopharmaceutical company focused on saving lives, alleviating suffering and contributing to the economics of healthcare. We market Angiomax® (bivalirudin), Minocin® (minocycline) for injection and Orbactiv ® (oritavancin), and in August 2017 the U.S. Food and Drug Administration, or FDA, approved our new drug application, or NDA, for Vabomere™ (meropenem and vaborbactam). The Company also has a pipeline of products in development, including inclisiran and early stage antibiotic candidates targeting multi-drug resistant bacteria. We have the right to develop, manufacture and commercialize inclisiran under our collaboration agreement with Alnylam Pharmaceuticals, Inc., or Alnylam. We believe that our products and products in development possess favorable attributes that competitive products do not provide, can satisfy unmet medical needs and offer, or in the case of our products in development have the potential to offer, improved performance.

On November 3, 2015, we announced that we were in the process of evaluating our operations with a goal of unlocking stockholder value. In particular, we stated our current intention was to explore strategies for optimizing our capital structure and liquidity position and to narrow our operational focus by strategically separating non-core businesses and products in order to generate non-dilutive cash and reduce associated cash burn and capital requirements.

On February 1, 2016, we completed the sale of our hemostasis portfolio, consisting of PreveLeak, Raplixa and Recothrom, to wholly owned subsidiaries of Mallinckrodt plc, or Mallinckrodt. At the completion of the sale, we received approximately $174.1 million in cash, and may receive up to an additional $235.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of PreveLeak and Raplixa. On June 21, 2016, we completed the sale of Cleviprex, Kengreal and rights to Argatroban for Injection, which we refer to collectively as Non-Core ACC Assets, to Chiesi USA, Inc., or Chiesi USA, and its parent company Chiesi Farmaceutici S.p.A., or Chiesi. At the completion of the sale, we received approximately $263.8 million in cash, which included the value of product inventory, and may receive up to an additional $480.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of each of Cleviprex and Kengreal.

Consistent with our intentions announced in November 2015, in January 2017 we announced that we were seeking opportunities to partner or divest Ionsys and are exploring alternatives for monetizing, in whole or in part, our infectious disease business.

Although we continue to seek a partnership or divestiture transaction for Ionsys, on June 1, 2017 we voluntarily discontinued and withdrew Ionsys from the market in the United States and ceased related commercialization activities, effective June 19, 2017, with the NDA for Ionsys remaining open to December 31, 2017. Concurrent with this market withdrawal, we commenced implementation of a workforce reduction, which resulted in the reduction of 57 employees, representing approximately 15% of our workforce. We recorded a pre-tax charge of approximately $276.9 million associated with the discontinuation and market withdrawal of Ionsys in the United States market, of which $268.1 million was a non-cash impairment charge (including a write-off of inventory) and $8.8 million relates to cash severance and other exit costs. We have also discontinued and withdrawn Ionsys in the European market. Until October 2017, we had an exclusive license with SymBio Pharmaceuticals Ltd., or SymBio, to develop and commercialize Ionsys in Japan. That agreement terminated in connection with a legal dispute with SymBio, as described in Part II, Item 1. Legal Proceedings of this Quarterly Report on Form 10-Q.

We also announced in August 2017 that we are discontinuing the clinical development program for MDCO-700, an investigational anesthetic agent.

The following table identifies each of our marketed and approved products and our products in development, their stage of development, their mechanism of action and the indications for which they have been approved for use or which they are intended to address. All of our products and products in development, except for inclisiran, are administered intravenously. Inclisiran is being developed as a subcutaneous injectable.

Product or Product in Development	Development Stage	Mechanism/Target	Clinical Indication(s)/Therapeutic Areas
Marketed and Approved Products			
Angiomax	Marketed as a branded product, and as an authorized generic in the United States through Sandoz	Direct thrombin inhibitor	U.S. - for use as an anticoagulant in combination with aspirin in patients with unstable angina undergoing percutaneous transluminal coronary angioplasty, or PTCA, and for use in patients undergoing percutaneous coronary intervention, or PCI, including patients with or at risk of heparin induced thrombocytopenia and thrombosis syndrome, or HIT/HITTS
			Europe - for use as an anticoagulant in patients undergoing PCI, adult patients with acute coronary syndrome, or ACS, and for the treatment of patients with ST-segment elevation myocardial infarction, or STEMI, undergoing primary PCI
Minocin IV	Marketed in the United States	Tetracycline-class antibiotic	Treatment of bacterial infections due to susceptible isolates of designated microorganisms, including Acinetobacter species.
Orbactiv	Marketed in the United States; Approved in the European Union	Antibiotic	Treatment of adult patients with acute bacterial skin and skin structure infections, or ABSSSI, caused or suspected to be caused by susceptible isolates of the label-designated gram-positive microorganisms, including methicillin-resistant Staphylococcus aureus, or MRSA
Vabomere	Approved in the United States; MAA submission in the European Union accepted for review in third quarter 2017	Combination of vaborbactam, a proprietary, novel beta-lactamase inhibitor, with meropenem, a carbapenem antibiotic	Treatment of adult patients with complicated urinary tract infections, including pyelonephritis, caused by designated susceptible Enterobacteriaceae – Escherichia coli, Klebsiella pneumoniae and Enterobacter cloacae species complex
Research and Development Stage			
Inclisiran	Phase 3	PCSK-9 gene antagonist addressing low-density lipoprotein cholesterol disease modification	Treatment of hypercholesterolemia

Our revenues to date have been generated primarily from sales of Angiomax in the United States. In the three and nine months ended September 30, 2017 , we had net product revenues from sales of Angiomax of approximately $2.0 million and $14.2 million, respectively, and aggregate net revenues from sales of Minocin IV, Orbactiv and Ionsys of approximately $9.0 million and $24.0 million, respectively. During this period, net product revenues from sales of Angiomax decreased by $8.2 million and $28.7 million, respectively, from the three and nine months ended September 30, 2016 . As a result of our July 2015 supply and distribution agreement with Sandoz, we recognized $5.9 million and $21.7 million, respectively, for the three and nine months ended September 30, 2017 of royalty revenues related to the authorized generic sales of Angiomax (bivalirudin). We expect that net revenue from sales of Angiomax will continue to decline in 2017 and in future years due to competition from generic versions of bivalirudin following the loss of market exclusivity in the United States in July 2015 and in Europe in August 2015. Based on our current business, we expect to incur net losses for the foreseeable future.

Cost of product revenues represents expenses in connection with contract manufacture of our products sold and logistics, product costs, royalty expenses and amortization of the costs of license agreements, amortization of product rights and other identifiable intangible assets from product and business acquisitions and expenses related to excess inventory. Research and development expenses represent costs incurred for licenses of rights to products, clinical trials, nonclinical and preclinical studies, regulatory filings and manufacturing development efforts. We outsource much of our clinical trials, nonclinical and preclinical studies and all of our manufacturing development activities to third parties to maximize efficiency and minimize our internal overhead. We expense our research and development costs as they are incurred. Selling, general and administrative expenses consist primarily of salaries and related expenses, costs associated with general corporate activities, changes in fair value of contingent purchase price obligations related to our acquisitions, and costs associated with marketing and promotional activities. Research and development expense, selling, general and administrative expense and cost of revenue also include share-based compensation expense, which we allocate based on the responsibilities of the recipients of the share-based compensation.

Angiomax Developments

We sell Angiomax in the United States under our name as a branded Angiomax product, and, on July 2, 2015, entered into a supply and distribution agreement with Sandoz Inc., or Sandoz, under which we granted Sandoz the exclusive right to sell in the United States an authorized generic of Angiomax (bivalirudin). We entered into the supply and distribution agreement as a result of the July 2, 2015 U.S. Court of Appeals for the Federal Circuit, or Federal Circuit Court, ruling against us in our patent infringement litigation with Hospira, Inc., or Hospira, with respect to U.S. Patent No. 7,582,727, or the ‘727 patent, and U.S. Patent No. 7,598,343, or the ‘343 patent, covering a more consistent and improved Angiomax drug product and the processes by which it is made. In addition to Hospira, other generic firms have entered the market. APP Pharmaceuticals LLC, or APP, through its affiliated company, Fresenius Kabi, commenced selling its generic version of Angiomax under provisions of a settlement agreement with us triggered by the Federal Circuit Court’s July 2, 2015 decision in the Hospira matter. Apotex Inc. and Dr. Reddy’s Laboratories have each also commenced commercialization of generic bivalirudin products upon receiving final approval if their respective ANDA filings by the FDA even though we remain in active litigation against each company. In addition, we expect Mylan Pharmaceuticals, Inc., or Mylan, to commence marketing its generic bivalirudin product as a result of a decision by the Federal Circuit Court in Mylan’s appeal that reversed an earlier district court decision that found that Mylan’s ANDA product infringed all of the asserted claims of the ‘727 patent.

A number of companies in addition to Hospira, Mylan, APP, Apotex Inc. and Dr. Reddy’s Laboratories have filed ANDAs for their generic versions of Angiomax. In addition the generic versions of bivalirudin currently being sold, Angiomax could be subject to further generic competition in the United States from Teva Pharmaceuticals USA, Inc. and its affiliates, or Teva, and Sun Pharmaceuticals Industries Ltd. and affiliates, or Sun, under the circumstances set forth in our respective settlement agreements with such parties and upon a final approval of each companies' ANDA filings by the FDA. Pliva Hrvatska DOO, an affiliate of Teva, currently has tentative approval for its ANDA filing for its generic version of Angiomax. Other ANDA filers may commercialize their products ‘at risk’ if they receive final approval of their respective ANDA filings and are not subject to a Hatch-Waxman 30-month stay. Further, we remain in infringement litigation involving the ‘727 patent and ‘343 patent with the other ANDA filers as described in Part II, Item 1. Legal Proceedings of this Quarterly Report on Form 10-Q. There can be no assurance as to the outcome of our infringement litigation. We may continue to incur substantial legal expenses related to these matters.

The principal patent covering Angiomax in Europe expired in August 2015. As a result, we face generic competition in Europe.

Business Development Activity

Sale of Non-Core Cardiovascular Products. On June 21, 2016, we completed the sale of our three non-core cardiovascular products, which we refer to as our Non-Core ACC Assets, to Chiesi USA and Chiesi. Under the terms of the purchase and sale

agreement, Chiesi and Chiesi USA acquired Cleviprex, Kengreal and rights to Argatroban for Injection and related assets, and assumed substantially all of the liabilities arising out of the operation of the businesses and the acquired assets after closing, including any obligations with respect to future milestones relating to Cleviprex, Kengreal and rights to Argatroban for Injection. At the completion of the sale, we received approximately $263.8 million in cash, which included the value of product inventory, and may receive up to an additional $480.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of each of Cleviprex and Kengreal. As part of the transaction to sell Non-Core ACC Assets, we sublicensed to Chiesi all of our rights to Cleviprex and Kengreal under our license from AstraZeneca. Subsequent to the completion of the sale, these sublicenses from us to Chiesi were terminated, Chiesi purchased from Astrazeneca all or substantially all of AstraZeneca's assets relating to Cleviprex and Kengreal, the parties released certain claims against one another, and we paid Chiesi $7.5 million.

Sale of Hemostasis Business. On February 1, 2016, we completed the sale of our hemostasis business, consisting of Preveleak, Raplixa and Recothrom products to wholly-owned subsidiaries of Mallinckrodt plc, or Mallinckrodt. Under the terms of the purchase and sale agreement, Mallinckrodt acquired all of the outstanding equity of Tenaxis Medical, Inc. and ProFibrix B.V. and assets exclusively related to the Recothrom product. Mallinckrodt assumed all liabilities arising out of Mallinckrodt's operation of the businesses and the acquired assets after closing, including all obligations with respect to milestones relating to the PreveLeak and Raplixa products. At the completion of the sale, we received approximately $174.1 million in cash from Mallinckrodt, and may receive up to an additional $235.0 million in the aggregate following the achievement of certain specified calendar year net sales milestones with respect to net sales of PreveLeak and Raplixa. The amount paid at closing was subject to a post-closing purchase price adjustment process with respect to the Recothrom inventory and the net working capital of the hemostasis business as of the date of the closing.

Rempex Pharmaceuticals, Inc. In December 2013, we acquired Rempex Pharmaceuticals, Inc., or Rempex, and Rempex became our wholly-owned subsidiary. As a result of the transaction, we acquired Rempex's marketed product, Minocin IV, a broad-spectrum tetracycline antibiotic, and Rempex's portfolio of product candidates, including RPX-602, a proprietary reformulation of Minocin IV utilizing magnesium sulfate, Carbavance, which at that time was an investigational agent that is a combination of vaborbactam, a proprietary, novel beta-lactamase inhibitor, with a carbapenem, and Rempex's other product candidates.

Under the terms of the merger agreement for the acquisition, we paid to the holders of Rempex's capital stock, the holders of options to purchase shares of Rempex's capital stock and the holders of certain phantom stock units, which we collectively refer to as the Rempex equityholders, an aggregate of approximately $140.0 million in cash, plus approximately $0.3 million in purchase price adjustments.

In addition, we agreed to pay to the Rempex equityholders milestone payments subsequent to the closing, if we achieve certain development and regulatory approval milestones and commercial sales milestones with respect to Minocin IV, RPX-602, Carbavance and Rempex's other product candidates, at the times and on the conditions set forth in the merger agreement. In the event that all of the milestones set forth in the merger agreement are achieved in accordance with the terms of the merger agreement, we agreed to pay the Rempex equityholders up to an additional $214.0 million in cash in the aggregate for achieving development and regulatory milestones and an additional $120.0 million in cash in the aggregate for achieving commercial milestones, in each case, less certain transaction expenses and employer taxes owing because of the milestone payments.

Pursuant to the terms of the merger agreement, as a result of certain milestone payments becoming due within eighteen months following the closing, in October 2014, we entered into an escrow agreement and deposited an aggregate of $14.0 million into an escrow fund during the fourth quarter of 2014. In June 2015, the escrow fund was released to the Rempex equityholders.

Alnylam License Agreement. In February 2013, we entered into a license and collaboration agreement with Alnylam to develop, manufacture and commercialize therapeutic products targeting the human PCSK-9 gene based on certain of Alnylam's RNAi technology. Under the terms of the agreement, we obtained the exclusive, worldwide right under Alnylam's technology to develop, manufacture and commercialize PCSK-9 products for the treatment, palliation and/or prevention of all human diseases. We paid Alnylam $25.0 million in an initial license payment and agreed to pay up to $180.0 million in success-based development, regulatory and commercialization milestones. In addition, Alnylam will be eligible to receive scaled double-digit royalties based on annual worldwide net sales of PCSK-9 products by us or our affiliates and sublicensees. Royalties to Alnylam are payable on a product-by-product and country-by-country basis until the last to occur of the expiration of patent rights in the applicable country that cover the applicable product, the expiration of non-patent regulatory exclusivities for such product in such country, and the twelfth anniversary of the first commercial sale of the product in such country. The royalties are subject to reduction in specified circumstances. We are also responsible for paying royalties, and in some cases milestone payments, owed by Alnylam to its licensors with respect to intellectual property covering these products. Alnylam was responsible for developing the lead product through the end of the first Phase 1 clinical trial and to supply the lead product for the first Phase 1 clinical trial and the first phase 2 clinical trial. Alnylam will bear the costs for these activities, subject to certain caps on its costs. If Alnylam's development and

supply costs exceed the applicable cap, Alnylam need not bear any additional development and supply costs except for costs directly caused by Alnylam's gross negligence and we shall have the option to assume such excess costs. We will direct and pay for all other development, manufacturing and commercialization activities under the agreement.

Targanta Therapeutics Corporation. In February 2009, we acquired Targanta Therapeutics Corporation, or Targanta, a biopharmaceutical company focused on developing and commercializing innovative antibiotics to treat serious infections in the hospital and other institutional settings.

Under the terms of our agreement with Targanta, we paid Targanta shareholders an aggregate of approximately $42.0 million in cash at closing. In addition, we originally agreed to pay contingent cash payments up to an additional $90.4 million in the aggregate. This amount has been reduced to $49.4 million as certain milestones have not been achieved by specified dates. We will owe $49.4 million if aggregate net sales of Orbactiv in four consecutive calendar quarters ending on or before December 31, 2021 reach or exceed $400.0 million, and up to an additional $40.0 million in additional payments to other third parties.

Agreements with Biomedical Advanced Research and Development Authority (BARDA)

2016 BARDA OTA Agreement. In September 2016, we entered into an agreement with the Biomedical Advanced Research and Development Authority, or BARDA, of the U.S. Department of Health and Human Services, or HHS. This agreement, which we refer to as the BARDA OTA agreement, was established under HHS's Other Transaction Authority, known as OTA. Under the BARDA OTA agreement, we have the potential to receive up to $132.0 million in funding to support the development of early and late stage antibacterial candidates. The BARDA OTA agreement is a cost-sharing arrangement that consists of an initial base period and four option periods that BARDA may exercise in its sole discretion pursuant to the agreement. The BARDA OTA agreement provides for an initial commitment by BARDA of $32.0 million for the base period, and up to an additional $100.0 million if the remaining four options are exercised by BARDA. As of September 30, 2017, BARDA has committed $32.0 million for the base period and no additional options have been exercised. Under this cost-sharing arrangement, we will be responsible for a portion of the costs associated with each period of work. If all option periods are exercised by BARDA, the estimated period of performance is expected to end in 2021, unless extended by the parties. Either party is entitled to terminate the agreement for convenience, in whole or in part upon 90 days written notice, and BARDA's future period obligations are subject to Congressionally approved annual appropriations. We expect to use the total award under the BARDA OTA agreement to support non-clinical development activities, non-clinical toxicology, clinical studies, manufacturing, program management, and associated regulatory activities designed to advance Vabomere and a portfolio of potential new antibiotic drug candidates targeting drug resistant bacteria.

2014 BARDA Agreement. In February 2014, our subsidiary Rempex entered into a cost-sharing agreement with BARDA, which we refer to as the 2014 BARDA agreement. The 2014 BARDA agreement is a cost-sharing arrangement that consisted of an initial base period and seven option periods to be exercised at BARDA's sole discretion. Under the 2014 BARDA agreement, as modified, Rempex had the potential to receive up to $91.8 million in funding to support the development of Vabomere. As of September 2016, when we entered into the BARDA OTA Agreement, BARDA had exercised a base period and three option periods under the 2014 BARDA agreement and committed to a total of $55.8 million under the 2014 BARDA agreement. As of September 30, 2017, approximately $2.8 million of funds obligated during the exercised option periods remain available for reimbursement under the 2014 BARDA agreement. As a result of entering into the BARDA OTA agreement in September 2016, we do not expect at this time that BARDA will exercise additional option periods under the 2014 BARDA agreement, although activities relating to Vabomere development will continue to be funded under its terms. Under the 2014 BARDA agreement, Rempex is responsible for a portion of the costs associated with each period of work. The estimated period of performance for the base period and the exercised option periods is anticipated to continue until 2019. BARDA is entitled to terminate the agreement, including the projects under the 2014 BARDA agreement for convenience, in whole or in part, at any time. We expect to use the remaining award under the 2014 BARDA agreement to support clinical studies, manufacturing and program management activities related to Vabomere for treatment of serious gram-negative infections.

Under the terms of our agreement with Rempex, we agreed to pay former Rempex equityholders on a quarterly basis, as part of our development milestones, a specified percentage of amounts actually received by us from BARDA.

Convertible Senior Note Offerings

2023 Notes

On June 10, 2016, we completed our private offering of $402.5 million aggregate principal amount of our 2.75% convertible senior notes due 2023, or the 2023 notes, and entered into an indenture with Wells Fargo Bank, National Association, a national banking association, as trustee, governing the 2023 notes. The net proceeds from the offering were $390.8 million, after deducting the initial purchasers' discounts and commissions and our offering expenses.

The 2023 notes bear cash interest at a rate of 2.75% per year, payable semi-annually on January 15 and July 15 of each year, beginning on January 15, 2017. The 2023 notes will mature on July 15, 2023. The 2023 notes do not contain any financial or operating covenants or any restrictions on the payment of dividends, incurrence of other indebtedness, or issuance or repurchase of securities by us.

Holders may convert their 2023 notes at their option at any time prior to the close of business on the business day immediately preceding April 15, 2023 only under the following circumstances: (1) during any calendar quarter commencing on or after September 30, 2016 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period, or measurement period, in which the trading price, as defined in the indenture governing the 2023 notes, per $1,000 principal amount of 2023 notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; (3) during any period after we have issued notice of redemption until the close of business on the scheduled trading day immediately preceding the relevant redemption date; or (4) upon the occurrence of specified corporate events. On or after April 15, 2023, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their 2023 notes at any time, regardless of the foregoing circumstances. Upon conversion, we will pay or deliver, as the case may be, cash, shares of our common stock or a combination of cash and shares of our common stock, at our election based upon a daily conversion value calculated on a proportionate basis for each trading day in a 50 trading day observation period (as more fully described in the 2023 notes indenture).

The conversion rate for the 2023 notes was initially, and remains, 20.4198 shares of our common stock per $1,000 principal amount of the 2023 notes, which is equivalent to an initial conversion price of approximately $48.97 per share of our common stock. The conversion rate and the conversion price are subject to customary adjustments for certain events, including, but not limited to, the issuance of certain stock dividends on our common stock, the issuance of certain rights or warrants, subdivisions, combinations, distributions of capital stock, indebtedness, or assets, cash dividends and certain issuer tender or exchange offers, as described in the indenture governing the 2023 notes.

We may not redeem the 2023 notes prior to July 15, 2020. We may redeem for cash all or any portion of the 2023 notes, at our option, on or after July 15, 2020 if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect on the last trading day of, and for at least 19 other trading days (whether or not consecutive) during, any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provides notice of redemption, at a redemption price equal to 100% of the principal amount of the 2023 notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. However, no redemption date may be designated that falls on or after the 52nd scheduled trading date prior to maturity. No sinking fund is provided for the 2023 notes, which means that we are not required to redeem or retire the 2023 notes periodically.

If we undergo a fundamental change, as defined in the indenture governing the 2023 notes, subject to certain conditions, holders of the 2023 notes may require us to repurchase for cash all or part of their 2023 notes at a repurchase price equal to 100% of the principal amount of the 2023 notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date. Following certain corporate transactions that constitute a change of control, we would increase the conversion rate for a holder who elects to convert the 2023 notes in connection with such change of control in certain circumstances.

The 2023 notes are our senior unsecured obligations and will rank senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the 2023 notes; equal in right of payment to our existing and future unsecured indebtedness that is not so subordinated (including the 2022 notes); effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all existing and future indebtedness and other liabilities (including trade payables) incurred by our subsidiaries.

The indenture governing the 2023 notes contains customary events of default with respect to the 2023 notes, including that upon certain events of default (including our failure to make any payment of principal on the 2023 notes when due and payable or our failure to make any interest payment on the 2023 notes when due and payable and such failure continues for a period of thirty days) occurring and continuing, the trustee for the 2023 notes by notice to us, or the holders of at least 25% in principal amount of the outstanding 2023 notes by notice to us and the trustee for the 2023 notes, may, and the trustee at the request of such holders (subject to the provisions of the indenture governing the 2023 notes) shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the 2023 notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization, involving us or a significant subsidiary, 100% of the principal of and accrued and unpaid interest on the 2023 notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

Capped Call Transactions

To minimize the impact of potential dilution upon conversion of the 2023 Notes, we entered into capped call transactions separate from the issuance of the 2023 Notes with certain counterparties. The capped calls have a strike price of $48.97 per share and a cap price of $64.68 per share and are exercisable when and if the 2023 Notes are converted. If upon conversion of the 2023 Notes, the price of our common stock is above the strike price of the capped calls, the counterparties will deliver shares of our common stock and/or cash with an aggregate value equal to the difference between the price of our common stock at the conversion date and the strike price, multiplied by the number of shares of our common stock related to the capped calls being exercised. We paid $33.9 million for these capped call transactions.

For any conversions of the 2023 Notes prior to the close of business on the 52nd scheduled trading day immediately preceding the stated maturity date of the 2023 Notes, including without limitation upon an acquisition of the Company or similar business combination, a corresponding portion of the capped calls will be terminated. Upon such termination, the portion of the capped calls being terminated will be settled at fair value (subject to certain limitations), as determined by the counterparties to the capped calls and no payments will be due from us to such counterparties. The capped calls expire on the earlier of (i) the last day on which any Convertible Securities remain outstanding and (ii) the second “Scheduled Trading Day” (as defined in the indenture) immediately preceding the “Maturity Date” (as defined in the indenture).

2022 Notes

On January 13, 2015, we completed our private offering of $400.0 million aggregate principal amount of our 2.50% convertible senior notes due 2022, or the 2022 notes, and entered into an indenture with Wells Fargo Bank, National Association, a national banking association, as trustee, governing the 2022 notes. The aggregate principal amount of 2022 notes sold reflects the exercise in full by the initial purchasers of the 2022 notes of their option to purchase up to an additional $50.0 million in aggregate principal amount of the 2022 notes. The net proceeds from the offering were $387.2 million, after deducting the initial purchasers’ discounts and commissions and our offering expenses.

The 2022 notes bear cash interest at a rate of 2.50% per year, payable semi-annually on January 15 and July 15 of each year, beginning on July 15, 2015. The 2022 notes will mature on January 15, 2022. The 2022 notes do not contain any financial or operating covenants or any restrictions on the payment of dividends, incurrence of other indebtedness, or issuance or repurchase of securities by us.

Holders may convert their 2022 notes at their option at any time prior to the close of business on the business day immediately preceding October 15, 2021 only under the following circumstances: (1) during any calendar quarter commencing on or after March 31, 2015 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period, or measurement period, in which the trading price, as defined in the indenture governing the 2022 notes, per $1,000 principal amount of 2022 notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; (3) during any period after we have issued notice of redemption until the close of business on the scheduled trading day immediately preceding the relevant redemption date; or (4) upon the occurrence of specified corporate events.

On or after October 15, 2021, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their 2022 notes at any time, regardless of the foregoing circumstances. Upon conversion, we will pay cash up to the aggregate principal amount of the 2022 notes to be converted and deliver shares of our common stock in respect of the remainder, if any, of its conversion obligation in excess of the aggregate principal amount of 2022 notes being converted, subject to a daily share cap, as described in the indenture governing the 2022 notes. Holders of 2022 notes will not receive any additional cash payment or additional shares representing accrued and unpaid interest, if any, upon conversion of a note, except in limited circumstances. Instead, accrued but unpaid interest will be deemed to be paid by the cash and shares, if any, of our common stock, together with any cash payment for any fractional share, paid or delivered, as the case may be, upon conversion of a 2022 note.

The conversion rate for the 2022 notes was initially, and remains, 29.8806 shares of our common stock per $1,000 principal amount of the 2022 notes, which is equivalent to an initial conversion price of approximately $33.47 per share of our common stock. The conversion rate and the conversion price are subject to customary adjustments for certain events, including, but not limited to, the issuance of certain stock dividends on our common stock, the issuance of certain rights or warrants, subdivisions, combinations, distributions of capital stock, indebtedness, or assets, cash dividends and certain issuer tender or exchange offers, as described in the indenture governing the 2022 notes.

We may not redeem the 2022 notes prior to January 15, 2019. We may redeem for cash all or any portion of the 2022 notes, at our option, on or after January 15, 2019 if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect on the last trading day of, and for at least 19 other trading days (whether or not consecutive) during, any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provides notice of redemption, at a redemption price equal to 100% of the principal amount of the 2022 notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. No sinking fund is provided for the 2022 notes, which means that we are not required to redeem or retire the 2022 notes periodically.

If we undergo a fundamental change, as defined in the indenture governing the 2022 notes, subject to certain conditions, holders of the 2022 notes may require us to repurchase for cash all or part of their 2022 notes at a repurchase price equal to 100% of the principal amount of the 2022 notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date. Following certain corporate transactions that constitute a change of control, we would increase the conversion rate for a holder who elects to convert the 2022 notes in connection with such change of control in certain circumstances.

The 2022 notes are our senior unsecured obligations and will rank senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the 2022 notes; equal in right of payment to our existing and future unsecured indebtedness that is not so subordinated (including the 2017 notes and the 2023 notes); effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all existing and future indebtedness and other liabilities (including trade payables) incurred by our subsidiaries.

The indenture governing the 2022 notes contains customary events of default with respect to the 2022 notes, including that upon certain events of default (including our failure to make any payment of principal or interest on the 2022 notes when due and payable) occurring and continuing, the trustee for the 2022 notes by notice to us, or the holders of at least 25% in principal amount of the outstanding 2022 notes by notice to us and the trustee for the 2022 notes, may, and the trustee at the request of such holders (subject to the provisions of the indenture governing the 2022 notes) shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the 2022 notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization, involving us or a significant subsidiary, 100% of the principal of and accrued and unpaid interest on the 2022 notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

2017 Notes

On June 11, 2012, we completed our private offering of $275.0 million aggregate principal amount of our 1.375% convertible senior notes due 2017, or the 2017 notes. The net proceeds from the offering were $266.2 million, after deducting the initial purchasers' discounts and commissions and our offering expenses. The 2017 notes were our senior unsecured obligations and paid cash interest at a rate of 1.375% per year, payable semi-annually on June 1 and December 1 of each year. The conversion rate for the 2017 notes was 35.8038 shares of our common stock per $1,000 principal amount of 2017 notes, which is equivalent to an initial conversion price of $27.93 per share of our common stock.

In June 2016, we used approximately $323.2 million of the net proceeds of the 2023 notes to repurchase $220.0 million in aggregate principal amount of the 2017 notes in privately negotiated transactions effected through the initial purchasers of the 2017 notes. As part of the June 2016 repurchase of the 2017 notes, we settled a proportionate amount of outstanding bond hedge and warrants related to the bonds that were repurchased for a net cash receipt of $12.6 million.

The remaining 2017 notes matured on June 1, 2017. In connection with the maturity of 2017 Notes, the holders converted substantially all of the outstanding principal amount of the 2017 notes (other than $14,000 of principal amount of 2017 notes which was not converted and which amount was paid in full to the holders thereof), we paid cash to the converting 2017 note holders equal to $55.0 million in respect of principal, interest and fractional shares on the 2017 notes converted and delivered 819,901 shares of our common stock in respect of the remainder of our conversion obligation in excess of the aggregate principal amount of the 2017 notes converted.

Convertible Note Hedge and Warrant Transactions

In connection with the offering of the 2017 notes, on June 5, 2012, we entered into convertible note hedge transactions and warrant transactions with several of the initial purchasers of the 2017 notes, their respective affiliates and other financial institutions, which we refer to as the hedge counterparties. We used approximately $19.8 million of the net proceeds from the offering of the 2017 notes to pay the cost of the convertible note hedge transactions, after such cost was partially offset by the proceeds to us from the sale of warrants in the warrant transactions.

As part of the June 2016 repurchase of $220.0 million in aggregate principal amount of the 2017 Notes, we settled the related hedges and warrants for a net cash receipt of $12.6 million. On June 1, 2017, in connection with the maturity of the 2017 notes, we settled the note hedges and received from the note hedge counterparties approximately 820,000 shares of our common stock

at an average price of $48.79 per share. The redemption offset the dilution with respect to the 819,901 shares of our common stock that were issued upon the conversion of the 2017 notes. The shares delivered to us in connection with the redemption of the 2017 note hedges are held by us as treasury shares. The remaining warrants, which continue to be outstanding after the maturity of the 2017 notes and the concurrent redemption of the note hedges, provide the holders the right to purchase up to approximately two million shares of our common stock, subject to customary antidilution adjustments, at a strike price of $34.20 per share. The warrants will have a dilutive effect with respect to our common stock to the extent that the market price per share of our common stock, as measured under the terms of the warrants, exceeds the applicable strike price. The warrants will be net-settled issuing common stock, provided that subject to certain conditions we may elect to settle all of the warrants in cash. The warrants will expire on a series of expiration dates between August and December 2017. During the three months ended September 30, 2017 , the holders of the 2017 Warrants exercised 443,070 warrants on a net basis and as a result we issued 24,217 shares of common stock. We have 1,427,679 warrants outstanding as of September 30, 2017. For the period between October 1, 2017 and November 7, 2017, approximately 20,000 shares of common stock were issued to holders of the remaining warrants based on the closing price of our common stock during such period.

Biogen Letter Agreement

On August 7, 2012, we and Biogen Idec MA Inc., or Biogen, entered into a letter agreement resolving a disagreement between the parties as to the calculation and amount of the royalties required to be paid to Biogen by us under our license agreement with Biogen under which Biogen licensed Angiomax to us. The letter agreement amends the license agreement providing, among other things, that effective solely for the period from January 1, 2013 through and including December 15, 2014, each of the royalty rate percentages payable by us as set forth in the license agreement shall be increased by one percentage point. As of December 15, 2014, we no longer owe royalties to Biogen or Health Research, Inc. relating to sales of Angiomax in the United States. In the third quarter of 2015, Biogen completed an audit of our books and records and indicated its belief that additional amounts are owed to Biogen under the license agreement. In September 2015, we filed suit in the United States District Court for the District of New Jersey seeking declaratory judgments that we have satisfied our obligations under the license agreement. In November 2015, Biogen answered the complaint denying our claims and asserting counterclaims for breach of contract. In February 2017, Biogen's claim for audit costs was voluntarily dismissed. The parties have completed fact discovery and expert discovery. A trial date has not been set by the court. We believe we will prevail in this suit, however, there can be no assurance that we will be successful. An adverse resolution could have a material adverse effect on our business, financial condition or results of operations. See Part II, Item 1. Legal Proceedings, of this Quarterly Report on Form 10-Q for additional information.

U.S. Health Care Reform

In March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, or PPACA, which was amended by the Health Care and Education Reconciliation Act of 2010. The PPACA, as amended, contains numerous provisions that impact the pharmaceutical and healthcare industries, and it empowers the Department of Health and Human Services, or HHS, to implement a number of related healthcare reform, or HCR, measures that are likely to have a broad impact on the pharmaceutical and healthcare industry. We are continually evaluating the impact of the PPACA and other HCR-related programs and regulations on our business. As of the date of this Quarterly Report on Form 10-Q, we have not identified any provisions that currently materially impact our business or results of operations. However, the potential impact of the PPACA and other HCR measures on our business and results of operations is inherently difficult to predict because many of the details regarding the implementation of this legislation have not been determined. In addition, the impact on our business and results of operations may change as and if our business evolves. President Trump has announced support for a repeal of PPACA and a number of other HCR programs initiated under the Obama administration, and Congress has and continues to debate several bills that would partially or fully repeal and replace PPACA. It remains unclear whether replacement programs will include similar limitations affecting reimbursement, although scrutiny over drug pricing and government costs is expected to continue. Similarly, efforts in Congress to reform Medicare and Medicaid may impact the pharmaceutical and healthcare industries.

On July 9, 2012, President Obama signed the Food and Drug Administration Safety and Innovation Act, or FDASIA. Under the "Generating Antibiotic Incentives Now," or GAIN, provisions of FDASIA, the FDA may designate a product as a qualified infectious disease product, or QIDP. A QIDP is defined as an antibacterial or antifungal drug for human use intended to treat serious or life-threatening infections, including those caused by either an antibacterial or antifungal resistant pathogen, including novel or emerging infectious pathogens or a so-called "qualifying pathogen" found on a list of potentially dangerous, drug-resistant organisms to be established and maintained by the FDA under the new law. The GAIN provisions describe several examples of "qualifying pathogens," including methicillin-resistant Staphylococcus aureus, or MRSA, and Clostridium difficile. Upon the designation of a drug by the FDA as a QIDP, any non-patent exclusivity period awarded to the drug will be extended by an additional five years. This extension is in addition to any pediatric exclusivity extension awarded.

We developed Orbactiv for the treatment of ABSSSI, including infections caused by MRSA, and are exploring the development of Orbactiv for other indications, including ABSSSI in children, uncomplicated bacteremia and other gram-positive bacterial infections. We developed the new formulation of Minocin IV, which is approved by the FDA, for the treatment of infections due to susceptible strains of designated gram-negative bacteria, including those due to Acinetobacter spp, and designated gram-positive bacteria. We also developed Vabomere for the treatment of hospitalized patients with serious gram-negative bacterial infections. In November 2013, the FDA designated Orbactiv a QIDP. In August 2014, following approval of Orbactiv, the FDA informed us that Orbactiv met the criteria for an additional five years of non-patent exclusivity to be added to the five year exclusivity period already provided by the Food, Drug and Cosmetic Act. As a result, Orbactiv's non-patent regulatory exclusivity is scheduled to expire in August 2024. In December 2013, the FDA designated Vabomere a QIDP. Following its approval in August 2017, Vabomere received an additional five years of non-patent exclusivity, which extended its non-patent regulatory exclusivity through August 2027.

Results of Operations

Three and Nine Months Ended September 30, 2017 Compared to Three and Nine Months Ended September 30, 2016

Total Net Revenues:

Total net revenues decreased 55.1% to $16.9 million for the three months ended September 30, 2017 as compared to $37.6 million for the three months ended September 30, 2016. Total net revenues decreased 58.1% to $59.8 million for the nine months ended September 30, 2017 as compared to $142.6 million for the nine months ended September 30, 2016 .

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Net product revenues	$ 10,935	$ 18,843	$ (7,908)	(42.0)%	$ 38,135	$ 80,542	$ (42,407)	(52.7)%
Royalty revenues	5,936	18,756	(12,820)	(68.4)%	21,694	62,094	(40,400)	(65.1)%
Total net revenues	$ 16,871	$ 37,599	$ (20,728)	(55.1)%	$ 59,829	$ 142,636	$ (82,807)	(58.1)%

Net Product Revenues:

The following table reflects the components of net product revenues for the three and nine months ended September 30, 2017 and 2016 :

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Angiomax	$ 1,972	$ 10,154	$ (8,182)	(80.6)%	$ 14,172	$ 42,837	$ (28,665)	(66.9)%
Other products	8,963	8,689	274	3.2 %	23,963	37,705	(13,742)	(36.4)%
Net product revenues	$ 10,935	$ 18,843	$ (7,908)	(42.0)%	$ 38,135	$ 80,542	$ (42,407)	(52.7)%

Net product revenues decreased by $7.9 million, or 42.0%, to $10.9 million in the three months ended September 30, 2017 compared to $18.8 million in the three months ended September 30, 2016 , reflecting decreases in net product revenues in the United States of $7.4 million and in international markets of $0.5 million.

Net product revenues decreased by $42.4 million, or 52.7%, to $38.1 million in the nine months ended September 30, 2017 compared to $80.5 million in the nine months ended September 30, 2016 , reflecting decreases of $37.8 million in the United States and $4.6 million in international markets.

Angiomax. Net product revenues from sales of Angiomax decreased by $8.2 million, or 80.6%, to $2.0 million in the three months ended September 30, 2017 compared to $10.2 million in the three months ended September 30, 2016 . Net product revenues from sales of Angiomax decreased by $28.7 million, or 66.9%, to $14.2 million in the nine months ended September 30, 2017

compared to $42.8 million in the nine months ended September 30, 2016. The decrease in the three and nine months ended September 30, 2017 was attributed to reductions in price due to an increase in the number of generic versions of bivalirudin in the United States and an unfavorable impact of foreign currency. Of the $2.0 million and $14.2 million of net product revenues from sales of Angiomax in the three and nine months ended September 30, 2017, respectively, $1.6 million and $8.5 million, respectively, related to shipments of generic Angiomax to Sandoz. For the three and nine months ended September 30, 2016, $4.9 million and $15.6 million, respectively, related to shipments of generic Angiomax to Sandoz.

Net product revenues in the United States for the three and nine months ended September 30, 2017 and 2016 reflect chargebacks related to the 340B Drug Pricing Program. Under the 340B Drug Pricing Program, we offer qualifying entities a discount off the commercial price of Angiomax for patients undergoing PCI on an outpatient basis. Chargebacks related to the 340B Drug Pricing Program decreased to $0.7 million in the three months ended September 30, 2017 compared to $1.5 million in the three months ended September 30, 2016 and $2.4 million in the nine months ended September 30, 2017 compared to $6.7 million in the nine months ended September 30, 2016 primarily due to the reduction in wholesaler purchases.

Other Products. Net product revenues from sales of Cleviprex, Minocin IV, Orbactiv, ready-to-use Argatroban, Kengreal and Ionsys increased by approximately $0.3 million, or 3.2%, to $9.0 million in the three months ended September 30, 2017 from $8.7 million in the three months ended September 30, 2016, primarily due to the sales of Orbactiv partially offset by the sale of the Non-Core ACC Products. Net product revenues from sales of Minocin IV and Orbactiv were $2.2 million and $6.8 million, respectively, in the three months ended September 30, 2017 compared to $2.2 million and $4.3 million, respectively, in the three months ended September 30, 2016.

Net product revenues from sales of Cleviprex, Minocin IV, Orbactiv, ready-to-use Argatroban, Kengreal and Ionsys decreased by $13.7 million, or 36.4%, to $24.0 million in the nine months ended September 30, 2017 from $37.7 million in the nine months ended September 30, 2016, primarily due to the sale of the Non-Core ACC Products in June 2016. Net product revenues from sales of Minocin IV and Orbactiv increased to $7.3 million and $16.4 million, respectively, in the nine months ended September 30, 2017, compared to $5.5 million and $11.4 million, respectively, in the nine months ended September 30, 2016, primarily due to increased volume.

Royalty Revenues:

For the three and nine months ended September 30, 2017, we recognized $5.9 million and $21.7 million, respectively, and for the three and nine months ended September 30, 2016, we recognized $18.8 million and $62.1 million, respectively, in royalty revenues related to the authorized generic sale of Angiomax to hospitals by Sandoz. The decreases in royalty revenues during the three and nine months ended September 30, 2017 as compared to the three and nine months ended September 30, 2016 was attributed to reductions in price and volume due to an increase in the number of generic versions of bivalirudin in the United States. Royalty revenues are expected to decline in 2017 and in future years due to an increase in competition from additional generic versions of bivalirudin.

Cost of Product Revenues:

Cost of product revenues for the three months ended September 30, 2017 was $9.6 million, or 56.9% of net product revenues, compared to $20.8 million, or 27.8% of net product revenues, in the three months ended September 30, 2016. Cost of product revenues for the nine months ended September 30, 2017 was $39.4 million, or 65.9% of net product revenues, compared to $54.8 million, or 32.4% of net product revenues, for the nine months ended September 30, 2016.

Cost of product revenues during these periods consisted of:

- expenses in connection with the manufacture of our products sold, including expenses related to excess inventory offset by the positive impact of sales of previously reserved units;
- royalty expenses under our agreement with Eli Lilly and Company related to Orbactiv, and for the nine months ended September 30, 2016, our agreement with AstraZeneca related to Cleviprex and our agreement with Eagle Pharmaceuticals, Inc. related to ready-to-use Argatroban;

- amortization of the costs of selling rights agreements, product licenses, developed product rights and other identifiable intangible assets, which result from product and business acquisitions; and

- logistics costs related to Angiomax, Cleviprex, Orbactiv, Minocin IV, ready-to-use Argatroban, Kengreal and Ionsys, including distribution, storage, and handling costs.
- expenses associated with the discontinuance and market withdrawal of Ionsys in the United States market, including a write-off of inventory, severance and other exit costs.

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	% of Total	2016	% of Total	2017	% of Total	2016	% of Total
	(in thousands)		(in thousands)		(in thousands)		(in thousands)	
Manufacturing/Logistics	$ 5,760	60.0%	$ 7,134	34.3%	$ 23,075	58.5%	$ 29,175	53.2%
Royalties	804	8.4%	715	3.5%	2,259	5.7%	5,063	9.2%
Impairment of inventory and amortization of acquired product rights and intangible assets	3,037	31.6%	12,928	62.2%	14,102	35.8%	20,566	37.6%
Total cost of product revenues	$ 9,601	100.0%	$ 20,777	100.0%	$ 39,436	100.0%	$ 54,804	100.0%

Cost of product revenues decreased by $11.2 million during three months ended September 30, 2017 compared to the three months ended September 30, 2016. The decrease is mainly due to reserves of a $7.4 million related to Ionsys recorded in three months ended September 30, 2016 , a $3.4 million reduction in IPR&D and license fee amortization attributed to the Ionsys impairment and Manufacturing/logistics expenses which decreased due to the reduction in Angiomax product sales as well as the sale of the Non-Core ACC Products.

Cost of product revenues decreased by $15.4 million during the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016. This decrease is mainly due to the decrease in reserves for Ionsys as discussed above, as well as decreases in manufacturing/logistics costs and royalties related to the sale of the Non-Core ACC Products.

Asset Impairment Charges:

For the nine months ended September 30, 2017 , we recognized impairment charges of $226.5 million, $26.2 million and $11.4 million to reduce the carrying amounts of the product licenses, developed product rights, and fixed assets, respectively, associated with Ionsys to their estimated fair values of zero as a result of the discontinuation and market withdrawal of Ionsys which became effective on June 19, 2017. In the second quarter of 2017, we recognized impairment charges of $65.0 million to reduce the carrying amount of the in-process research and development associated with MDCO-700 to an estimated fair value of zero as a result of management's decision to discontinue the MDCO-700 trials. These impairment charges were recorded in asset impairment charges in the accompanying condensed consolidated statements of operations. For further details, see Note 1, "Nature of Business," in the accompanying notes to condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Research and Development Expenses:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	% of Total	2016	% of Total	2017	% of Total	2016	% of Total
	(in thousands)		(in thousands)		(in thousands)		(in thousands)	
Marketed products								
Orbactiv	$ 6,273	13.7%	$ 1,439	6.1%	$ 8,864	7.6%	$ 4,442	4.7%
Ionsys	126	0.3%	1,390	5.9%	3,795	3.2%	4,520	4.8%
Angiomax	2	—%	303	1.3%	49	—%	1,365	1.4%
Other	713	1.6%	688	2.9%	881	0.8%	4,081	4.3%
Total marketed products	$ 7,114	15.5%	$ 3,820	16.2%	$ 13,589	11.6%	$ 14,408	15.2%
Registration stage product candidates								
Vabomere	5,501	12.0%	—	—%	24,070	20.5%	—	—%
Total registration stage product candidates	5,501	12.0%	—	—%	24,070	20.5%	—	—%
Research and development product candidates								
MDCO-216	223	0.5%	4,104	17.4%	472	0.4%	26,824	28.4%
Vabomere	—	—%	5,281	22.4%	—	—%	21,210	22.4%
Inclisiran	30,015	65.5%	5,751	24.5%	66,430	56.6%	15,903	16.8%
Other	2,985	6.5%	4,581	19.5%	12,776	10.9%	16,250	17.2%
Total research and development product candidates	33,223	72.5%	19,717	83.8%	79,678	67.9%	80,187	84.8%
Total research and development expenses	$ 45,838	100.0%	$ 23,537	100.0%	$ 117,337	100.0%	$ 94,595	100.0%

Research and development expenses increased by $22.3 million during the three months ended September 30, 2017 compared to the three months ended September 30, 2016. The increase in research and development expenses during the three months ended September 30, 2017 is primarily due to costs associated with inclisiran of $24.3 million due to the acceleration of clinical trials and related manufacturing development costs and $4.8 million pertaining to new formulation of Orbactiv. These increases are partially offset by decreases of $3.9 million associated with MDCO-216, a cholesterol efflux promoter, the clinical trials of which we voluntarily discontinued in November 2016; approximately $1.3 million related Ionsys which was discontinued and we withdrew from the market in June 2017; and other products mainly due to the sale of the Non-Core ACC Products.

Research and development expenses increased $22.7 million during the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016. The increase in research and development expenses is primarily due to increases in costs associated with inclisiran of $50.5 million due to the acceleration of clinical trials and related manufacturing development costs, $4.4 million pertaining to the new formulation of Orbactiv and $2.9 million in costs associated with the NDA filing for Vabomere. These increases were partially offset by decreases of $26.4 million in costs associated with MDCO-216, $5.2 million related to other marketed products mainly due to the sale of the Non-Core ACC Products, and $3.5 million related to other research and development product candidates. The clinical trials of MDCO-216 were terminated in the fourth quarter of 2016 therefore no further expenses were incurred during the nine months ended September 30, 2017.

We expect research and development expenses in the remainder of 2017 to increase primarily due to increased costs related to clinical trials of inclisiran and manufacturing development activities for Vabomere.

Selling, General and Administrative Expenses:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Selling, marketing and promotional	$ 26,667	$ 30,351	$ (3,684)	(12.1)%	$ 83,097	$ 119,607	$ (36,510)	(30.5)%
General corporate and administrative	20,531	38,671	(18,140)	(46.9)%	76,883	122,871	(45,988)	(37.4)%
Total selling, general and administrative expenses	$ 47,198	$ 69,022	$ (21,824)	(31.6)%	$ 159,980	$ 242,478	$ (82,498)	(34.0)%

Selling, general and administrative expenses decreased by $21.8 million during the three months ended September 30, 2017 compared to the three months ended September 30, 2016. Selling, marketing and promotional expenses decreased by $3.7 million during this period primarily due to the discontinuation and market withdrawal of Ionsys, the sale of the Non-Core ACC Products and overall shift in corporate strategy and increased focus on research and development. General corporate and administrative expenses decreased by $18.1 million during the three months ended September 30, 2017 . The decrease is primarily due adjustments to the fair value of contingent consideration due to the former equity holders of Targanta and Rempex.

Selling, general and administrative expenses decreased by $82.5 million during the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016. Selling marketing and promotional expenses decreased by $36.5 million during this period, primarily due to the sale of the Non-Core ACC Products, the discontinuation and market withdrawal of Ionsys, and overall shift in corporate strategy and increased focus on research and development. General corporate and administrative expenses decreased by $46.0 million during the nine months ended September 30, 2017 . The decrease in general corporate and administrative expenses is due in part to $26.1 million in adjustments to the fair value of contingent consideration due to the former equity holders of Targanta, Rempex, Incline and Annovation, which includes a $14.7 million decrease in the carrying value of the contingent purchase price to an estimated fair value of zero as a result of the Company's announcement to discontinue the clinical development program for MDCO-700. General corporate and administrative expenses for the nine months ended September 30, 2016 also includes the disposal and workforce reduction costs of $7.9 million and $13 million, respectively.

We expect our selling, general and administrative expenses will continue to decrease due to a decrease in headcount relative to 2016 and a decrease in the number of products we sell.

Co-promotion and License Income:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Co-promotion and license income	$ 769	$ 757	$ 12	1.6%	$ 2,283	$ 3,073	$ (790)	(25.7)%

Co-promotion and license income decreased by $12 thousand and $0.8 million during the three and nine months ended September 30, 2017 as compared to the three and nine months ended September 30, 2016 , respectively. In the three and nine months ended September 30, 2016 , co-promotion income include our license agreement with Eagle related to ready-to-use Argatroban, which was included in the sale of the Non-Core ACC products. Co-promotion and license income includes license income of $0.8 million and $2.3 million for the three and nine months ended September 30, 2017 and 2016 , respectively under our collaboration agreements with SciClone Pharmaceuticals and SymBio.

Interest Expense:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Interest expense	$ 11,886	$ 12,089	$ (203)	(1.7)%	$ 36,898	$ 32,198	$ 4,700	14.6%

During the three and nine months ended September 30, 2017 , we recorded approximately $11.9 million and $36.9 million, respectively, in interest expense related to the 2017 Notes, 2022 Notes, and 2023 Notes as compared to $12.1 million and $32.2 million, respectively, in interest expense related to the 2017 Notes and 2022 Notes during the three and nine months ended September 30, 2016 . The decrease in interest expense in the three months ended September 30, 2017 compared to the three months ended September 30, 2016 is due to the settlement of the 2017 Notes during the second quarter of 2017. The increase in interest expense in the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016 is due to an increase in the debt as well as a higher effective interest rate on the 2023 notes.

Other Income:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Other income	$ 71	$ 865	$ (794)	(91.8)%	$ 916	$ 741	$ 175	23.6%

Other income, which is comprised of interest income and gains and losses on foreign currency transactions, decreased by $0.8 million during the three months ended September 30, 2017 as compared to the three months ended September 30, 2016 , primarily due to losses on foreign currency transactions partially offset by increases in interest income on available for sale securities. Other increased by $0.2 million during the nine months ended September 30, 2017 as compared to the nine months ended September 30, 2016 , primarily due to increases in interest income on available for sale securities partially offset by losses on foreign currency transactions.

Benefit (Provision) for Income Taxes:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Benefit (provision) for income taxes	$ 66,637	$ (163)	$ 66,800	*	$ 89,607	$ (220)	$ 89,827	*

* Represents a change in excess of 100%

For the three months ended September 30, 2017 and 2016 , we recorded a benefit for income taxes of $66.6 million and a provision for income taxes of $0.2 million, respectively. Our worldwide effective income tax rates for the three months ended September 30, 2017 and 2016 was approximately 68.8% and 0.2%, respectively.

For the nine months ended September 30, 2017 and 2016 , we recorded a benefit for income taxes of $89.6 million and a provision for income taxes of $0.2 million, respectively. Our worldwide effective income tax rates for the nine months ended September 30, 2017 and 2016 was approximately 14.5% and 4.1%, respectively.

For the three and nine months ended September 30, 2017 , our benefit for income taxes is primarily attributable to a reduction in our recorded valuation allowance against our deferred tax assets as a result of the commencement of amortization of IPR&D associated with Vabomore upon approval by the FDA, which resulted in a discrete benefit of $66.7 million, and the impairment of IPR&D associated with MDCO-700, which resulted in a discrete benefit of $23.0 million. For further details, see Note 9, “Intangible Assets and Goodwill,” in the accompanying notes to condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Loss from Discontinued Operations, Net Of Tax:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	2016	Change $	Change %	2017	2016	Change $	Change %
	(in thousands)				(in thousands)			
Income (loss) from discontinued operations, net of tax	$ —	$ 96	$ (96)	(100.0)%	$ —	$ (1,390)	$ 1,390	100.0%

For details on discontinued operations, see Note 16, “Discontinued Operations,” in the accompanying notes to condensed consolidated financial statements included in this Quarterly Report on Form 10-Q.

Liquidity and Capital Resources

Due to the introduction of generic competition against Angiomax and the divestiture of certain of our non-core products, our revenues generated from product sales have declined significantly since 2014. Revenues are expected to continue to decline as generic competition for Angiomax increases. We have incurred net losses and negative cash flows from operations since 2014 and had an accumulated deficit of $1,079.1 million as of September 30, 2017. We expect to incur significant expenses and operating losses for the foreseeable future as we continue to develop, seek regulatory approval for and commercially launch our products and products in development, including inclisiran and Vabomere. We believe our existing cash and cash equivalents and available for sale securities of approximately $208.9 million as of September 30, 2017, together with the cash flows we generate from product sales, will not be sufficient to satisfy our anticipated operating and other funding requirements for the next twelve months from November 9, 2017 (the date of filing this Form 10-Q).

Because we expect to continue to incur negative cash flows from operations, we will need to raise additional funds through asset sales, including asset sales of products or businesses that generate a material portion of our revenues, engage in other strategic transactions, sell additional equity or debt securities, or seek additional financing through other arrangements in order to meet our anticipated operating and funding requirements for the next twelve months. There can be no assurances that asset sales or public or private financings may be available in amounts or on terms acceptable to us, if at all. Our ability to obtain additional debt financing may be limited by market conditions. If we are unable to consummate asset sales, obtain additional financing or otherwise increase our cash resources, we may be required to delay, reduce the scope of, or eliminate one or more of our planned research, development or commercialization activities. Due to these uncertainties, there is substantial doubt about our ability to continue as a going concern.

Sources of Liquidity

Since our inception, we have financed our operations principally through revenues from sales of Angiomax and our other products and the sale of common stock, convertible promissory notes and warrants. We expect revenue from sales of Angiomax will be significantly lower in future years due to generic competition. This reduced revenue is likely to significantly impact our cash and cash equivalents and how we finance our operations. We had $166.7 million and $42.2 million in cash and cash equivalents and available for sales securities, respectively, as of September 30, 2017.

Cash Flows

As of September 30, 2017, we had $166.7 million in cash and cash equivalents, as compared to $541.8 million as of December 31, 2016. The decrease in cash and cash equivalents in the nine months ended September 30, 2017 was due primarily to $304.8 million, $46.7 million and $24.6 million of net cash used in operating activities, investing activities, and financing activities, respectively.

Net cash used in operating activities was $304.8 million in the nine months ended September 30, 2017, compared to net cash used in operating activities of $261.0 million in the nine months ended September 30, 2016. The cash used in operating activities during the nine months ended September 30, 2017 is primarily due to a net loss of $530.1 million, and changes in working capital items of $67.2 million partially offset by increases due to non-cash items of $292.5 million. Non-cash items primarily consist of asset impairment charges, deferred tax benefits, depreciation and amortization, amortization of debt discount, stock compensation expense, and changes in contingent consideration obligations. Net cash used in operating activities was $261.0 million in the nine months ended September 30, 2016. The cash used in operating activities during the nine months ended September 30, 2016 is primarily due to net income of $3.7 million offset by changes in working capital items of $66.3 million, and decreases due to non-cash items of $198.4 million. Non-cash items primarily consist of gain on sale of businesses, depreciation and amortization, amortization of debt discount and stock compensation expense.

Net cash used in investing activities was $46.7 million in the nine months ended September 30, 2017, which was primarily due to purchases of available for sale securities of $131.6 million and the purchases of fixed assets of $4.5 million partially offset by proceeds from maturities and sales of available for sale securities of $89.3 million. Net cash provided by investing activities was $423.3 million in the nine months ended September 30, 2016, which was primarily due to the sale of the Hemostasis Business completed in February 2016 and the sale of the Non-Core ACC Products completed in June 2016.

Net cash used in financing activities was $24.6 million in the nine months ended September 30, 2017, which was primarily due to $55.0 million for the repayment of the 2017 Notes and $10.1 million in payments of contingent purchase price, partially offset by $40.7 million of proceeds from issuance of common stock and purchases of stock under our employee stock purchase plan. Net cash provided by financing activities was $65.7 million in the nine months ended September 30, 2016, which reflected the net proceeds from the issuance of the 2023 Notes of $390.8 million, offset by the repurchase of $220.0 million of the 2017 Notes for approximately $323.2 million and the purchase of the capped call in connection with the 2023 Notes for approximately $33.9 million. As part of the repurchase of the 2017 Notes, we settled the outstanding bond hedge and warrants related to the bonds repurchased for a net cash receipt of $12.6 million. Net cash provided by financing activities also included $27.4 million of proceeds from issuance of common and purchases of stock under our employee stock purchase plan, offset by $7.9 million in payments of contingent purchase price.

Funding Requirements

We expect to devote substantial financial resources to our research and development efforts, clinical trials, nonclinical and preclinical studies and regulatory approvals and to our commercialization and manufacturing programs associated with our products and our products in development. We also will require cash to pay interest on the $400.0 million aggregate principal amount of the 2022 notes and the $402.5 million aggregate principal amount of the 2023 notes, and to make principal payments on the 2022 notes and 2023 notes at maturity or upon conversion (other than the 2023 notes upon conversion, in which case we will have the option to settle entirely in shares of our common stock). In addition, as part of our business development strategy, we generally structure our license agreements and acquisition agreements so that a significant portion of the total license or acquisition cost is contingent upon the successful achievement of specified development, regulatory or commercial milestones. As a result, we will require cash to make payments upon achievement of these milestones under the license agreements and acquisition agreements to which we are a party.

As of November 7, 2017, we may have to make contingent cash payments upon the achievement of specified development, regulatory or commercial milestones of up to:

- $49.4 million due to the former equityholders of Targanta and up to $25.0 million in additional payments to other third parties related to the Targanta transaction;
- $224.3 million for the Rempex transaction;
- $170.0 million for the license and collaboration agreement with Alnylam; and
- $2.2 million for other transaction milestones.

As of November 7, 2017, our total potential milestone payment obligations related to development, regulatory and commercial milestones for our products and products in development under our license agreements and acquisition agreements, assuming all milestones are achieved in accordance with the terms of these agreements, would be approximately $470.9 million. Of this amount, approximately $69.6 million relates to development milestones, $116.9 million relates to regulatory approval milestones and $284.4 million relates to commercial milestones. These amounts do not include milestone payments of up to $175.8 million related

to the Ionsys product, which was discontinued and withdrawn in the U.S. in June 2017 and which has also been discontinued in Europe, and the MDCO-700 development program, which we discontinued in August 2017.

In addition, of the total potential milestone payment obligations, based on our anticipated timeline for the achievement of development, regulatory and commercial milestones, we expect that we would make total milestone payments under our license agreements and acquisition agreements of approximately $20.0 million during the remainder of 2017. The majority of these anticipated payments for 2017 relate to the achievement of development milestones. We may pay additional milestone payments under our license agreements and acquisition agreements during 2017 if we achieve additional development, regulatory and commercial milestones during the year.

Total net revenues from sales of Angiomax were significantly lower in the year ended December 31, 2016 and the nine months ended September 30, 2017 than in previous comparable periods, and we expect these revenues will decline further. These reduced revenues are likely to significantly impact our cash and cash equivalents and how we fund our future capital requirements.

We continually evaluate our liquidity requirements, capital needs and availability of resources in view of, among other things, alternative sources and uses of capital, debt service requirements, the cost of debt and equity capital and estimated future operating cash flow. We may raise additional capital; sell interests in subsidiaries or other assets, including asset sales of products or businesses that generate a material portion of our revenue; restructure or refinance outstanding debt; repurchase material amounts of outstanding debt or equity; or take a combination of such steps or other steps to increase or manage our liquidity and capital resources. Any such actions or steps could have a material effect on us.

Our future capital requirements will depend on many factors, including:

- the progress, level, timing and cost of our research and development activities related to our clinical trials and non-clinical studies with respect to our products and products in development;
- the extent to which our products are commercially successful globally;
- whether we are successful in further narrowing our operational focus by strategically separating non-core businesses and products, and the amount of consideration paid to us in connection with any related sales or divestitures;
- the decline in Angiomax sales and the extent to which royalties on sales of the authorized generic of Angiomax offset the expected decrease in sales of Angiomax;
- the extent to which our submissions and planned submissions for regulatory approval of products in development are approved on a timely basis, if at all;
- the consideration paid by us and to be paid by us in connection with acquisitions and licenses of development-stage compounds, clinical-stage product candidates, approved products, or businesses, and in connection with other strategic arrangements;
- the cost and outcomes of regulatory submissions and reviews for approval of our approved products in additional countries and for additional indications, and of our products in development globally;
- whether we develop and commercialize our products in development on our own or through licenses and collaborations with third parties and the terms and timing of such arrangements, if any;
- the continuation or termination of third-party manufacturing, distribution and sales and marketing arrangements;
- the size, cost and effectiveness of our sales and marketing programs globally;
- the amounts of our payment obligations to third parties as to our products and products in development; and
- our ability to defend and enforce our intellectual property rights.

With respect to both our short-term and long-term cash requirements, if our existing cash resources, together with cash that we generate from sales of our products and other sources, are insufficient to satisfy our product launch, research and development and other funding requirements, including obligations under our convertible notes, we will need to sell additional equity or debt securities, engage in asset sales, including asset sales of products or businesses that generate a material portion of

our revenue, engage in other strategic transactions, or seek additional financing through other arrangements, any of which could be material. Any sale of additional equity or convertible debt securities may result in dilution to our stockholders. Public or private financing may not be available in amounts or on terms acceptable to us, if at all. If we seek to raise funds through collaboration or licensing arrangements with third parties, we may be required to relinquish rights to products, products in development or technologies that we would not otherwise relinquish or grant licenses on terms that may not be favorable to us. Moreover, our ability to obtain additional debt financing may be limited by the 2022 notes and the 2023 notes, market conditions or otherwise. If we are unable to obtain additional financing or otherwise increase our cash resources, we may be required to delay, reduce the scope of, or eliminate one or more of our planned research, development and commercialization activities, which could adversely affect our business, financial condition and operating results.

Certain Contingencies

We may be, from time to time, a party to various disputes and claims arising from normal business activities. We accrue for loss contingencies when available information indicates that it is probable that a liability has been incurred and the amount of such loss can be reasonably estimated. In the cases where we believe that a reasonably possible loss exists, we disclose the facts and circumstances of the litigation, including an estimable range, if possible.

Currently, we are party to the legal proceedings described in Part II, Item 1, Legal Proceedings, of this Quarterly Report on Form 10-Q, which include patent litigation matters and litigation related to a license agreement. We have assessed such legal proceedings and do not believe that it is probable that a liability has been incurred and the amount of such liability can be reasonably estimated. As a result, we have not recorded a loss contingency related to these legal proceedings. Particularly with respect to the litigation related to a Company license agreement, we are presently unable to predict the outcome of such lawsuit or to reasonably estimate the possible loss, or range of potential losses, if any, related to such lawsuit. While it is not possible to determine the outcome of the matters described in Part II, Item 1, Legal Proceedings, of this Quarterly Report on Form 10-Q, we believe it is possible that the resolution of all such matters could have a material adverse effect on our business, financial condition or results of operations.

Contractual Obligations

Our long-term contractual obligations include commitments and estimated purchase obligations entered into in the normal course of business. These include commitments related to royalties, milestone payments, option exercise and other contingent payments due under our license and acquisition agreements, purchases of inventory of our products, research and development service agreements, income tax contingencies, operating leases, selling, general and administrative obligations and increases to our restricted cash in connection with our lease of our principal office space in Parsippany, New Jersey as of September 30, 2017.

During the quarter ended September 30, 2017 there were no other material changes outside the ordinary course of business to the specified contractual obligations set forth in the contractual obligations table included in our Annual Report on Form 10-K for the year ended December 31, 2016.

Application of Critical Accounting Estimates

The discussion and analysis of our financial condition and results of operations is based on our unaudited condensed consolidated financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP, for interim financial information and with the instructions to Form 10-Q. Accordingly, they do not include all the information and footnotes required by GAAP for complete financial statements. The preparation of these financial statements requires us to make estimates and judgments that affect our reported assets and liabilities, revenues and expenses, and other financial information. Actual results may differ significantly from these estimates under different assumptions and conditions. In addition, our reported financial condition and results of operations could vary due to a change in the application of a particular accounting standard.

We regard an accounting estimate or assumption underlying our financial statements as a “critical accounting estimate” where:

- the nature of the estimate or assumption is material due to the level of subjectivity and judgment necessary to account for highly uncertain matters or the susceptibility of such matters to change; and

- the impact of the estimates and assumptions on financial condition or operating performance is material.

Our significant accounting policies are more fully described in Note 2, “Significant Accounting Policies,” of our unaudited condensed consolidated financial statements in this Quarterly Report on Form 10-Q and Note 2 of our audited consolidated financial

statements in our Annual Report on Form 10-K for the year ended December 31, 2016. Not all of these significant accounting policies, however, require that we make estimates and assumptions that we believe are "critical accounting estimates." We believe that our estimates relating to revenue recognition, inventory, share-based compensation, income taxes, in-process research and development, contingent purchase price from business combinations and impairment of long-lived assets and goodwill described under the caption "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Application of Critical Accounting Estimates" in our Annual Report on Form 10-K for the year ended December 31, 2016 are "critical accounting estimates." Please refer to Note 2, "Significant Accounting Policies," in the accompanying notes to the condensed consolidated financial statements for a discussion on changes to certain accounting policies during the nine months ended September 30, 2017 .

Recent Accounting Pronouncements

Refer to Note 2, "Significant Accounting Policies," in the accompanying notes to the condensed consolidated financial statements for a discussion of recent accounting pronouncements.

Forward-Looking Information

This Quarterly Report on Form 10-Q includes forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. For this purpose, any statements contained herein regarding our strategy, future operations, financial position, liquidity, future revenue, projected costs, prospects, plans and objectives of management, other than statements of historical facts, are forward-looking statements. The words "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations expressed or implied in our forward-looking statements. There are a number of important factors that could cause actual results, levels of activity, performance or events to differ materially from those expressed or implied in the forward-looking statements we make. These important factors include our "critical accounting estimates" described in Part I, Item 2 of this Quarterly Report on Form 10-Q and the factors set forth under the caption "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q. Although we may elect to update forward-looking statements in the future, we specifically disclaim any obligation to do so, even if our estimates change, and readers should not rely on those forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Market risk is the risk of change in fair value of a financial instrument due to changes in interest rates, equity prices, creditworthiness, financing, exchange rates or other factors. Our primary market risk exposure relates to changes in interest rates in our cash and cash equivalents. We place our investments in high-quality financial instruments, primarily money market funds, corporate debt securities, asset backed securities and U.S. government agency notes with maturities of less than two years, which we believe are subject to limited interest rate and credit risk. We currently do not hedge interest rate exposure. At September 30, 2017, we held $166.7 million in cash and cash equivalents, which had an average interest rate of approximately 0.74%. A 10% change in such average interest rate would have had an approximate $0.1 million impact on our annual interest income. At September 30, 2017, all cash and cash equivalents were due on demand and 94% was held in the United States.

At September 30, 2017, we held $42.2 million in available for sale securities, which had an average interest rate of approximately 1.25%. A 10% change in such average interest rate would have had an approximate $0.1 million impact on our annual interest income.

Most of our transactions are conducted in U.S. dollars. We do have certain agreements with parties located outside the United States. Transactions under certain of these agreements are conducted in U.S. dollars, subject to adjustment based on significant fluctuations in currency exchange rates. Transactions under certain other of these agreements are conducted in the local foreign currency. As of September 30, 2017, we had receivables denominated in currencies other than the U.S. dollar. A 10% change in foreign exchange rates would have had an approximate $0.4 million impact on our other income and cash.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2017. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded,

processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission, or SEC. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of September 30, 2017, our chief executive officer and chief financial officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the quarter ended September 30, 2017 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Part II. Other Information

Item 1. Legal Proceedings

From time to time we are party to legal proceedings in the course of our business in addition to those described below. We do not, however, expect such other legal proceedings to have a material adverse effect on our business, financial condition or results of operations.

'727 Patent and '343 Patent Litigations

Hospira, Inc.

In July 2010, we were notified that Hospira, Inc., or Hospira, had submitted two ANDAs seeking permission to market its generic version of Angiomax prior to the expiration of the '727 patent and '343 patent. On August 19, 2010, we filed suit against Hospira in the U.S. District Court for the District of Delaware for infringement of the '727 patent and '343 patent. On August 25, 2010, the case was reassigned in lieu of a vacant judgeship to the U.S. District Court for the Eastern District of Pennsylvania. Hospira's answer denied infringement of the '727 patent and '343 patent and raised counterclaims of non-infringement and invalidity of the '727 patent and '343 patent. On September 24, 2010, we filed a reply denying the counterclaims raised by Hospira. The Hospira action was consolidated for discovery purposes with the then pending and now settled cases against Teva and APP. The case was reassigned back to the U.S. District Court for the District of Delaware. A Markman hearing was held on December 5, 2012. On July 12, 2013, the Court issued its Markman decision as to the claim construction of the '727 patent and the '343 patent. The Court's decision varied from the other Markman decisions that we have received in our other patent infringement litigations. On July 22, 2013, we filed a motion for reconsideration of the Court's claim construction ruling on the grounds that the Court (i) impermissibly imported process limitations disclosed in a preferred embodiment into the claims, (ii) improperly transformed product claims into product-by-process claims, (iii) improperly rendered claim language superfluous and violated the doctrine of claim differentiation, and (iv) improperly construed limitations based on validity arguments that have not yet been presented. On August 22, 2013, the district court denied the motion for reconsideration. A three day bench trial was held in September 2013 and a post-trial briefing was completed in December 2013. On March 31, 2014, the Court issued its trial opinion. With respect to patent validity, the Court held that the '727 and '343 patents were valid on all grounds. Specifically, the Court found that Hospira had failed to prove that the patents were either anticipated and/or obvious. The Court further held that the patents satisfied the written description requirement, were enabled and were not indefinite. With respect to infringement, based on its July 2013 Markman decision, the Court found that Hospira's ANDAs did not meet the "efficient mixing" claim limitation and thus did not infringe the asserted claims of the '727 and '343 patents. The Court found that the other claim limitations in dispute were present in Hospira's ANDA products. The Court entered a final judgment on April 15, 2014. On May 9, 2014, we filed a notice of appeal to the United States Court of Appeals for the Federal Circuit. On May 23, 2014, Hospira filed a notice of cross-appeal. We filed our opening appeal brief on August 13, 2014. Hospira filed its opening appeal brief on September 26, 2014 asserting that the claim constructions and non-infringement findings were correct. Hospira also seeks to overturn the finding of patent validity. Briefing was completed in December 2014. An oral argument before the United States Court of Appeals for the Federal Circuit was held on March 6, 2015. On July 2, 2015, the Federal Circuit Court issued an opinion finding the asserted claims of the '727 patent and '343 patent invalid under the Section 102(b) "on sale" bar. The decision was based on a finding that third-party manufacturer, Ben Venue Laboratories, "sold" manufacturing services for three validation batches to us before a critical date. On July 15, 2015, Hospira received final approval for its ANDAs. On July 31, 2015, we filed with the Federal Circuit Court a combined petition for panel rehearing and rehearing *en banc*. On August 24, 2015, the Federal Circuit Court invited Hospira to respond to the petition. On September 8, 2015, Hospira filed a response. On November 13, 2015, the Federal Circuit Court granted our petition for rehearing *en banc* and vacated its earlier July 2, 2015 decision. The Federal Circuit Court set a briefing schedule, specified specific questions to be answered, invited the DOJ to file a brief expressing the views of the United States and also invited any other amicii curiae to file briefs on the *en banc* issues raised. Hospira filed its opening brief on January 11, 2016. We filed our response on February 24, 2016 and Hospira filed its reply brief on March 10, 2016. Nine amicus briefs were filed: Department of Justice, American Intellectual Property Law Association, Intellectual Property Owners Association, a Texas law firm, Miller Patti Pershern PLLC, Pharmaceutical Research and Manufacturers of America, Biotechnology Innovation Organization, Gilead Sciences, Inc., an individual, Roberta J. Morris, Esq., and Houston Intellectual Property Law Association. The Federal Circuit Court sitting en banc heard oral argument from the parties and the government on May 5, 2016. On July 11, 2016, in an unanimous decision, the en banc Court affirmed the District Court holding that our transaction with Ben Venue Laboratories did not constitute an invalidating sale under the "on sale" bar. The remaining issues on appeal that were not decided by the original panel were remanded back to the same panel for consideration. In a subsequent order of July 18, 2016, the parties were directed to file new appeal briefs taking into account the en banc decision. The parties submitted revised briefs and this briefing was completed in October 2016. The Court heard oral argument on December 6, 2016. The Federal Circuit has not yet issued a decision.

Mylan Pharmaceuticals, Inc.

In January 2011, we were notified that Mylan Pharmaceuticals, Inc. had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 patent and '343 patent. On February 23, 2011, we filed suit against Mylan Inc., Mylan Pharmaceuticals Inc. and Bioniche Pharma USA, LLC, which we refer to collectively as Mylan, in the U.S. District Court for the Northern District of Illinois for infringement of the '727 patent and '343 patent. Mylan's answer denied infringement of the '727 patent and '343 patent and raised counterclaims of non-infringement and invalidity of the '727 patent and '343 patent. On April 13, 2011, we filed a reply denying the counterclaims raised by Mylan. On May 4, 2011, the Court set a pretrial schedule. Following a joint request, the Court issued an amended scheduling order on September 22, 2011. On November 29, 2011, Mylan moved to amend its answer to add counterclaims and affirmative defenses of inequitable conduct and unclean hands. Following motion practice, the Court granted Mylan's request to add counterclaims and affirmative defenses of inequitable conduct and to add affirmative defenses of unclean hands. On March 7, 2012, we filed a reply denying these counterclaims. A Markman hearing was held on July 30, 2012. The Court issued a Markman Order on August 6, 2012. The parties have completed fact and expert discovery. On June 21, 2013, Mylan filed a summary judgment motion of non-infringement of the '727 and '343 patents and alternatively that the '727 patent was invalid. The Court's decision granted non-infringement of the '343 patent and denied the motion with respect to non-infringement and invalidity of the '727 patent. A six day trial directed to the '727 patent was completed on June 18, 2014. Post-trial briefs were filed on July 1, 2014 and July 11, 2014. On October 27, 2014, the Court issued an opinion and order finding that Mylan's ANDA product infringes all of the asserted claims of the '727 patent. The Court further found that Mylan failed to prove that the same asserted claims of the '727 patent are invalid or unenforceable. Specifically, the Court found that Mylan failed to prove its allegations of anticipation, obviousness, non-enablement and unenforceability due to inequitable conduct. On October 28, 2014 and November 13, 2014, Mylan filed Notices of Appeal to the U.S. Court of Appeals for the Federal Circuit. On November 25, 2014, we filed a Notice of Cross Appeal of the district court's summary judgment of noninfringement of the asserted claims of the '343 patent that it had issued on December 16, 2013 and the district court's Markman Order on August 6, 2012. Appellate briefing was completed in April 2015. An oral argument before the U.S. Court of Appeals for the Federal Circuit was scheduled for September 11, 2015. On July 29, 2015, following a Mylan motion for disposition of its appeal in view of the July 2, 2015 Hospira decision, the Federal Circuit Court granted the motion (1) reversing the district court's judgment as to the '727 patent (2) dismissing as moot our cross-appeal (3) vacating the district court's entry of an injunction, and (4) holding that each party shall bear its own costs. On August 27, 2015, we filed a petition for panel rehearing. Following the November 13, 2015 decision granting our en banc hearing request in the Hospira appeal and vacating the July 2, 2015 decision, we moved to vacate the Federal Circuit Court's July 29, 2015 Order terminating the Mylan appeal. Following briefing, the Federal Circuit Court granted our motion and reopened the appeal, vacated its July 29, 2015 Order and then stayed the Mylan appeal pending resolution of the Hospira appeal. Following the en banc decision in the Hospira appeal described above, the Federal Circuit Court lifted the stay. The Mylan appeal was ordered to be a companion appeal to the Hospira appeal and was decided by the same judges as the Hospira appeal. The parties were ordered to file new briefs incorporating the en banc decision. The parties submitted revised briefs and this briefing was completed in October 2016. The Federal Circuit Court heard oral argument on December 6, 2016. Mylan's ANDA received tentative approval from the FDA in February 2017. On April 6, 2017, the Federal Circuit issued a decision reversing the District Court's finding of infringement of the '727 patent and affirming the lower court's summary judgment of non-infringement of the '343 patent. On April 7, 2017, Mylan filed an emergency motion to accelerate the time for any petition for rehearing and issuance of a mandate. On April 11, 2017, we opposed this motion and on April 12, 2017 the Federal Circuit denied Mylan's request. On May 5, 2017, we filed with the Federal Circuit Court a petition for rehearing or en banc review. On May 12, 2017, the Federal Circuit invited Mylan to respond which they did on May 19, 2017. On May 23, 2017, we filed a motion to file a reply brief. On May 30, 2017, the Federal Circuit Court denied the motion for a reply and on June 6 denied our petition for panel rehearing. The Federal Circuit Court then issued its mandate on June 13, 2017. On June 9, 2017, Mylan filed in the district court a motion to amend the court's October 27, 2014 judgment. On June 22, 2017, we filed our opposition to amend the final judgment and also moved for a new trial on the doctrine of equivalents of the '727 patent. On June 25, 2017, Mylan opposed the motion for a new trial and we filed our reply on June 26th. On June 28, 2017, the court issued an order granting Mylan's motion to amend the final judgment and denied our motion for a new trial. The district court entered an amended final judgment on June 28, 2017.

Dr. Reddy's Laboratories, Inc.

In March 2011, we were notified that Dr. Reddy's Laboratories, Ltd. and Dr. Reddy's Laboratories, Inc. had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 and '343 patents. On April 28, 2011, we filed suit against Dr. Reddy's Laboratories, Ltd., Dr. Reddy's Laboratories, Inc. and Gland Pharma, Inc., which we refer to collectively as Dr. Reddy's, in the U.S. District Court for the District of New Jersey for infringement of the '727 patent

and ‘343 patent. Dr. Reddy’s answer denied infringement of the ‘727 patent and ‘343 patent and raised counterclaims of non-infringement and invalidity of the ‘727 patent and ‘343 patent. On May 11, 2012, Dr. Reddy’s filed a motion for summary judgment. On October 2, 2012, the Court held oral argument on Dr. Reddy’s summary judgment motion and conducted a Markman hearing. On October 15, 2012, the Court denied Dr. Reddy’s summary judgment motion. A Markman decision was issued by the Court on January 2, 2013. On January 25, 2013, Dr. Reddy’s filed a second summary judgment motion this time for non-infringement. At the direction of the Court, on May 13, 2013, the motion was withdrawn by Dr. Reddy’s. We have pending motions seeking further fact discovery of Dr. Reddy’s. The parties have yet to enter the expert phase of the case. On May 12, 2015 the Court issued a Stipulation and Order staying the case as Dr. Reddy's had yet to respond to an FDA Complete Response Letter dated December 7, 2012. In June 2016, Dr. Reddy’s responded to the FDA’s Complete Response Letter. As a result, following a joint submission by the parties, the Court on July 22, 2016 ordered the stay vacated and reopened discovery of Dr. Reddy’s ANDA. The Court has set a schedule to complete discovery by June 23, 2017. Following the decision by the Federal Circuit in the above Mylan appeal, the district court set a schedule for the exchange of expert reports and additional fact discovery. Following the denial of the petition for rehearing, a revised schedule was ordered with our supplementing our opening infringement expert report on July 14, 2017, rebuttal reports to be exchanged on July 28, 2017 and reply expert reports to be exchanged on August 25, 2017. No trial date has been set. Dr. Reddy’s ANDA received final FDA approval on May 26, 2017.

Sun Pharmaceutical Industries LTD

In October 2011, we were notified that Sun Pharmaceutical Industries LTD had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the ‘727 and ‘343 patents. On November 21, 2011, we filed suit against Sun Pharma Global FZE, Sun Pharmaceutical Industries LTD., Sun Pharmaceutical Industries Inc., and Caraco Pharmaceutical Laboratories, LTD., which we refer to collectively as Sun, in the U.S. District Court for the District of New Jersey for infringement of the ‘727 patent and ‘343 patent. The case has been assigned to the same judge and magistrate judge as the Dr. Reddy’s action. Sun’s answer denied infringement of the ‘727 patent and ‘343 patent. On June 7, 2012, the Court held an initial case scheduling conference. The parties proceeded with fact discovery. Following a December 20, 2013 status conference, the parties began discussing a stay in the case. Following further conferences with the Court a stipulation to stay the case was submitted and subsequently entered by the Court on April 1, 2014. Following settlement discussions, the case was settled and a final judgment finding the ‘727 and ‘343 patents valid, enforceable and infringed by Sun’s ANDA product was entered by the Court on March 27, 2015. In connection with the Sun settlement, we entered into a license agreement with Sun under which we granted Sun a non-exclusive license under the ‘727 patent and ‘343 patent to sell a generic bivalirudin for injection product under Sun’s ANDA in the United States beginning on June 30, 2019 or earlier in certain circumstances. The settlement documents were submitted to the U.S. Federal Trade Commission and U.S. Department of Justice in March 2015.

Apotex Inc.

In March 2013, we were notified that Apotex Inc. had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the ‘727 and ‘343 patents. On May 1, 2013, we filed suit against Apotex Inc. and Apotex Corp., which we refer to collectively as Apotex, in the U.S. District Court for the District of New Jersey for infringement of the ‘727 and ‘343 patents. The case has been assigned to the same judge and magistrate judge as the Dr. Reddy’s and Sun actions. Apotex filed its answer on July 19, 2013 and raised counterclaims of non-infringement and invalidity. A scheduling conference before the magistrate judge was held on December 16, 2013. Following a subsequent conference on April 15, 2014 and further directions from the Court to resubmit a discovery schedule, the Court entered a revised discovery schedule on July 17, 2014. A Markman hearing commenced on January 22, 2015 and was completed on March 3, 2015. Following the July 2, 2015 Hospira decision, the parties requested and the Court entered an order staying the case until the Federal Circuit Court issues a mandate in the Hospira appeal. Following the Hospira en banc decision in July 2016, we moved the Court to lift the stay to resume fact discovery of Apotex’s ANDA, which Apotex opposed. The magistrate judge granted our request and issued an order on September 13, 2016 reinstating the case and ordered certain discovery to proceed. On September 23, 2016, Apotex filed a motion to vacate the September 13th order. Oral argument on the motion was held on October 17, 2016 and the Court entered an order that ANDA discovery could proceed. In addition, in October 2016, the Court ordered Apotex to give us 10-days’ notice before any at risk launch. The parties requested and the Court agreed to stay this case pending the above discussed Hospira and Mylan appeals. The Court has not set a schedule for the expert phase or a trial date. Apotex’s ANDA received final FDA approval on July 6, 2017.

Exela Pharma Sciences, LLC

In March 2014, we were notified that Exela Pharma Sciences, LLC, had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 and '343 patents. On April 25, 2014, we filed suit against Exela Pharma Sciences, LLC, Exela PharmSci, Inc. and Exela Holdings, Inc., which we collectively refer to as Exela, in the U.S. District Court for the Western District of North Carolina for infringement of the '727 and '343 patents. Exela filed its answer on June 3, 2014 and raised counterclaims of non-infringement, invalidity and unenforceability due to inequitable conduct. We filed a reply on July 11, 2014. The parties have conducted a Rule 26 conference. The Court has set a pretrial schedule through a June 2015 Markman hearing. On November 4, 2014, Exela filed a motion for judgment on the pleadings based on noninfringement. The motion was fully briefed on December 23, 2014. Claim construction discovery was under way. Following the July 2, 2015 Hospira decision, the parties requested and the court entered an order staying the case until the Federal Circuit Court issues a mandate in the Hospira appeal. On January 29, 2016, even though no mandate from the Hospira appeal has issued, Exela filed a motion to lift the stay and resume claim construction proceedings and other pretrial matters. On February 29, 2016, the court denied Exela's motion to lift the stay on the case. Following the Hospira en banc decision in July 2016, we moved to lift the stay. Exela opposed the motion but indicated it would agree to lifting the stay under certain conditions. In a September 29, 2016 order, the magistrate judge ruled the case should remain stayed. On September 1, 2017, the case was reassigned to another judge, also of the Western District of North Carolina.

Accord Healthcare Inc., USA

In June 2014, we were notified that Accord Healthcare Inc., or Accord, had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 and '343 patents. On July 24, 2014, we filed suit against Accord and its parent, Intas Pharmaceuticals Ltd., or Intas, in the U.S. District Court for the Middle District of North Carolina for infringement of the '727 patent and '343 patent. On September 26, 2014, Accord and Intas filed an answer denying infringement and asserting that the '727 and '343 patents are invalid. The parties have conducted a Rule 26 conference. The Court has set February 17, 2016 for the close of all discovery and October 3, 2016 as a trial date. Following the July 2, 2015 Hospira decision, the parties requested and the Court entered an order staying the case until the Federal Circuit Court issues a mandate in the Hospira appeal. Accord's ANDA received tentative approval from the FDA in April 2016.

Aurobindo Pharma Limited

In March 2014, we were notified that Aurobindo Pharma Limited had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 and '343 patents. On April 11, 2014, we filed suit against Aurobindo Pharma Limited and Aurobindo Pharma USA, Inc., which we refer to collectively as Aurobindo, in the U.S. District Court for the District of New Jersey for infringement of the '727 and '343 patents. The case has been assigned to the same judge and magistrate judge as the Dr. Reddy's, Sun and Apotex actions. Aurobindo filed its answer on July 3, 2014 and raised counterclaims of non-infringement and invalidity. A scheduling conference before the magistrate judge was held on November 20, 2014. The parties engaged in fact discovery and claim construction exchanges. On April 6, 2015, the Court entered a revised fact and expert discovery schedule. Thereafter, the parties proposed a stay of the case pending a decision in the above-referenced Hospira appeal to the Court, which the Court entered on April 15, 2015. Following the July 2, 2015 Hospira decision, the Court was informed of the decision and the parties requested the present stay to remain in effect until Federal Circuit Court issues a mandate in the Hospira appeal. The Court entered this request on July 20, 2015. On April 27, 2017, Aurobindo filed a motion to lift the stay. We filed an opposition on May 22, 2017 and in the alternative proposed a schedule to complete fact and expert discovery. On May 30, 2017, Aurobindo filed a reply and on August 16, 2017, the District Court lifted the stay. On September 8, 2017, Aurobindo filed an amended answer adding additional counterclaims and defenses. On October 6, 2017, we filed our response to these new claims. On October 9, 2017, Aurobindo filed a motion for judgment on the pleadings pursuant to Rule 12(c). Our opposition is presently due on November 9, 2017 and Aurobindo's reply is due November 16, 2017. Aurobindo's ANDA received tentative approval from the FDA in December 2015.

Sagent Pharmaceuticals Inc.

In July 2015, we were notified that Sagent Pharmaceuticals Inc., or Sagent, had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 patent and '343 patent. On August 26, 2015, we filed suit against Sagent in the U.S. District Court for the Northern District of Illinois for infringement of the '727 patent and '343 patent. Sagent filed its answer on November 30, 2015 and raised counterclaims of non-infringement and invalidity. We filed a reply on December 22, 2015. A scheduling conference was held on January 21, 2016. The case has been stayed pending resolution

of the Hospira en banc appeal. At a September 13, 2016 status conference, the parties jointly requested the stay be lifted and discovery proceed on our claim that Sagent's ANDA infringes the '727 and '343 patents. In addition to a proposed case schedule, the parties submitted a joint partial judgment wherein Sagent acknowledged that the claims at issue in the Hospira and Mylan appeals, if found valid, will be valid in this case and Sagent's invalidity claims are dismissed with prejudice. To the extent the Federal Circuit Court in the Hospira and Mylan matters finds any claim invalid, the parties agreed that the partial judgment will be vacated. Sagent's ANDA received tentative approval in March 2015, but is subject to a Hatch-Waxman 30-month stay until 2018. The parties have been conducting fact discovery. The Court extended the close of fact discovery to July 31, 2017. On June 21, 2017, the Court held a status conference in Chicago. Sagent requested permission and the Court agreed that Sagent could file a motion for summary judgment by July 7, 2017 and instructed Sagent to produce the documents being requested by us. On July 7, 2017, Sagent filed its motion for summary judgment of non-infringement. On July 13, 2017, a conference was held before the Court to discuss necessary fact discovery and a briefing schedule. The Court ordered Sagent to provide the requested and as of yet not produced discovery before August 16, 2017. Following status conferences and our motion to compel, Sagent was ordered to produce two additional witnesses for deposition and a further status conference was held on October 31, 2017. The Court set a summary judgment briefing schedule with our opposition due December 5, 2017 and Sagent's reply due December 19, 2017. No trial date has been set.

Akorn, Inc.

In October 2016, we were notified that Akorn, Inc. had submitted an ANDA seeking permission to market its generic version of Angiomax prior to the expiration of the '727 and '343 patents. On November 15, 2016, we filed suit against Akorn in the U.S. District Court for the District of New Jersey for infringement of the '727 and '343 patents. The case has been assigned to the same judge and magistrate judge as the Dr. Reddy's, Sun, Apotex and Aurobindo actions. Akorn filed its answer on December 27, 2016 and raised counterclaims of non-infringement and invalidity. A scheduling conference before the magistrate judge was scheduled for February 14, 2017. The parties jointly requested the case be stayed pending the Federal Circuit appeals involving the '727 and '343 patents. On January 10, 2017, the Court ordered the case stayed.

Biogen Idec Litigation

On September 15, 2015, Biogen Idec, notified us that after completing an audit of our books and records for the fourth quarter of 2014, Biogen Idec believes it is owed additional royalties relating to Angiomax under our license agreement with Biogen Idec. On September 23, 2015, we filed suit against Biogen Idec in the United States District Court for the District of New Jersey seeking, inter alia, declaratory judgments that we have satisfied our obligations under the license agreement. On November 12, 2015, Biogen Idec answered the complaint denying our claims and asserting counterclaims for breach of contract. In February 2017, Biogen's claim for audit costs was voluntarily dismissed. The parties have completed fact and expert discovery. A trial date has not been set by the Court. We believe we will prevail in this suit, however, there can be no assurance that we will be successful. An adverse resolution could have a material adverse effect on our business, financial condition or results of operations.

Eagle Litigation

On February 2, 2016, we filed suit against Eagle, SciDose LLC and TherDose Pharma Pvt. Ltd. for infringement of U.S. Patent Nos. 7,713,928, or the '928 patent, and 7,803,762, or the '762 patent, by Eagle's New Drug Application No. 208298 for ready-to-use bivalirudin. In the lawsuit, we assert that the '928 and '762 patents are co-owned by us and Eagle and are exclusively licensed to us. The complaint also seeks a declaration that we are an owner and exclusive licensee of U.S. Patent Application No. 14/711,359 pursuant to the parties' License and Development Agreement, which Eagle represents covers the product described in its NDA No. 208298. On March 25, 2016 defendants filed a motion to dismiss. On April 18, 2016 we filed an amended complaint reasserting the original claims and raising additional claims of, inter alia, trademark infringement, unfair competition and tortious interference. The trademark infringement claim asserts that Eagle's mark for its ready-to-use bivalirudin, Kangio, infringes our Angiomax® mark and the Kengreal® mark. On May 23, 2016 defendants filed a second motion to dismiss, which we opposed. On July 8, 2016, the Court entered a stipulation of dismissal of the trademark related claims in which defendants represented that they have abandoned their U.S. trademark applications for Kangio, they will not use the Kangio trademark in U.S. commerce for goods and services related to bivalirudin and/or anticoagulants, and that they have and/or will remove any reference to Kangio from any and all promotional and marketing material and any applicable labeling and packaging. On July 21, 2016, defendants filed a motion to bifurcate and stay our patent infringement claims. On August 18, 2016 the Court denied defendants' second motion to dismiss on all counts and on September 9, 2016 the Court denied defendants' motion to bifurcate and stay the patent infringement claims. On October 10, 2016, defendants filed a motion for summary judgment on the same grounds advanced in the motion to dismiss, which we have opposed. On March 15, 2017 the Court denied defendants' motion for summary judgment.

Defendants informed us that they are prepared and will deliver to us any actual physical materials and assign any intellectual property or sNDA related to the ready-to-use bivalirudin and, on October 4, 2017, based on the argument that this offer would resolve all federal claims in dispute, defendants filed a motion to dismiss the remaining claims for lack of subject matter jurisdiction. On October 16, 2017, defendants filed a motion to stay discovery pending a resolution on their motion to dismiss. On November 6, 2017, we filed an opposition to the defendants' motion to dismiss and an opposition to defendants' motion to stay discovery. A trial date has not been set by the Court.

SymBio Arbitration

We and our wholly owned subsidiary Incline Therapeutics, Inc., or Incline, have received a Request for Arbitration filed by SymBio, dated October 11, 2017. In the Request for Arbitration, SymBio claims that we failed to provide adequate assurances of performance of, or, alternatively, have rendered ourselves unable to perform, our obligations under the license agreement between us, Incline and SymBio relating to the development and commercialization of IONSYS in Japan. As a result, SymBio seeks compensatory damages in an amount of $82 million. We believe we have counterclaims against SymBio and valid defenses to SymBio's claims and intend to defend ourselves vigorously.

Silence Therapeutics Litigation

In July 2017, Silence Therapeutics plc and Silence Therapeutics GmbH, which we refer to together as Silence, issued, and in October 2017 served, a claim in the High Court of Justice, Chancery Division, Patents Court in the United Kingdom, naming The Medicines Company UK Ltd., our wholly owned subsidiary, Alnylam and Alnylam UK Limited, as co-defendants. In Silence's claim, it seeks a determination that it is entitled to supplementary protection certificates, or SPCs, based on Silence's European Patent No. 2,258,847, or the '847 patent, which Silence alleges covers inclisiran and certain of Alnylam's product candidates. An SPC is an intellectual property right that could extend the life of the '847 patent in relation to a specified product for a period of up to five additional years bringing the expiration date up to 2028. We have until November 14, 2017 to submit substantive arguments contesting the jurisdiction or alternatively to submit substantive defenses to Silence's claim. In addition, in October 2017 we filed a claim with respect to the '847 patent seeking a declaration of invalidity and a declaration of non-infringement by inclisiran of Silence's patent and an order that such patent be revoked.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below in addition to the other information included or incorporated by reference in this Quarterly Report on Form 10-Q. If any of the following risks actually occur, our business, financial condition or results of operations would likely suffer. In that case, the trading price of our common stock could decline. In addition to the risk factors identified under the captions below, the operation and results of our business are subject to risks and uncertainties identified elsewhere in this Quarterly Report on Form 10-Q as well as general risks and uncertainties such as those relating to general economic conditions and demand in the market for our products.

Risks Related to Our Financial Results

We will need additional funds to support our operations, and such funding may not be available to us on acceptable terms, or at all, which raises substantial doubt about our ability to continue as a going concern.

We are primarily focused on the advancement of our product candidate, inclisiran, through clinical development, and marketing and commercializing our infectious disease products, Vabomere, Orbactiv and Minocin IV. The completion of the development and the potential commercialization of our product candidates, should they receive regulatory approval, and the commercialization of our approved products will require substantial funds. We will need to obtain substantial additional sources of funding to develop our product candidates as currently contemplated.

Due to the introduction of generic competition against Angiomax and the divestiture of certain of our non-core products, our revenues generated from product sales have declined significantly since 2014. Revenues are expected to continue to decline as generic competition for Angiomax increases. We have incurred net losses and negative cash flows from operations since 2014 and

had an accumulated deficit of $1,079.1 million as of September 30, 2017. We expect to incur significant expenses and operating losses for the foreseeable future as we continue to develop, seek regulatory approval for and commercially launch our products and products in development, including inclisiran and Vabomere. We believe our existing cash and cash equivalents and available for sale securities of approximately $208.9 million as of September 30, 2017, together with the cash flows we generate from product sales, will likely not be sufficient to satisfy our anticipated operating and other funding requirements for the next twelve months from November 9, 2017 (the date of filing this Form 10-Q).

Because we expect to continue to incur negative cash flows from operations, we will need to raise additional funds through asset sales, including asset sales of products or businesses that generate a material portion of our revenues, engage in other strategic transactions, sell additional equity or debt securities, or seek additional financing through other arrangements in order to meet our anticipated operating and funding requirements for the next twelve months. There can be no assurances that asset sales or public or private financings may be available in amounts or on terms acceptable to us, if at all. Our ability to obtain additional debt financing may be limited by market conditions. If we are unable to consummate asset sales, obtain additional financing or otherwise increase our cash resources, we may be required to delay, reduce the scope of, or eliminate one or more of our planned research, development or commercialization activities. Due to these uncertainties, there is substantial doubt about our ability to continue as a going concern.

We no longer have market exclusivity for Angiomax and face generic and other competition that will cause our net revenue to decline significantly.

A substantial majority of our historic revenue has come from sales of Angiomax (bivalirudin) in the United States. Angiomax is now subject to generic competition. In the United States, we sell Angiomax under our name as a branded Angiomax product, and, on July 2, 2015, entered into a supply and distribution agreement with Sandoz, under which we granted Sandoz the exclusive right to sell in the United States an authorized generic of Angiomax (bivalirudin). We entered into the supply and distribution agreement as a result of the July 2, 2015 Federal Circuit Court ruling against us in our patent infringement litigation with Hospira with respect to the ‘727 patent and the ‘343 patent covering a more consistent and improved Angiomax drug product and the processes by which it is made. In addition to Hospira, other generic firms have entered the market. APP, through its affiliated company, Fresenius Kabi, commenced selling its generic version of Angiomax under provisions of a settlement agreement triggered by the Federal Circuit Court’s July 2, 2015 decision in the Hospira matter. Apotex Inc. and Dr. Reddy’s Laboratories have each also commenced commercialization of generic bivalirudin products upon receiving final approval if their respective ANDA filings by the FDA even though we remain in active litigation against each company. In addition, we expect Mylan to commence marketing its generic bivalirudin product as a result of a decision by the Federal Circuit Court in Mylan’s appeal that reversed an earlier district court decision that found that Mylan’s ANDA product infringed all of the asserted claims of the ‘727 patent.

A number of companies in addition to Hospira, Mylan, APP, Apotex Inc. and Dr. Reddy’s Laboratories have filed ANDAs for their generic versions of Angiomax. In addition the generic versions of bivalirudin currently being sold, Angiomax could be subject to further generic competition in the United States from Teva and Sun under the circumstances set forth in our respective settlement agreements with such parties and upon a final approval of each companies' ANDA filings by the FDA. Pliva Hrvatska DOO, an affiliate of Teva, currently has tentative approval for its ANDA filing for its generic version of Angiomax. Other ANDA filers may commercialize their products ‘at risk’ if they receive final approval of their respective ANDA filings and are not subject to a Hatch-Waxman 30-month stay. Further, we remain in infringement litigation involving the ‘727 patent and ‘343 patent with the other ANDA filers as described in Part II, Item 1. Legal Proceedings of this Quarterly Report on Form 10-Q. There can be no assurance as to the outcome of our infringement litigation. We may continue to incur substantial legal expenses related to these matters.

The principal patent covering Angiomax in Europe expired in August 2015. As a result, we face generic competition in Europe.

Net product revenues from sales of Angiomax decreased from $42.8 million for the nine months ended September 30, 2016 to $14.2 million for the nine months ended September 30, 2017. We expect that net product revenues from sales of Angiomax will continue to decline in 2017 and in future years due to generic and other competition. Although we have entered into a supply and distribution agreement with Sandoz to sell an authorized generic version of Angiomax, the royalty income from the sale of the authorized generic, which for the nine months ended September 30, 2017 was approximately $21.7 million, is expected to only partially offset the expected further decline in Angiomax net product revenues.

We have a history of net losses and may not achieve profitability in future periods or maintain profitability on an annual basis due in particular to expected decreases in net revenue from sales of Angiomax and other results of our loss of exclusivity on Angiomax.

We have incurred net losses in many years and on a cumulative basis since our inception, and we expect to continue to incur net losses. As of September 30, 2017, we had an accumulated deficit of approximately $1,079.1 million. In those periods in which we were able to achieve profitability, our profitability was based on revenue from sales of Angiomax, and a substantial majority of our historic revenue has been generated from sales of Angiomax in the United States. However, generic competition for Angiomax commenced in the United States in July 2015 and we lost market exclusivity for Angiomax in Europe in August 2015. We expect that net revenue from sales of Angiomax will continue to decline in future years due to competition from generic versions of Angiomax, including our authorized generic being marketed by Sandoz and other generic versions of Angiomax which have been and may be approved by the FDA.

We expect to make substantial expenditures to further develop and commercialize our products, including costs and expenses associated with research and development, clinical trials, nonclinical and preclinical studies, regulatory approvals and commercialization, including milestone payments under our license agreements and acquisition agreements. We will need to generate greater revenue in future periods from our marketed products other than Angiomax and from our products in development in order to achieve and maintain profitability in light of our planned expenditures. If we are unable to generate greater revenue, we may not achieve profitability in future periods, and may not be able to maintain any profitability we do achieve. Our ability to generate future revenue will be substantially dependent on our ability to successfully commercialize our approved products and our product candidates upon approval. If we fail to achieve profitability or maintain profitability on a quarterly or annual basis within the time frame expected by investors or securities analysts, the market price of our common stock may decline.

We review our inventory, including inventory purchase commitments, and provide reserves, as appropriate, against the carrying amount of inventory. For example, for the year ended December 31, 2015, we recorded a $29.5 million inventory obsolescence charge and a charge of $12.1 million for potential losses on future inventory purchases primarily due to the loss of exclusivity of Angiomax. We also recorded a $8.5 million reserve for potential inventory obsolescence during the year ended December 31, 2016. As of September 30, 2017, our inventory of Angiomax was $24.3 million and all inventory-related purchase commitments for 2017 have been fulfilled for Angiomax bulk drug substance. If sales of Angiomax decline more than our current expectations, or if sales of other marketed products fail to meet expectations, we could be required to make an additional allowance for excess or obsolete inventory, increase our accrual for product returns or increase our deferred tax valuation allowance, or we could incur other costs related to operating our business, each of which could negatively impact our results of operations and our financial condition.

We have commercially launched and commenced sales of several of our products in recent years. If we are not successful with the commercial launches of these products, or the potential launches of other product candidates in the future, or experience significant delays in doing so, our business likely would be materially harmed.

We commercially launched Orbactiv in the United States in the third quarter of 2014, and we launched the new formulation of Minocin IV in the United States in 2015. We also recently received FDA approval of Vabomere in August 2017. We may commercially launch by ourselves or through arrangements with third parties additional products and products in development in the United States and Europe, in the coming months and years, subject to receiving regulatory approval. Commercial launches of this number of products in such a short period of time will require significant efforts from us and the devotion of substantial resources as we will need to finalize regulatory submissions, work with regulatory authorities in their evaluation of our submissions, have manufactured sufficient quantities of product to commence commercial sales and establish the infrastructure necessary to commercially launch these products and products in development.

Our ability to successfully commercially launch these products and products in development will depend on our ability to:

- conduct clinical trials and make regulatory submissions and obtain regulatory approvals in the timeframes anticipated;
- train, deploy and support a qualified sales force to market and sell our newly launched products;
- secure formulary approvals at our hospital customers;
- have third parties manufacture and release the products in sufficient quantities;
- implement and maintain agreements with wholesalers, distributors and group purchasing organizations;

- receive adequate levels of coverage and reimbursement for these products from governments and third-party payors; and

- develop and execute marketing and sales strategies and programs for the products.

We expect that the revenues from these products and products in development will represent a significant portion of our revenues in the future, particularly given that Angiomax is subject to generic competition. As a result, if we are unable to successfully commercialize these products and products in development, our business, results of operations and financial condition likely would be materially harmed.

We may need to raise additional capital. If we are unable to obtain such capital on favorable terms or at all, we may not be able to execute on our business plans and our business, financial condition and results of operations may be adversely affected.

On November 3, 2015, we announced that our current intention was to explore strategies for optimizing our capital structure and liquidity position. At September 30, 2017, we had approximately $208.9 million in cash and cash equivalents and available for sale securities. We expect to devote substantial financial resources to our research and development efforts, clinical trials, nonclinical and preclinical studies and regulatory approvals and to our commercialization and manufacturing programs associated with our products and our products in development. We also will require cash to pay interest on the $400.0 million aggregate principal amount of the 2022 notes and the $402.5 million aggregate principal amount of the 2023 notes, and to make principal payments on the 2022 notes and 2023 notes at maturity or upon conversion (other than the 2023 notes upon conversion, in which case we will have the option to settle entirely in shares of our common stock). In addition, as part of our business development strategy, we generally structure our license agreements and acquisition agreements so that a significant portion of the total license or acquisition cost is contingent upon the successful achievement of specified development, regulatory or commercial milestones. As a result, we will require cash to make payments upon achievement of these milestones under the license agreements and acquisition agreements to which we are a party.

As of November 7, 2017, we may have to make contingent cash payments upon the achievement of specified development, regulatory or commercial milestones of up to:

- $49.4 million due to the former equityholders of Targanta and up to $25.0 million in additional payments to other third parties related to the Targanta transaction;

- $224.3 million for the Rempex transaction;

- $170.0 million for the license and collaboration agreement with Alnylam; and

- $2.2 million for other transaction milestones.

As of November 7, 2017, our total potential milestone payment obligations related to development, regulatory and commercial milestones for our products and products in development under our license agreements and acquisition agreements, assuming all milestones are achieved in accordance with the terms of these agreements, would be approximately $470.9 million. Of this amount, approximately $69.6 million relates to development milestones, $116.9 million relates to regulatory approval milestones and $284.4 million relates to commercial milestones. These amounts do not include milestone payments of up to $175.8 million related to the Ionsys product, which was discontinued and withdrawn in the U.S. in June 2017 and has also been discontinued in Europe, and the MDCO-700 development program, which we discontinued in August 2017.

In addition, of the total potential milestone payment obligations, based on our anticipated timeline for the achievement of development, regulatory and commercial milestones, we expect that we would make total milestone payments under our license agreements and acquisition agreements of approximately $20.0 million during the remainder of 2017. The majority of these anticipated payments for 2017 relate to the achievement of development milestones. We may pay additional milestone payments under our license agreements and acquisition agreements during 2017 if we achieve additional development, regulatory and commercial milestones during the year.

Total net revenues from sales of Angiomax were significantly lower in the year ended December 31, 2016 and the nine months ended September 30, 2017 than in previous comparable periods, and we expect these revenues will decline further. These reduced revenues are likely to significantly impact our cash and cash equivalents and how we fund our future capital requirements.

We continually evaluate our liquidity requirements, capital needs and availability of resources in view of, among other things, alternative sources and uses of capital, debt service requirements, the cost of debt and equity capital and estimated future operating cash flow. We may raise additional capital; sell interests in subsidiaries or other assets, including asset sales of products or businesses that generate a material portion of our revenue; restructure or refinance outstanding debt; repurchase material amounts of outstanding

debt or equity; or take a combination of such steps or other steps to increase or manage our liquidity and capital resources. Any such actions or steps could have a material effect on us.

Our future capital requirements will depend on many factors, including:

- the progress, level, timing and cost of our research and development activities related to our clinical trials and non-clinical studies with respect to our products and products in development;
- the extent to which our products are commercially successful globally;
- whether we are successful in further narrowing our operational focus by strategically separating non-core businesses and products, and the amount of consideration paid to us in connection with any related sales or divestitures;
- the decline in Angiomax sales and the extent to which royalties on sales of the authorized generic of Angiomax offset the expected decrease in sales of Angiomax;
- the extent to which our submissions and planned submissions for regulatory approval of products in development are approved on a timely basis, if at all;
- the consideration paid by us and to be paid by us in connection with acquisitions and licenses of development-stage compounds, clinical-stage product candidates, approved products, or businesses, and in connection with other strategic arrangements;
- the cost and outcomes of regulatory submissions and reviews for approval of our approved products in additional countries and for additional indications, and of our products in development globally;
- whether we develop and commercialize our products in development on our own or through licenses and collaborations with third parties and the terms and timing of such arrangements, if any;
- the continuation or termination of third-party manufacturing, distribution and sales and marketing arrangements;
- the size, cost and effectiveness of our sales and marketing programs globally;
- the amounts of our payment obligations to third parties as to our products and products in development; and
- our ability to defend and enforce our intellectual property rights.

With respect to both our short-term and long-term cash requirements, if our existing cash resources, together with cash that we generate from sales of our products and other sources, are insufficient to satisfy our product launch, research and development and other funding requirements, including obligations under our convertible notes, we will need to sell additional equity or debt securities, engage in asset sales, including asset sales of products or businesses that generate a material portion of our revenue, engage in other strategic transactions, or seek additional financing through other arrangements, any of which could be material. Any sale of additional equity or convertible debt securities may result in dilution to our stockholders. Public or private financing may not be available in amounts or on terms acceptable to us, if at all. If we seek to raise funds through collaboration or licensing arrangements with third parties, we may be required to relinquish rights to products, products in development or technologies that we would not otherwise relinquish or grant licenses on terms that may not be favorable to us. Moreover, our ability to obtain additional debt financing may be limited by the 2022 notes and the 2023 notes, market conditions or otherwise. If we are unable to obtain additional financing or otherwise increase our cash resources, we may be required to delay, reduce the scope of, or eliminate one or more of our planned research, development and commercialization activities, which could adversely affect our business, financial condition and operating results.

If we seek to raise additional capital by selling equity or debt securities or through other arrangements in the future, our stockholders could be subject to dilution and we may become subject to financial restrictions and covenants, which may limit our activities.

If we determine that raising capital would be in the interest of the Company and our stockholders, we may seek to sell equity or debt securities or seek financing through other arrangements. Any sale of equity or debt securities may result in dilution to our stockholders and increased liquidity requirements. Debt financing may involve covenants limiting or restricting our ability to take

specific actions, such as incurring additional debt or making capital expenditures. Our ability to comply with these financial restrictions and covenants could be dependent on our future performance, which is subject to prevailing economic conditions and other factors, including factors that are beyond our control such as foreign exchange rates, interest rates and changes in the level of competition. Failure to comply with the financial restrictions and covenants would adversely affect our business, financial condition and operating results.

Our revenue in the United States from sales of our products is dependent in part on our primary sole source distributor, Integrated Commercialization Solutions, or ICS, and our revenue outside the United States is substantially dependent on a limited number of international distributors. If the buying patterns of ICS or these international distributors for our products are not consistent with underlying hospital demand, then our revenue for certain products will be subject to fluctuation from quarter to quarter based on these buying patterns and not underlying demand for the products. Any change in these buying patterns could adversely affect our financial results and our stock price.

We distribute the products we sell in the United States through a sole source distribution model, other than our authorized generic Angiomax (bivalirudin) which is sold by Sandoz. Under this model, we currently sell these products to a sole source distributor. The sole source distributor then sells these products to a limited number of national medical and pharmaceutical wholesalers with distribution centers located throughout the United States and, in certain cases, directly to hospitals. We expect that we will also sell most of our future products in the United States through the same sole source distribution model. Most of our revenue from sales of our products in the United States, other than our authorized generic Angiomax (bivalirudin), comes from sales to ICS pursuant to our agreement with them. As a result of our relationship with ICS, we expect that our revenue for certain products will continue to be subject to fluctuation from quarter to quarter based on the buying patterns of ICS, which may be independent of underlying hospital demand.

In some countries outside the European Union and in a few countries in the European Union, we sell certain products to international distributors and these distributors then sell these products to hospitals. Our reliance on a small number of distributors for international sales of products could cause our revenue to fluctuate from quarter to quarter based on the buying patterns of these distributors, independent of underlying hospital demand.

If inventory levels at our U.S. sole source distributors or at our international distributors become too high, these distributors may seek to reduce their inventory levels by reducing purchases from us, which could have a material and adverse effect on our revenue in periods in which such purchase reductions occur.

We may not realize the anticipated benefits of past or future acquisitions or product licenses and integration of these acquisitions and any products and product candidates acquired or licensed may disrupt our business and management.

We have in the past and may in the future acquire or license additional development-stage compounds, clinical-stage product candidates, approved products, technologies or businesses. For example, we have acquired Annovation, Incline and Rempex, and we have entered into a license and collaboration agreement with Alnylam. We have also recently sold our hemostasis business to Mallinckrodt and the Non-Core ACC Products to Chiesi. We may not realize the anticipated benefits of an acquisition, license, or collaboration, each of which involves numerous risks. These risks include:

- difficulty in integrating the operations, products or product candidates and personnel of an acquired company;
- entry into markets in which we have no or limited direct prior experience and where competitors in such markets have stronger market positions;
- failure to successfully further develop the acquired or licensed business, product, compounds, programs or technology or to achieve strategic objectives, including commercializing and marketing successfully the development stage compounds and clinical stage candidates that we acquire or license;
- disruption of our ongoing business and distraction of our management and employees from other opportunities and challenges;
- inadequate or unfavorable clinical trial results from acquired or contracted for products in development;
- inability to retain personnel, key customers, distributors, vendors and other business partners of the acquired company, or acquired or licensed product or technology;

- potential failure of the due diligence processes to identify significant problems, liabilities or other shortcomings or challenges of an acquired company, or acquired or licensed product or technology, including but not limited to, problems, liabilities or other shortcomings or challenges with respect to intellectual property, product quality, revenue recognition or other accounting practices, employee, customer or partner disputes or issues and other legal and financial contingencies and known and unknown liabilities;

- liability for activities of the acquired company or licensor before the acquisition or license, including intellectual property infringement claims, violations of laws, commercial disputes, tax liabilities, and other known and unknown liabilities;

- exposure to litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, an acquisition or license, including but not limited to, claims from terminated employees, customers, former stockholders or other third-parties; and

- difficulties in the integration of the acquired company's departments, systems, including accounting, human resource and other administrative systems, technologies, books and records, and procedures, as well as in maintaining uniform standards, controls, including internal control over financial reporting required by the Sarbanes-Oxley Act of 2002 and related procedures and policies.

Acquisitions and licensing arrangements are inherently risky, and ultimately, if we do not complete an announced acquisition or license transaction or integrate an acquired business, or an acquired or licensed product or technology successfully and in a timely manner, we may not realize the benefits of the acquisition or license to the extent anticipated and the perception of the effectiveness of our management team and our company may suffer in the marketplace. In addition, even if we are able to achieve the long-term benefits associated with our strategic transactions, our expenses and short-term costs may increase materially and adversely affect our liquidity and short-term profitability. Further, if we cannot successfully integrate an acquired business, or acquired or licensed products or technologies, we may experience material negative consequences to our business, financial condition or results of operations. Further, if we sell products that have been acquired through acquisitions or licensing arrangements, we may incur losses depending on the consideration received and structure of the transaction. For example, in connection with our sale of our hemostasis business, which we completed on February 1, 2016, we incurred impairment charges of $133.3 million, including $24.5 million related to goodwill. Future acquisitions or licenses could also result in dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses, or impairment of goodwill and intangible assets, and restructuring charges, any of which could harm our business, financial condition or results of operations.

Risks Related to Our Notes

We have incurred substantial indebtedness, and our leverage and maintenance of high levels of indebtedness may adversely affect our business, financial condition and results of operations. Servicing this debt, including the 2022 notes and the 2023 notes, will require a significant amount of cash, and we may not have sufficient cash flow from our business to pay the interest on or principal of the 2022 notes, the 2023 notes or other debt we may incur.

We have incurred a significant amount of indebtedness. Our maintenance of this level of indebtedness could have adverse consequences, including:

- requiring us to dedicate a substantial portion of cash flow from operations to the payment of interest on, and principal of, our debt, which will reduce the amounts available to fund working capital, capital expenditures, product development efforts and other general corporate purposes;

- increasing our vulnerability to general adverse economic, industry and market conditions;

- limiting our ability to obtain additional financing in the future or engage in certain strategic transactions without securing bondholder consent;

- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and

- placing us at a possible competitive disadvantage to less leveraged competitors and competitors that have less debt, better debt servicing options or better access to capital resources.

In addition, our ability to make scheduled payments of the principal of, to pay interest on or to refinance the remaining amount outstanding under the 2022 notes or the 2023 notes depends on our future performance, which is subject to economic, financial,

competitive and other factors beyond our control. Our business may not generate cash flow from operations in the future sufficient to service our debt, including the notes. If we are unable to generate cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be unfavorable to us or highly dilutive, any of which may be material to the holders of our common stock. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at the time we seek to refinance such indebtedness. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

We may not have the ability to raise the funds necessary to settle conversions of the 2022 notes or to repurchase the 2022 notes or the 2023 notes upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion of the 2022 notes or repurchase of the 2022 notes or 2023 notes.

Holders of the the 2022 notes and the 2023 notes will have the right to require us to repurchase their notes upon the occurrence of a fundamental change, as defined in the applicable indenture, at a repurchase price equal to 100% of their principal amount, plus accrued and unpaid interest, if any, as described in the applicable indenture. In addition, upon conversion of the 2022 notes, we will be required to make with respect to each $1,000 in principal amount of notes converted cash payments of at least the lesser of $1,000 and the sum of the daily conversion values as described in the applicable indenture. Upon conversion of the 2023 notes, we will have the option to settle such conversions in cash, shares of our common stock or a combination thereof. However, we may not have enough available cash or be able to obtain financing at the time we are required to repurchase notes, to pay the notes at maturity or to pay cash upon conversions of such notes. In addition, our ability to repurchase notes or to pay cash upon conversions of such notes may be limited by law, by regulatory authority or by agreements governing our existing indebtedness (including, in the case of the 2022 notes or the 2023 notes, the indenture governing any other series of notes) and future indebtedness. Our failure to repurchase notes at a time when the repurchase is required by the applicable indenture or to pay any cash payable on future conversions of the notes as required by the applicable indenture would constitute a default under the applicable indenture. A default under the applicable indenture governing the 2022 notes or the 2023 notes, respectively, or the fundamental change itself could also lead to a default under agreements governing our existing indebtedness (including, in the case of the 2022 notes or the 2023 notes, the indenture governing any other series of notes) and future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the notes or make cash payments upon conversions thereof.

The conditional conversion feature of the 2022 notes or the 2023 notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the 2022 notes or the 2023 notes is triggered, holders of such notes will be entitled to convert the notes at any time during specified periods at their option, which are set forth in the applicable indenture. If one or more holders elect to convert their 2022 notes, we would be required, with respect to each $1,000 principal amount of 2022 notes, to make cash payments equal to the lesser of $1,000 and the sum of the daily conversion values, which could adversely affect our liquidity. If all of the holders of the 2022 notes exercised their conversion option, we would not have sufficient cash to satisfy our payment obligations with respect to all of the 2022 notes and meet our anticipated funding requirements for a year from November 9, 2017. With respect to the 2023 notes, we have the option to settle conversions entirely in cash, in common stock or a combination thereof. In addition, even if holders do not elect to convert their notes, we are required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the notes as a current rather than long-term liability, which results in a material reduction of our net working capital.

The accounting method for convertible debt securities that may be settled in cash, such as the 2022 notes and the 2023 notes, could have a material effect on our reported financial results.

Under Accounting Standards Codification 470-20, “Debt with Conversion and Other Options”, which we refer to as ASC 470-20, an entity must separately account for the liability and equity components of the convertible debt instruments that may be settled entirely or partially in cash upon conversion (such as the 2022 notes and the 2023 notes) in a manner that reflects the issuer’s economic interest cost. The effect of ASC 470-20 on the accounting for the 2022 notes and the 2023 notes is that the equity component is required to be included in the additional paid in capital section of stockholders’ equity on our consolidated balance sheet, and the value of the equity component would be treated as original issue discount for purposes of accounting for the debt component of the 2022 notes and the 2023 notes. As a result, we will be required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the notes to their face amount over the term of the 2022 notes and the 2023 notes. We will report lower net income in our financial results because ASC 470-20 will require interest to include both the current period’s amortization of the debt discount and the instrument’s coupon interest, which could adversely affect our reported or future financial results, the market price of our common stock and the trading price of the 2022 notes and the 2023 notes.

In addition, under certain circumstances, convertible debt instruments that may be settled entirely or partly in cash (such as the 2022 notes or the 2023 notes) are currently accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable to use the treasury stock method in accounting for the shares issuable upon conversion of the 2022 notes or the 2023 notes, then our diluted earnings per share would be adversely affected.

We may incur substantially more debt or take other actions which would intensify the risks discussed above.

We and our subsidiaries may be able to incur substantial additional debt in the future, some of which may be secured debt. We and our subsidiaries are not restricted under the terms of the applicable indenture governing the 2022 notes or the 2023 notes from incurring additional debt, securing existing or future debt, recapitalizing our debt or taking a number of other actions that are not limited by the terms of the applicable indenture governing the 2022 notes or the 2023 notes that could have the effect of diminishing our ability to make payments on the notes when due.

Risks Related to Commercialization

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

Our industry is highly competitive. Competitors in the United States and other countries include major pharmaceutical companies, specialty pharmaceutical companies and biotechnology firms, universities and other research institutions. Many of our competitors are substantially larger than we are and have substantially greater research and development capabilities and experience, and greater manufacturing, marketing and financial resources, than we do.

Our competitors may develop, market or license products or novel technologies that are more effective, safer, more convenient or less costly than any that have been or are being developed or sold by us, or may obtain marketing approval for their products from the FDA or equivalent foreign regulatory bodies more rapidly than we may obtain approval for ours.

There are well established products, including in many cases generic products, that are approved and marketed for the indications for which our products are approved and the indications for which we are developing our products in development. In addition, competitors are developing products for such indications. Set forth in the first risk factor above regarding Angiomax and the risk factor that immediately follows this risk factor is additional information regarding competition for two marketed products, Angiomax and Orbactiv. We have also launched, or expect to launch, other products that face competition. A description of the competition for our other products and products in development is included in "Part I, Item 1. *Business-Competition*" of our Annual Report on Form 10-K for the year ended December 31, 2016.

We compete, in the case of our approved and marketed products, and expect to compete, in the cases of our products in development, on the basis of product efficacy, safety, ease of administration, price and economic value compared to drugs used in current practice or currently being developed. If we are not successful in demonstrating these attributes, physicians and other key healthcare decision makers may choose other products over our products, switch from our products to new products or choose to use our products only in limited circumstances, which could adversely affect our business, financial condition and results of operations.

Orbactiv faces significant competition from branded and generic drugs treating ABSSSI, which may limit the use of Orbactiv and adversely affect our anticipated revenue.

Orbactiv is an intravenous antibiotic approved by the FDA for the treatment of ABSSSI, caused or suspected to be caused by susceptible gram-positive bacteria, including MRSA.

Competition in the market for therapeutic products that address gram-positive bacterial infections is intense. In particular, there are a variety of available therapies marketed for the treatment of ABSSSI. Some of these products are branded and subject to patent protection, and others are available on a generic basis. Many of these approved products, including vancomycin, ceftaroline (Teflaro), clindamycin, daptomycin, linezolid and telavancin (Vibativ) are well established therapies and are widely accepted by physicians, patients and hospital decision-makers. Additionally, insurers and other third-party payers may encourage the use of generic products. Vancomycin, for instance, which is sold in a relatively inexpensive generic form, has been widely used for over 50 years, is the most frequently used IV antibiotic, and we believe, based on our market research, is prescribed to approximately two-thirds of all hospitalized ABSSSI patients. If physicians and hospital decision-makers do not accept the potential advantages of Orbactiv, or are otherwise hesitant or slow to adopt Orbactiv, our anticipated revenues could be adversely affected.

There are also a number of products recently approved or in clinical development by third parties to treat ABSSSI. Recently approved products include Sivextro from Cubist Pharmaceuticals, Inc., (now a subsidiary of Merck & Co, Inc.), and Dalvance from Durata Therapeutics, Inc. (now a subsidiary of Allergan plc). Additionally, several companies have products in development that, if approved, may compete with Orbactiv. If any of these product candidates or any other products developed by our competitors are more effective, safer, more convenient or less costly than Orbactiv, or would otherwise render Orbactiv obsolete or non-competitive, our anticipated revenues from Orbactiv could be adversely affected.

If we are unable to successfully identify and acquire or license development stage compounds, clinical stage product candidates or approved products and successfully develop or commercialize those compounds and products, our business, financial condition and results of operations may be adversely affected.

Our business strategy is based on us selectively licensing or acquiring and then successfully developing and commercializing development stage compounds, clinical stage product candidates and approved products. Because we have only the limited internal scientific research capabilities that we acquired in some of our acquisitions and we do not anticipate establishing additional scientific research capabilities, we are dependent upon pharmaceutical and biotechnology companies and other researchers to sell or license to us development stage compounds, clinical stage product candidates or approved products. Since 2008, for instance, we have acquired, among others, Targanta and Rempex, and licensed development and commercialization rights to inclisiran. The success of this business strategy depends upon our ability to identify, select and acquire or license pharmaceutical products that meet the criteria we have established. However, the acquisition and licensing of pharmaceutical products is a competitive area. A number of more established companies, which have acknowledged strategies to license and acquire products, may have competitive advantages over us due to their size, available cash flows and institutional experience. In addition, we may compete with emerging companies taking similar or different approaches to product acquisition. Therefore, we may not be able to acquire or license the rights to additional product candidates or approved products on terms that we find acceptable, or at all.

Because of the intense competition for these types of product candidates and approved products, the cost of acquiring, in-licensing or otherwise obtaining rights to such candidates and products has grown dramatically in recent years and are often at levels that we cannot afford or that we believe are not justified by market potential. Any acquisition or license of product candidates or approved products that we pursue may not result in any short or long term benefit to us. We may incorrectly judge the value or worth of an acquired or licensed product candidate or approved product. Even if we succeed in acquiring product candidates, we may not be successful in developing them and obtaining marketing approval for them, manufacturing them economically or commercializing them successfully. We have previously acquired or licensed rights to clinical or development stage compounds and, after having conducted development activities, determined not to devote further resources to those compounds. For example, in November 2016 we voluntarily discontinued our clinical development program for MDCO-216, a cholesterol efflux promoter which we were developing to reduce atherosclerotic plaque burden, and in August 2017 we voluntarily discontinued our clinical development program for MDCO-700. Further, in October 2012, we voluntarily discontinued our clinical trials and further development of MDCO-2010, which we had acquired in connection with our acquisition of Curacyte Discovery GmbH in August 2008, in response to serious unexpected patient safety issues encountered during a clinical trial. Similarly, following our review of data from the pharmacokinetic and pharmacodynamic study of several doses of MDCO-157 and oral clopidogrel in healthy volunteers, we elected not to proceed with the further development of MDCO-157, which we had licensed from CyDex Pharmaceuticals, Inc. We also voluntarily discontinued and withdrew our Ionsys product from the market in the United States and ceased related commercialization activities in June 2017.

In addition, our future success will depend in part on our ability to manage any required growth associated with some of these acquisitions and licenses. Any acquisition might distract resources from the development of our existing products in development and could otherwise negatively impact sales of our other marketed products. Furthermore, the development or expansion of any licensed or acquired product candidate or approved product may require a substantial capital investment by us, and we may not have the necessary funds to do so.

If we are unable to identify and acquire additional promising candidates or to develop and commercialize successfully those candidates we have, we will not be able to implement our business strategy and our business, operating results and financial condition may be materially and adversely affected.

If we are not able to convince hospitals to include our products on their approved formulary lists, our revenues may not meet expectations and our business, results of operations and financial condition may be adversely affected.

Hospitals establish formularies, which are lists of drugs approved for use in the hospital. If a drug is not included on the formulary, the ability of our engagement partners and customer solutions managers to promote and sell the drug may be limited or denied. For example, in connection with the launch of one of our recently divested products, we experienced difficulties in getting the product included on hospitals' formulary lists, in part because hospital formularies may limit the number of intravenous antihypertensive drugs in each drug class, and revenues from that product were adversely affected. If we fail to secure and maintain formulary inclusion for our products on favorable terms, or are significantly delayed in doing so, we may have difficulty achieving market acceptance of our products and our business, results of operations and financial condition could be materially adversely affected.

If we are unable to negotiate and maintain satisfactory arrangements with group purchasing organizations with respect to the purchase of our products, our sales, results of operations and financial condition could be adversely affected.

Our ability to sell our products to hospitals in the United States depends in part on our relationships with group purchasing organizations, or GPOs. Many existing and potential customers for our products become members of GPOs. GPOs negotiate pricing arrangements and contracts, sometimes on an exclusive basis, with medical supply manufacturers and distributors. These negotiated prices are then made available to a GPO's affiliated hospitals and other members. If we are not one of the providers selected by a GPO, affiliated hospitals and other members may be less likely to purchase our products, and if the GPO has negotiated a strict sole source, market share compliance or bundling contract for another manufacturer's products, we may be precluded from making sales to members of the GPO for the duration of the contractual arrangement. Our failure to renew contracts with GPOs may cause us to lose market share and could have a material adverse effect on our sales, financial condition and results of operations. We cannot assure you that we will be able to renew these contracts at the current or substantially similar terms. If we are unable to keep our relationships and develop new relationships with GPOs, our competitive position may suffer.

If we are unable to successfully develop our business infrastructure and operations, our ability to generate future product revenue will be adversely affected and our business, results of operations and financial condition may be adversely affected.

Our ability to support the sales and marketing of our products in the United States and globally will depend on our ability to properly scale our internal organization and infrastructure to accommodate the development and, upon approval, commercialization

of our products and products in development. To manage our existing and future growth and the increasing breadth and complexity of our activities, we need to properly invest in personnel, infrastructure, information management systems and other operational resources. If we are unable to scale global operations successfully and in a timely manner, the growth of our business may be limited. Developing our business infrastructure and operations may be more difficult, more expensive or take longer than we anticipate. We may also need to revise our strategy for developing the proper infrastructure and operations periodically. For example, in the fourth quarter of 2014, we implemented a reorganization of our European operations, including a workforce reduction and the consolidation of European sites, for which we recorded, in the aggregate, a one-time charge of approximately $9.0 million in the fourth quarter of 2014. If we are not able to successfully market and sell our products globally, our business, results of operations and financial condition may be adversely affected.

Future development of our business infrastructure and operations could strain our operational, human and financial resources. In order to manage the development of our business infrastructure and global operations, we must:

- continue to improve operating, administrative, and information systems;
- accurately predict future personnel and resource needs to meet contract commitments;
- track the progress of ongoing projects; and
- attract and retain qualified management, sales, professional, scientific and technical operating personnel.

If we do not take these actions and are not able to manage our business, then our operations may be less successful than anticipated.

The success of our global operations may be adversely affected by international risks and uncertainties. If these operations are not successful, our business, results of operations and financial condition could be adversely affected.

Our future profitability will depend in part on our ability to grow and ultimately maintain our product sales in foreign markets, particularly in Europe. For the year ended December 31, 2016 and the nine months ended September 30, 2017 , we had $11.6 million and $4.8 million, respectively, in sales outside of the United States, most of which are sales of Angiomax. The principal patent covering Angiomax in Europe expired in August 2015 and, as a result, we face generic competition in Europe. Our foreign operations subject us to additional risks and uncertainties, particularly because we have limited experience in marketing, servicing and distributing our products or otherwise operating our business outside of the United States. These risks and uncertainties include:

- political and economic determinations that adversely impact pricing or reimbursement policies;
- our customers' ability to obtain reimbursement for procedures using our products in foreign markets;
- compliance with complex and changing foreign legal, tax, accounting and regulatory requirements;
- language barriers and other difficulties in providing long-range customer support and service;
- longer accounts receivable collection times;
- significant foreign currency fluctuations, which could result in increased operating expenses and reduced revenues;
- trade restrictions and restrictions on direct investment by foreign entities;
- reduced protection of intellectual property rights in some foreign countries; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

Our foreign operations could also be adversely affected by export license requirements, the imposition of governmental controls, political and economic instability, trade restrictions, changes in tariffs and difficulties in staffing and managing foreign operations.

If reimbursement by government payers or other third-party payers is not available or limited for our products, pricing is delayed or set at unfavorable levels or access to our products is reduced or terminated by governmental and other third-party payers, our ability to generate revenue would be adversely affected.

Acceptable levels of coverage and reimbursement of drug treatments by government payers, such as Medicare and Medicaid programs, private health insurers and other organizations, have a significant effect on our ability to successfully commercialize our products. Reimbursement in the United States, Europe or elsewhere may not be available for any products we may develop or, if already available, may be decreased in the future. We may not get reimbursement or reimbursement may be limited if government payers, private health insurers and other organizations are influenced by the prices of existing drugs in determining whether our products will be reimbursed and at what levels. For example, the availability of numerous generic antibiotics at lower prices than branded antibiotics, such as Orbactiv, could substantially affect the likelihood of reimbursement and the level of reimbursement for Orbactiv. If reimbursement is not available or is available only at limited levels, we may not be able to commercialize our products, or may not be able to obtain a satisfactory financial return on our products.

In certain countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals and the level of reimbursement are subject to governmental control. In some countries, pricing and reimbursement are set with limited, if any, participation in the process by the marketing authorization holder. In addition, it can take an extended period of time after the receipt of initial approval of a product to establish and obtain reimbursement or pricing approval. Reimbursement approval also may be required at the individual patient level, which can lead to further delays. In addition, in some countries, it may take an extended period of time to collect payment even after reimbursement has been established. If prices are set at unsatisfactory levels, such prices may negatively impact our revenues from sales in those countries. An increasing number of countries are taking initiatives to attempt to reduce large budget deficits by focusing cost-cutting efforts on pharmaceuticals for their state-run health care systems. These international price control efforts have impacted all regions of the world, but have been most drastic in the European Union. Further, a number of European Union countries use drug prices from other countries of the European Union as “reference prices” to help determine pricing in their own countries. Consequently, a downward trend in drug prices for some countries could contribute to similar occurrences elsewhere. If reimbursement of our future products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, we may be unable to achieve or sustain profitability.

Third-party payers, including Medicare and Medicaid, increasingly are challenging prices charged for and the cost-effectiveness of medical products and services and they increasingly are limiting both coverage and the level of reimbursement for drugs. If these third-party payers do not consider our products to be economically beneficial compared to other available therapies, they may not cover our products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products at a profit. Third-party payers may provide coverage, but place stringent limitations on such coverage, such as requiring alternative treatments to be tried first. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost-containment programs to limit the growth of government-paid health care costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. For example, in a final rule adopted in 2016 regarding the Medicare Hospital Outpatient Prospective Payment System, CMS finalized a proposal to “bundle” reimbursement for certain hospital outpatient observation services with payment for a number of medicines used in connection with those services. This bundling policy could affect Orbactiv once its Medicare “pass-through” status expires, potentially in 2018. This particular policy is one example of a broader trend in health care in which the government and other payors are seeking to move from individualized “fee for service” payments toward a system focused on “bundled” payments for more comprehensive packages of services and episodes of care. Also, the trend toward managed health care in the United States and the changes in health insurance programs may result in lower prices for pharmaceutical products and health care reform.

Health care reform measures such as those outlined above, and others consistent with these trends, could, among other things, increase pressure on pricing and, as a result, the number of procedures that are performed. Additionally, health care reform efforts undertaken during the Trump administration may result in additional reductions in Medicare, Medicaid and other healthcare funding. In addition to federal legislation, state legislatures and foreign governments have also shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. The establishment of limitations on patient access to our drugs, adoption of price controls and cost-containment measures in new jurisdictions or programs, and adoption of more restrictive policies in jurisdictions with existing controls and measures could adversely impact our business and future results. If governmental organizations and third-party payers do not consider our products to be cost-effective compared to other available therapies, they may not reimburse providers or consumers of our products or, if they do, the level of reimbursement may not be sufficient to allow us to sell our products on a profitable basis.

Use or misuse of our products may result in serious injuries or even death to patients and may subject us to significant claims for product liability. If we are unable to obtain insurance at acceptable costs and adequate levels or otherwise protect ourselves against potential product liability claims, we could be exposed to significant liability.

Our business exposes us to potential significant product liability risks which are inherent in the testing, manufacturing, marketing and sale of human healthcare products. Product liability claims might be made by patients in clinical trials, consumers, health care providers or pharmaceutical companies or others that sell our products. These claims may be made even with respect to those products that are manufactured in licensed and regulated facilities or otherwise possess regulatory approval for commercial sale or study.

These claims could expose us to significant liabilities that could prevent or interfere with the development or commercialization of our products. Product liability claims could require us to spend significant time and money in litigation or pay significant damages. With respect to our commercial sales and our clinical trials, we are covered by product liability insurance in the amount of $10.0 million per occurrence and $10.0 million annually in the aggregate on a claims-made basis. This coverage may not be adequate to cover all or any product liability claims that we face.

As we continue to commercialize our products, we may wish to increase our product liability insurance. Product liability coverage is expensive. In the future, we may not be able to maintain or obtain such product liability insurance on reasonable terms, at a reasonable cost or in sufficient amounts to protect us against losses due to product liability claims.

Our reliance on government funding for certain development activities may add uncertainty to our research and commercialization efforts with respect to Vabomere.

A significant portion of the funding for the development of Vabomere has come from, and may continue to come from, our contracts with BARDA. BARDA is entitled to terminate our BARDA contracts for convenience at any time, in whole or in part, and is not required to provide continued funding beyond amounts currently obligated under the existing contracts, and there can be no assurance that our BARDA contracts will not be terminated. Changes in government budgets and agendas may result in a decreased and deprioritized emphasis on supporting the development of antibacterial products such as Vabomere. If our BARDA contracts are terminated or suspended, or if there is any reduction or delay in funding under our BARDA contracts, we may be forced to seek alternative sources of funding, which may not be available on non-dilutive terms, terms favorable to us or at all. If alternative sources of funding are not available, we may be forced to suspend or terminate certain development activities related to Vabomere.

Our reliance on government funding for Vabomere may impose requirements that increase the costs of commercialization and production of Vabomere developed under that government-funded program.

Our BARDA contracts include provisions that reflect the U.S. government's substantial rights and remedies, many of which are not typically found in commercial contracts, including powers of the government to:

- unilaterally reduce or modify the government's obligations under such contracts, including by imposing equitable price adjustments, without the consent of the other party;
- cancel multi-year contracts and related orders if funds for contract performance for any subsequent year become unavailable;
- decline, in whole or in part, to exercise an option to renew the contracts;
- claim rights to data, including intellectual property rights, developed under such contracts;
- audit contract-related costs and fees, including allocated indirect costs;
- suspend the contractor from receiving new contracts pending resolution of alleged violations of procurement laws or regulations in the event of wrongdoing by us;
- take actions that result in a longer development timeline than expected;
- direct the course of a development program in a manner not chosen by the government contractor;

- impose U.S. manufacturing requirements for products that embody inventions conceived or first reduced to practice under such contracts;
- suspend or debar the contractor from doing future business with the government or a specific government agency;
- pursue criminal or civil remedies under the False Claims Act, False Statements Act and similar remedy provisions specific to government agreements; and
- limit the government's financial liability to amounts appropriated by the U.S. Congress on a fiscal-year basis, thereby leaving some uncertainty about the future availability of funding for a program even after it has been funded for an initial period.

We may not have the right to prohibit the U.S. government from using certain technologies funded by the government and developed by us related to Vabomere and our other antibacterial candidates, and we may not be able to prohibit third party companies, including our competitors, from using those technologies in providing products and services to the U.S. government. The U.S. government generally takes the position that it has the right to royalty-free use of technologies that are developed under U.S. government contracts.

In addition, government contracts normally contain additional requirements that may increase our costs of doing business, reduce our profits, and expose us to liability for failure to comply with these terms and conditions. These requirements include, for example:

- specialized accounting systems unique to government contracts;
- potential liability for price adjustments or recoupment of government funds after such funds have been spent;
- public disclosures of certain non-proprietary contract information, which may enable competitors to gain insights into our research program; and
- mandatory socioeconomic compliance requirements, including labor standards, non-discrimination and affirmative action programs and environmental compliance requirements.

As a U.S. government contractor, we are subject to financial audits and other reviews by the U.S. government of our costs and performance under our BARDA contracts, as well as our accounting and general business practices related to our BARDA contracts. Based on the results of its audits, the government may adjust our contract-related costs and fees, including allocated indirect costs.

Laws and regulations affecting government contracts, including our BARDA contracts, make it more costly and difficult for us to successfully conduct our business. Failure to comply with these laws and regulations could result in significant civil and criminal penalties and adversely affect our business.

We must comply with numerous laws and regulations relating to the administration and performance of our BARDA contracts. Among the most significant government contracting regulations that affect one or both of our BARDA contracts are:

- the Federal Acquisition Regulation, or FAR, and agency-specific regulations supplemental to the FAR, which comprehensively regulate the procurement, formation, administration and performance of government contracts;
- the business ethics and public integrity obligations, which govern conflicts of interest and the hiring of former government employees, restrict the granting of gratuities and funding of lobbying activities and incorporate other requirements such as the Anti-Kickback Act, the Procurement Integrity Act, the False Claims Act and the Foreign Corrupt Practices Act;
- export and import control laws and regulations; and
- laws, regulations and executive orders restricting the exportation of certain products and technical data.

In addition, U.S. government agencies such as the Department of Health and Human Services, or DHHS, and the Defense Contract Audit Agency, or DCAA, routinely audit and investigate government contractors for compliance with applicable laws and standards. These agencies review a contractor's performance under its contracts, including contracts with BARDA, cost structure and compliance with applicable laws, regulations and standards.

These agencies also review the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific contract will not be paid, while such costs already paid must be refunded. If we are audited and such audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including:

- termination of any government contracts, including our BARDA contracts;
- suspension of payments;
- fines; and
- suspension or prohibition from conducting business with the U.S. government.

In addition, we could suffer serious reputational harm if allegations of impropriety were made against us, which could cause our stock price to decrease.

We may not be able to manage our business effectively if we are unable to attract and retain key personnel and consultants.

Our industry has experienced a high rate of turnover of management personnel in recent years. We are highly dependent on our ability to attract and retain qualified personnel for the acquisition, development and commercialization activities we conduct or sponsor. If we lose one or more of the members of our senior management, including our Chief Executive Officer, Clive A. Meanwell, or other key employees or consultants, our ability to implement successfully our business strategy could be seriously harmed. Our ability to replace these key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to acquire, develop and commercialize products successfully. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate such additional personnel.

Risks Related to our Dependence on Third Parties for Manufacturing, Research and Development, and Distribution Activities

We do not have manufacturing or supply capabilities and are completely dependent on third parties for the manufacture and supply of our products. We depend on a limited number of suppliers for the production of bulk drug substance for our products and products in development and to carry out fill-finish activities. If any of these suppliers does not or cannot fulfill its manufacturing or supply obligations to us, our ability to meet commercial demands for our products and to conduct clinical trials of our products and products in development could be impaired and our business could be harmed.

We do not manufacture any of our products or products in development, and do not plan to develop any capacity to manufacture them. We currently rely on a limited number of manufacturers and other third parties for bulk substance and to carry out fill-finish activities for our products and products in development. We expect to continue this manufacturing strategy for all of our other products and products in development for the foreseeable future.

In the event that any third-party is unable or unwilling to carry out its respective manufacturing or supply obligations or terminates or refuses to renew its arrangements with us, we may be unable to obtain alternative manufacturing or supply on commercially reasonable terms on a timely basis or at all. In such cases, the third-party manufacturers have made no commitment to supply the drug product to us on a long-term basis and could reject our purchase orders. Only a limited number of manufacturers are capable of manufacturing our products and products in development. Consolidation within the pharmaceutical manufacturing industry could further reduce the number of manufacturers capable of producing our products, or otherwise affect our existing contractual relationships.

If we were required to transfer manufacturing processes to other third-party manufacturers and we were able to identify an alternative manufacturer, we would still need to satisfy various regulatory requirements. Satisfaction of these requirements could cause us to experience significant delays in receiving an adequate supply of our products and products in development and could be costly. Moreover, we may not be able to transfer processes that are proprietary to the manufacturer. Any delays in the manufacturing process may adversely impact our ability to meet commercial demands for our products on a timely basis, which could reduce our revenue, and to supply product for clinical trials of our products and products in development, which could affect our ability to complete clinical trials of our products and products in development on a timely basis.

If third parties on whom we rely to manufacture and support the development and commercialization of our products do not fulfill their obligations or we are unable to establish or maintain such arrangements, the development and commercialization of our products may be terminated or delayed, and the costs of development and commercialization may increase.

Our development and commercialization strategy involves entering into arrangements with corporate and academic collaborators, contract research organizations, distributors, third-party manufacturers, licensors, licensees and others to conduct development work, manage or conduct our clinical trials, manufacture our products and market and sell our products outside of the United States. We do not have the expertise or the resources to conduct many of these activities on our own and, as a result, are particularly dependent on third parties in many areas.

We may not be able to maintain our existing arrangements with respect to the commercialization or manufacture of our products or establish and maintain arrangements to develop, manufacture and commercialize our products in development or any additional product candidates or products we may acquire on terms that are acceptable to us. Any current or future arrangements for development and commercialization may not be successful. If we are not able to establish or maintain agreements relating to our products, our products in development or any additional products or product candidates we may acquire, our results of operations would be materially adversely affected.

Third parties may not perform their obligations as expected. The amount and timing of resources that third parties devote to developing, manufacturing and commercializing our products are not within our control. Our collaborators may develop, manufacture or commercialize, either alone or with others, products and services that are similar to or competitive with the products that are the subject of the collaboration with us. Furthermore, our interests may differ from those of third parties that manufacture or commercialize our products. Our collaborators may reevaluate their priorities from time to time, including following mergers and consolidations, and change the focus of their development, manufacturing or commercialization efforts. Disagreements that may arise with these third parties could delay or lead to the termination of the development or commercialization of our product candidates, or result in litigation or arbitration, which would be time consuming and expensive.

If any third party that manufactures or supports the development or commercialization of our products breaches or terminates its agreement with us, fails to commit sufficient resources to our collaboration or conduct its activities in a timely manner, or fails to comply with regulatory requirements, such breach, termination or failure could:

- delay or otherwise adversely impact the manufacturing, development or commercialization of our products, our products in development or any additional products or product candidates that we may acquire or develop;
- require us to seek a new collaborator or undertake unforeseen additional responsibilities or devote unforeseen additional resources to the manufacturing, development or commercialization of our products; or
- result in the termination of the development or commercialization of our products.

Our reliance on third-party manufacturers and suppliers to supply our products and products in development may increase the risk that we will not have appropriate supplies of our products or our products in development or that sanctions may be imposed on us or the manufacturer due to a manufacturer's failure to comply with regulation requirements, either of which could adversely affect our business, results of operations and financial condition.

Reliance on third-party manufacturers and suppliers entails risks to which we would not be subject if we manufactured products or products candidates ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing or supply agreement by the third party; and
- the possible termination or non-renewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us.

Our products and products in development may compete with products and products in development of third parties for access to manufacturing facilities. If we are not able to obtain adequate supplies of our products and products in development, it will be more difficult for us to compete effectively, market and sell our approved products and develop our products in development.

Our manufacturers are subject to ongoing, periodic, unannounced inspection by the FDA and corresponding state and foreign agencies or their designees to evaluate compliance with the FDA's current good manufacturing practices, or cGMP, regulations and other governmental regulations and corresponding foreign standards. We cannot be certain that our present or future manufacturers will be able to comply with cGMP regulations and other FDA regulatory requirements or similar regulatory requirements outside the United States. We do not control compliance by our manufacturers with these regulations and standards. Failure of our third-party manufacturers or us to comply with applicable regulations could result in sanctions being imposed on the manufacturer or us, including fines and other monetary penalties, injunctions, civil penalties, failure of regulatory authorities to grant marketing approval of our products in development, delays, suspension or withdrawal of approvals, suspension of clinical trials, license revocation, seizures or recalls of products in development or products, interruption of production, warning letters, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products and products in development.

We may depend on collaborations with third parties for the development and commercialization of certain of our products in development. If those collaborations are not successful, we may not be able to capitalize on the market potential of these products in development.

We may seek to develop and commercialize certain of our products in development through a variety of types of collaboration arrangements. Our likely collaborators for any marketing, distribution, development, licensing or broader collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. We may not be able to enter into these types of arrangements on a timely basis, on favorable terms or at all. Our ability to enter into such arrangements with respect to products in development that are subject to licenses may be limited by the terms of those licenses. If we do enter into any such arrangements with any third parties in the future, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our products in development. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our products in development could pose a number of risks to us, including:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not pursue development and commercialization of our products in development or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors such as an acquisition that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products in development if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such product or products;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or otherwise expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- disputes may arise with respect to the ownership of intellectual property developed pursuant to our collaborations;
- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our products or products in development or that result in costly litigation or arbitration that diverts management attention and resources; and

- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable products and products in development.

Collaboration agreements may not lead to development or commercialization of products in development in the most efficient manner or at all. If a collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated.

If we use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages or subject to fines and penalties.

We conduct research and development activities that involve the controlled use of potentially hazardous substances, including chemical, biological and radioactive materials and viruses. In addition, our operations produce hazardous waste products. Federal, state and local laws and regulations in the United States and Canada govern the use, manufacture, storage, handling and disposal of hazardous materials. We may incur significant additional costs to comply with applicable laws in the future. Also, we cannot completely eliminate the risk of contamination or injury resulting from hazardous materials and we may incur liability as a result of any such contamination or injury. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We have only limited insurance for liabilities arising from hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may restrict our research, development and production efforts, which could harm our business, operating results and financial condition.

Risks Related to Regulatory Matters

If we do not obtain regulatory approvals for our products in development in any jurisdiction or for our products in any additional jurisdictions, we will not be able to market our products and products in development in those jurisdictions and our ability to generate additional revenue could be materially impaired.

We must obtain approval from the FDA in order to sell our products in development in the United States and from foreign regulatory authorities in order to sell our products in development in other countries. In addition, we must obtain approval from foreign regulatory authorities in order to sell our U.S.-approved products in other countries.

We have a pipeline of products in development, including inclisiran and certain early stage antibiotic candidates targeting multi-drug resistant bacteria. We cannot be assured that we will make our planned submissions when we anticipate, that the submissions will be accepted for filing, or that the applicable regulatory authorities will approve our applications on a timely basis or at all.

Developing and obtaining regulatory approval for product candidates is a lengthy process, often taking a number of years, is uncertain and is expensive. All of the product candidates that we are developing, or may develop in the future, require research and development, preclinical studies, nonclinical testing and clinical trials prior to seeking regulatory approval and commencing commercial sales. In addition, we may need to address a number of technological challenges in order to complete development of our product candidates. As a result, the development of product candidates may take longer than anticipated or not be successful at all.

Any regulatory approval we ultimately obtain may limit the indicated uses for the product or subject the product to restrictions or post-approval commitments that render the product commercially non-viable. Securing regulatory approval requires the submission of extensive non-clinical and clinical data, information about product manufacturing processes and inspection of facilities and supporting information to the regulatory authorities for each therapeutic indication to establish the product's safety and efficacy. If we are unable to submit the necessary data and information, for example, because the results of clinical trials are not favorable or because our manufacturer fails to comply with FDA or similar regulatory requirements, or if the applicable regulatory authority delays reviewing or does not approve our applications, we will be unable to obtain regulatory approval. Delays in obtaining or failure to obtain regulatory approvals may:

- delay or prevent the successful commercialization of any of the products or product candidates in the jurisdiction for which approval is sought;
- diminish our competitive advantage; and
- defer or decrease our receipt of revenue.

The regulatory review and approval process to obtain marketing approval takes many years and requires the expenditure of substantial resources. This process can vary substantially based on the type, complexity, novelty and indication of the product involved. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that data are insufficient for approval and require additional pre-clinical, clinical or other studies. In addition, varying interpretations of the data obtained from pre-clinical and clinical testing could delay, limit or prevent regulatory approval of a product. Moreover, recent events, including complications experienced by patients taking FDA-approved drugs, have raised questions about the safety of marketed drugs and may result in new legislation by the U.S. Congress or foreign legislatures and increased caution by the FDA and comparable foreign regulatory authorities in reviewing applications for marketing approval.

Certain of our products in development have experienced regulatory and/or clinical setbacks in the past. For example, in February 2014, the FDA Cardiovascular and Renal Drugs Advisory Committee advised against approval of one of our recently divested products for use in patients undergoing PCI or those that require bridging from oral antiplatelet therapy to surgery, and in April 2014, the FDA issued a complete response letter regarding our NDA for that product.

The procedures to obtain marketing approvals vary among countries and can involve additional clinical trials or other pre-filing requirements. The time required to obtain foreign regulatory approval may differ from that required to obtain FDA approval. The foreign regulatory approval process may include all the risks associated with obtaining FDA approval, or different or additional risks. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by the regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by the FDA or regulatory authorities in other foreign countries. We may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products and products in development in any market.

We cannot expand the indications for which we are marketing our products unless we receive regulatory approval for each additional indication. Failure to expand these indications will limit the size of the commercial market for our products.

In order to market our products for expanded indications, we will need to conduct appropriate clinical trials, obtain positive results from those trials and obtain regulatory approval for such proposed indications. Obtaining regulatory approval is uncertain, time-consuming and expensive. The regulatory review and approval process to obtain marketing approval for a new indication can take many years and require the expenditure of substantial resources. This process can vary substantially based on the type, complexity, novelty and indication of the product involved. The regulatory authorities have substantial discretion in the approval process and may refuse to accept any application. Alternatively, they may decide that any data submitted is insufficient for approval and require additional pre-clinical, clinical or other studies, which studies could require the expenditure of substantial resources. Even if we undertook such studies, we might not be successful in obtaining regulatory approval for these indications or any other indications in a timely manner or at all. In addition, varying interpretations of the data obtained from pre-clinical and clinical testing could delay, limit or prevent regulatory approval of a new indication for a product. If we are unsuccessful in expanding the product label of our products, the size of the commercial market for our products will be limited.

Clinical trials of product candidates are expensive and time-consuming, and the results of these trials are uncertain. If we are unable to conduct clinical trials that demonstrate the safety and efficacy of our product candidates on a timely basis, then our costs of developing the product candidates may increase and we may not be able to obtain regulatory approval for our product candidates on a timely basis or at all.

Before we can obtain regulatory approvals to market any product for a particular indication, we will be required to complete pre-clinical studies and extensive clinical trials in humans to demonstrate the safety and efficacy of such product for such indication.

Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. Success in pre-clinical testing or early clinical trials does not ensure that later clinical trials will be successful, and interim results of a clinical trial do not necessarily predict final results. An unexpected result in one or more of our clinical trials can occur at any stage of testing. For example, in November 2016, we voluntarily discontinued our clinical development program for MDCO-216, an investigational cholesterol efflux promoter, and in August 2017 we voluntarily discontinued our clinical development program for MDCO-700, an investigational anesthetic agent. Further, in October 2012, we voluntarily discontinued our Phase 2b dose-ranging study of MDCO-2010, a serine protease inhibitor which we were developing to reduce blood loss during surgery, in response to serious unexpected patient safety issues encountered during the trial.

We may experience numerous unforeseen events during, or as a result of, the clinical trial process that could delay or prevent us from receiving regulatory approval or commercializing our products in development, including:

- our clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials which even if undertaken cannot ensure we will gain approval;

- data obtained from pre-clinical testing and clinical trials may be subject to varying interpretations, which could result in the FDA or other regulatory authorities deciding not to approve a product in a timely fashion, or at all;
- the cost of clinical trials may be greater than we currently anticipate;
- regulators, ethics committees or institutional review boards may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we, or the FDA or other regulatory authorities, might suspend or terminate a clinical trial at any time on various grounds, including a finding that participating patients are being exposed to unacceptable health risks. For example, we have in the past voluntarily suspended enrollment in one of our clinical trials to review an interim analysis of safety data from the trial; and
- the effects of our product candidates may not be the desired effects or may include undesirable side effects or the product candidates may have other unexpected characteristics.

The rate of completion of clinical trials depends in part upon the rate of enrollment of patients. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, the existence of competing clinical trials and the availability of alternative or new treatments. In particular, the patient population targeted by some of our clinical trials may be small. Delays in patient enrollment in any of our current or future clinical trials may result in increased costs and program delays.

If we or the contract manufacturers manufacturing our products and products in development fail to comply with the extensive regulatory requirements to which we, our contract manufacturers and our products and products in development are subject, our products could be subject to restrictions or withdrawal from the market, the development of our product candidates could be jeopardized, and we could be subject to penalties.

The research, testing, manufacturing, labeling, safety, advertising, promotion, storage, sales, distribution, import, export and marketing, among other things, of our products, both before and after approval, are subject to extensive regulation by governmental authorities in the United States, Europe and elsewhere throughout the world. Both before and after approval of a product, quality control and manufacturing procedures must conform to cGMP. Regulatory authorities, including the FDA, periodically inspect manufacturing facilities to assess compliance with cGMP. Our failure or the failure of contract manufacturers to comply with the laws administered by the FDA, the EMA or other governmental authorities could result in, among other things, any of the following:

- delay in approving or refusal to approve a product;
- product recall or seizure;
- suspension or withdrawal of an approved product from the market;
- delays in, suspension of or prohibition of commencing, clinical trials of products in development;
- interruption of production;
- operating restrictions;
- untitled or warning letters;
- injunctions;
- fines and other monetary penalties;
- the imposition of civil or criminal penalties;
- disruption of importing and exporting activities; and
- unanticipated expenditures.

We may incur significant liability if it is determined that we are promoting the "off-label" use of any of our products.

Physicians may prescribe drug products for uses that are not described in the product's labeling and that differ from those approved by the FDA or other applicable regulatory agencies. Off-label uses are common across medical specialties. Although the FDA and other regulatory agencies do not regulate a physician's choice of treatments, the FDA and other regulatory agencies do restrict communications on the subject of off-label use. Companies may not promote drugs for off-label uses. The FDA and other regulatory and enforcement authorities actively enforce laws and regulations prohibiting promotion of off-label uses and the promotion of products for which marketing approval has not been obtained. A company that is found to have promoted off-label uses may be subject to significant liability, including civil and administrative remedies as well as criminal sanctions.

Notwithstanding the regulatory restrictions on off-label promotion, the FDA and other regulatory authorities allow companies to engage in truthful, non-misleading, and non-promotional scientific exchange concerning their products. We engage in medical education activities and communicate with investigators and potential investigators regarding our clinical trials. If the FDA or another regulatory or enforcement authority determines that our communications regarding our marketed products are not in compliance with the relevant regulatory requirements and that we have improperly promoted off-label uses, we may be subject to significant liability, including civil and administrative remedies as well as criminal sanctions.

If we do not comply with federal, state and foreign laws and regulations relating to the health care business, we could face substantial penalties.

We and our customers are subject to extensive regulation by the federal government, and the governments of the states and foreign countries in which we may conduct our business. In the United States, the laws that directly or indirectly affect our ability to operate our business include the following:

- the Federal Anti-Kickback Law, which prohibits persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce either the referral of an individual or furnishing or arranging for a good or service for which payment may be made under federal health care programs such as Medicare and Medicaid;

- other Medicare laws and regulations that prescribe the requirements for coverage and payment for services performed by our customers, including the amount of such payment;

- the Federal False Claims Act, which imposes civil and criminal liability on individuals and entities who submit, or cause to be submitted, false or fraudulent claims for payment to the government;

- the Federal False Statements Act, which prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with delivery of or payment for health care benefits, items or services; and

- various state laws that impose similar requirements and liability with respect to state healthcare reimbursement and other programs.

If our operations are found to be in violation of any of the laws and regulations described above or any other law or governmental regulation to which we or our customers are or will be subject, we may be subject to civil and criminal penalties, damages, fines, exclusion from the Medicare and Medicaid programs and the curtailment or restructuring of our operations. Similarly, if our customers are found to be non-compliant with applicable laws, they may be subject to sanctions, which could also have a negative impact on us. Any penalties, damages, fines, curtailment or restructuring of our operations would adversely affect our ability to operate our business and our financial results. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses, divert our management's attention from the operation of our business and damage our reputation.

Failure to comply with the U.S. Foreign Corrupt Practices Act, or FCPA, as well as the anti-bribery laws of the nations in which we conduct business, could subject us to penalties and other adverse consequences.

We are subject to the FCPA, which generally prohibits U.S. companies from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business and requires companies to maintain accurate books and records and internal controls, including at foreign-controlled subsidiaries. In addition, we are subject to other anti-bribery laws of the nations in which we conduct business that apply similar prohibitions as the FCPA. Our employees or other agents may engage in prohibited conduct without our knowledge under our policies and procedures and the FCPA and other anti-bribery laws that we

may be subject to for which we may be held responsible. If our employees or other agents are found to have engaged in such practices, we could suffer severe penalties and other consequences that may have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Our Intellectual Property

If we breach any of the agreements under which we license rights to products or technology from others, we could lose license rights that are material to our business or be subject to claims by our licensors.

We license rights to products and technology that are important to our business, and we expect to enter into additional licenses in the future. For instance, we have exclusively licensed patents and patent applications relating to each of our products and products in development. Under these agreements, we are subject to a range of commercialization and development, sublicensing, royalty, patent prosecution and maintenance, insurance and other obligations.

Any failure by us to comply with any of these obligations or any other breach by us of our license agreements could give the licensor the right to terminate the license in whole, terminate the exclusive nature of the license or bring a claim against us for damages. Any such termination or claim could have a material adverse effect on our financial condition, results of operations, liquidity or business. Even if we contest any such termination or claim and are ultimately successful, such dispute could lead to delays in the development or commercialization of potential products and result in time-consuming and expensive litigation or arbitration. In addition, on termination we may be required to license to the licensor any related intellectual property that we developed.

If we are unable to obtain or maintain protection for the intellectual property relating to our products, the value of our products will be adversely affected.

The patent positions of pharmaceutical companies like us are generally uncertain and involve complex legal, scientific and factual issues. We cannot be certain that our patents and patent applications, including our own and those that we have rights to through licenses from third parties, will adequately protect our intellectual property and value of our products. Our success protecting our intellectual property depends significantly on our ability to:

- obtain and maintain U.S. and foreign patents, including defending those patents against adverse claims;
- secure patent term extension for the patents covering our approved products;
- protect trade secrets;
- operate without infringing the proprietary rights of others; and
- prevent others from infringing our proprietary rights.

We may not have any additional patents issued from any patent applications that we own or license. If additional patents are granted, the claims allowed may not be sufficiently broad to protect our technology. In addition, issued patents that we own or license may be challenged in contested proceedings such as opposition, derivation, reexamination, inter partes review, post-grant review or interference proceedings and may be narrowed, invalidated or circumvented, which could limit our ability to stop competitors from marketing similar products or limit the length of term of patent protection we may have for our products, and we may not be able to obtain patent term extension to prolong the terms of the principal patents covering our approved products. For example, a patent granted in Europe that expires in 2029 and covers an Orbactiv composition used to treat complicated skin and skin structure infections has been opposed by an anonymous opponent. Changes in patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection.

In addition, the U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the value of patents, once obtained, and with regard to our ability to obtain patents in the future. Depending on decisions by the U.S. Congress, the federal courts, and the PTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

Our patents also may not afford us protection against competitors with similar technology. Because patent applications in the United States and many foreign jurisdictions are typically not published until eighteen months after filing, or in some cases not at all, and because publications of discoveries in the scientific literature often lag behind actual discoveries, neither we nor our licensors can be certain that others have not filed or maintained patent applications for technology used by us or covered by our pending patent applications without our being aware of these applications.

We exclusively license patents and patent applications for several of our products and products in development and we own patents and patent applications for several of our products and products in development. The patents covering our approved products and our products in development are currently set to expire at various dates.

Angiomax. The principal U.S. patents covering Angiomax currently include the '727 patent and the '343 patent and previously included U.S. Patent No. 5,196,404, or the '404 patent. The '404 patent covered the composition of matter of Angiomax. The '404 patent was set to expire in March 2010, but the term was extended to December 15, 2014 by the PTO under the Hatch-Waxman Act. As a result of our study of Angiomax in the pediatric setting, we had an additional six-month period of pediatric exclusivity following expiration of the '404 patent. This period of exclusivity expired in June 2015.

In the second half of 2009, the PTO issued to us the '727 patent and the '343 patent, covering a more consistent and improved Angiomax drug product and the processes by which it is made. The '727 patent and the '343 patent are set to expire in January 2029, which includes pediatric exclusivity. In response to Paragraph IV Certification Notice letters we received with respect to ANDAs filed by a number of parties with the FDA seeking approval to market generic versions of Angiomax, we filed lawsuits against the ANDA filers alleging patent infringement of the '727 patent and '343 patent and have since entered into settlement agreements with respect to our suits against three ANDA filers, Teva, APP and Sun.

In our lawsuit against Hospira, on July 2, 2015, the Federal Circuit Court ruled against us, finding the '727 patent and '343 patent invalid under the Section 102(b) "on sale" bar. In November 2015, our petition for en banc review of the Federal Circuit Court's July 2, 2015 decision was granted and the Federal Circuit Court vacated its July 2, 2015 decision. In July 2015, as a result of the Federal Circuit Court's now vacated July 2, 2015 decision, we entered into a supply and distribution agreement with Sandoz under which we granted Sandoz the exclusive right to sell in the United States an authorized generic of Angiomax (bivalirudin). On July 15, 2015, Hospira's ANDAs for its generic versions of Angiomax were approved by the FDA and Hospira began selling its generic versions of Angiomax. On July 11, 2016, in an unanimous decision, the en banc Federal Circuit Court ruled in our favor by finding that the '727 patent and the '343 patent were not invalid under the "on sale" bar The remaining issues on appeal that were not decided by the original panel were remanded back to the same panel for consideration. The Federal Circuit Court heard oral arguments on December 6, 2016 in our appeal of the court's earlier decision but has not yet issued a decision regarding the issues on appeal. Our patent infringement litigation with Mylan was ordered to be a companion appeal to the Hospira appeal and was heard by the same judges as the Hospira appeal. On April 6, 2017, the Federal Circuit Court found that Mylan's ANDA for a generic bivalirudin product does not infringe either the '727 patent and '343 patent. On June 28, 2017, the district court entered an amended final judgment in favor of Mylan and as a result we expect Mylan to commence commercialization of its generic version of Angiomax.

In addition to Hospira, other generic firms have entered the market. APP, through its affiliated company, Fresenius Kabi, commenced selling its generic version of Angiomax under provisions of a settlement agreement triggered by the Federal Circuit Court's July 2, 2015 decision in the Hospira matter. Apotex Inc. and Dr. Reddy's Laboratories have each also commenced commercialization of generic bivalirudin products upon receiving final approval if their respective ANDA filings by the FDA even though we remain in active litigation against each company.

In addition to Hospira's, APP's, Apotex Inc.'s and Dr. Reddy's Laboratories' generic versions of bivalirudin and Sandoz's authorized generic, Angiomax could be subject to further generic competition in the United States from Teva and Sun under the circumstances set forth in our respective settlement agreements with such parties and upon a final approval of each companies' ANDA filings by the FDA. Pliva Hrvatska DOO, an affiliate of Teva, currently has tentative approval for its ANDA filing for its generic version of Angiomax. Other ANDA filers may commercialize their products 'at risk' if they receive final approval of their respective ANDA filings and are not subject to a Hatch-Waxman 30-month stay. Further, we remain in infringement litigation involving the '727 patent and '343 patent with the other ANDA filers as described in Part II, Item 1. Legal Proceedings of this Quarterly Report on Form 10-Q. There can be no assurance as to the outcome of our infringement litigation. We may continue to incur substantial legal expenses related to these matters. If we are unable to enforce our U.S. patents covering Angiomax, Angiomax could become subject to further generic competition, which could have a material adverse impact on our business, financial condition and operating results. Following our settlements with Teva, APP and Sun, we submitted the settlement documents for each settlement to the U.S. Federal Trade Commission, or the FTC, and the U.S. Department of Justice, or the DOJ. The FTC, the DOJ and state attorney general offices could seek to challenge our settlements with Teva, APP or Sun, or a third party could initiate a private action under antitrust or other laws challenging our settlements with Teva, APP or Sun. While we believe our settlements are lawful, we may not prevail in any such challenges or litigation, in which case the other party might obtain injunctive relief,

remedial relief, or such other relief as a court may order. In any event, we may incur significant costs in the event of an investigation or in defending any such action and our business and results of operations could be materially impacted if we fail to prevail against any such challenges.

In Europe, the principal patent covering Angiomax expired in August 2015. This patent covered the composition of matter of Angiomax. As a result, we face generic competition in Europe.

Minocin. As a result of our acquisition of Rempex, we acquired a family of patent applications covering certain minocycline formulations and certain methods of administering minocycline. We have issued patents covering Minocin composition and certain methods of administering minocycline, each of which is set to expire in May 2031. We are also prosecuting other patent applications relating to minocycline formulations and use in the United States and in certain foreign countries.

Orbactiv. The principal patent for Orbactiv that we acquired in our acquisition of Targanta was set to expire in the United States and Europe in November 2016. We have filed to extend the patent term for this patent through November 2020 in the United States and, while the filing is still under review, the patent has received an interim extension of one year to November 2017. We also have a U.S. patent covering the use of Orbactiv in treating certain skin infections that expires in August 2029 and have two additional U.S. patents that cover the use of Orbactiv and certain Orbactiv compositions that will expire in April 2030 and July 2035, respectively. In Europe, we have an issued patent with claims directed to Orbactiv composition for treating certain diseases, which expires in August 2029, and for which we are filing supplementary protection certificates in individual European countries to extend the patent term. We have also filed and are prosecuting a number of patent applications relating to Orbactiv and its uses in the United States and certain foreign jurisdictions.

Vabomere. As a result of our acquisition of Rempex, we acquired a portfolio of patent applications covering the composition of matter of Vabomere and its formulation and use. The principal U.S. patent for Vabomere is set to expire in August 2031, including patent term extension. A corresponding patent application is pending in Europe and other foreign countries. In addition, we have a U.S. patent covering the use of Vabomere to treat bacterial infections that expires in August 2031, and we are currently prosecuting other patent applications relating to Vabomere's composition of matter and its use in the United States and in certain foreign countries.

Inclisiran. We have exclusively licensed from Alnylam patents covering RNAi therapeutics targeting PCSK9 for the treatment of hypercholesterolemia and other human diseases for purposes of developing and commercializing such RNAi therapeutics. Some of these patents are directed to general RNAi technology and expire between 2020 and 2028 in the United States. Other patents are directed to compositions of the inclisiran product being developed under our license from Alnylam and to methods of treatment using such inclisiran product and the patents expire in 2027 and 2028 in the United States. In addition, Alnylam has filed and is prosecuting a number of patent applications in the United States and in certain foreign countries. One of these applications, which, if issued, expires in December 2033, contains claims directed to specific compositions of the inclisiran product we are developing and methods of administrating such compositions.

With respect to the portfolio of patents licensed from Alnylam, it is possible that one or more companies hold patent rights that could be asserted against us or patent rights to which we may need a license. If a court rules that we need such patent rights that have been asserted against us and/or we are not able to obtain a license on reasonable terms, we may be forced to pay excessive license fees or may be unable to market inclisiran, which in either case could have a material adverse effect on our business. For example, in October 2017 Silence served a claim in the High Court of Justice, Chancery Division, Patents Court in the United Kingdom, naming The Medicines Company UK Ltd., our wholly owned subsidiary, Alnylam and Alnylam UK Limited, as co-defendants. In Silence's claim, it seeks a determination that it is entitled to SPCs based on its '847 patent, which Silence alleges covers inclisiran and certain of Alnylam's product candidates. An SPC is an intellectual property right that could extend the life of the Silence patent in relation to a specified product for a period of up to five additional years bringing the expiration date up to 2028. We have until November 14, 2017 to submit substantive arguments contesting the jurisdiction or alternatively to submit substantive defenses to Silence's claim. In addition, in October 2017 we filed a claim with respect to the '847 patent seeking a declaration of invalidity and a declaration of non-infringement by inclisiran of Silence's patent and an order that such patent be revoked. Although we believe the '847 patent is invalid and not infringed by inclisiran and we will vigorously defend any claim brought against us by Silence, litigation is subject to inherent uncertainty.

We plan to file applications for patent term extension for our products in development upon their approval. If we do not receive patent term extensions for the periods requested by us or at all, our patent protection for our products in development could be limited.

Among other proceedings, we are a party to a number of lawsuits that we brought against pharmaceutical companies that have notified us that they have filed ANDAs seeking approval to market generic versions of Angiomax. We cannot predict the outcome of these lawsuits and proceedings. Involvement in litigation and other proceedings, regardless of its outcome, is time-consuming and expensive and may divert our management's time and attention. During the period in which these matters are pending, the uncertainty of their outcome may cause our stock price to decline. An adverse result in these matters, whether appealable or not, will likely cause our stock price to decline. Any final, unappealable, adverse result in these matters will likely have a material adverse effect on our results of operations and financial conditions and cause our stock price to decline.

In addition to seeking to enforce our patent rights, we have in the past and may in the future seek to enforce our other intellectual property rights, including, for example, our trademark rights in order to prevent third parties from using the same or confusingly similar trademarks. We may not be successful in enforcing such rights and preventing such use. Further, certain of our trademark rights are licensed to us by third parties and, in certain circumstances, on a non-exclusive basis, which does not afford us the right to prevent third parties from using such trademarks. Failure to adequately pursue and enforce our intellectual property rights could damage our brands, enable others to compete with our products and impair our competitive position.

If we are not able to keep our trade secrets confidential, our technology and information may be used by others to compete against us.

We rely significantly upon unpatented proprietary technology, information, processes and know-how. We seek to protect this information by confidentiality agreements and invention assignment agreements with our employees, consultants and other third-party contractors, as well as through other security measures. We may not have adequate remedies for any breach by a party to these confidentiality agreements or invention assignment agreements. In addition, our competitors may learn or independently develop our trade secrets. If our confidential information or trade secrets become publicly known, they may lose their value to us.

If we infringe or are alleged to infringe intellectual property rights of third parties, our business may be adversely affected.

Our research, development and commercialization activities, as well as any product candidates or products resulting from these activities, may infringe or be claimed to infringe patents or patent applications under which we do not hold licenses or other rights. Third parties may own or control these patents and patent applications in the United States and abroad. These third parties could bring claims against us or our collaborators that would cause us to incur substantial expenses and, if successful against us, could cause us to pay substantial damages. Further, if a patent infringement suit were brought against us or our collaborators, we or they could be forced to stop or delay research, development, manufacturing or sales of the product or product candidate that is the subject of the suit.

As a result of patent infringement claims, or in order to avoid potential claims, we or our collaborators may choose or be required to seek a license from the third party and be required to pay license fees or royalties or both. These licenses may not be available on acceptable terms, or at all. Even if we or our collaborators were able to obtain a license, the rights may be nonexclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we or our collaborators are unable to enter into licenses on acceptable terms. This could harm our business significantly.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the pharmaceutical and biotechnology industries. In addition to infringement claims against us, we may become a party to other patent litigation and other proceedings, including reexamination, inter partes review, post-grant review, and interference proceedings declared by the PTO and opposition proceedings in the European Patent Office, regarding intellectual property rights with respect to our products and technology. Patent litigation and other proceedings may also absorb significant management time. The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.

Risks Related to Our Common Stock

Fluctuations in our operating results could affect the price of our common stock.

Our operating results may vary from period to period based on factors including the amount and timing of sales of and underlying hospital demand for our products, our customers' buying patterns, the timing, expenses and results of clinical trials, announcements regarding clinical trial results and product introductions by us or our competitors, the availability and timing of third-party reimbursement, including in Europe, sales and marketing expenses and the timing of regulatory approvals. If our operating results do not meet the expectations of investors and securities analysts as a result of these or other factors, the trading price of our common stock will likely decrease.

The capped call transactions may affect the value of the 2023 notes and our common stock.

In connection with the issuance of the 2023 notes, we entered into capped call transactions with respect to the 2023 notes with certain hedge counterparties. The capped call transactions will cover, subject to customary anti-dilution adjustments, the aggregate number of shares of common stock underlying the 2023 notes and are expected generally to reduce potential dilution to the common stock upon conversion of the 2023 notes in excess of the principal amount of such converted 2023 notes. In connection with establishing their initial hedges of the capped call transactions, the hedge counterparties (or their affiliates) entered into various derivative transactions with respect to the common stock concurrently with, and/or purchased the common stock shortly after, the pricing of the 2023 notes. The hedge counterparties (or their affiliates) are likely to modify their hedge positions by entering into or unwinding various derivative transactions with respect to the common stock and/or by purchasing or selling the common stock or other securities of ours in secondary market transactions prior to the maturity of the 2023 notes (and are likely to do so during the settlement averaging period under the capped call transactions, which precedes the maturity date of the 2023 notes, and on or around any earlier conversion date related to a conversion of the 2023 notes). The effect, if any, of any of these transactions and activities on the market price of our common stock or the 2023 notes will depend in part on market conditions and cannot be ascertained at this time, but any of these activities could adversely affect the value of our common stock, which could affect the value of the 2023 notes and the value of our common stock, if any, that the 2023 note holders receive upon any conversion of the 2023 notes.

The warrant transactions that we entered into in connection with the 2017 notes may affect the price of our common stock.

In connection with the sale of the 2017 notes, we entered into warrant transactions with several of the initial purchasers of the 2017 notes, their affiliates and other financial institutions, whom we refer to as counterparties. Upon settlement, the warrants could have a dilutive effect on our earnings per share and the market price of our common stock to the extent that the market price per share of our common stock exceeds the then applicable strike price of the warrants.

In connection with establishing their hedges of the warrant transactions, the counterparties or their affiliates entered into various derivative transactions with respect to our common stock. These parties may modify their hedge positions in the future by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions. These activities could cause a decrease or avoid an increase in the market price of our common stock.

Our stock price has been and may in the future be volatile. This volatility may make it difficult for you to sell common stock when you want or at attractive prices.

Our common stock has been and in the future may be subject to substantial price volatility. From January 1, 2015 to November 7, 2017, the last reported sale price of our common stock ranged from a high of $55.95 per share to a low of $24.32 per share. The value of your investment could decline due to the effect upon the market price of our common stock of any of the following factors, many of which are beyond our control:

- approval or rejection of submissions for marketing approval for our products and products in development;
- regulatory actions by the FDA or a foreign jurisdiction limiting or revoking the use of our products or products in development;
- changes in securities analysts' estimates of our financial performance;
- changes in valuations of similar companies;

- variations in our operating results;
- whether we are successful in further narrowing our operational focus by strategically separating non-core businesses and products, and the amount of consideration paid to us in connection with any related sales or divestitures;
- acquisitions and strategic partnerships;
- announcements of technological innovations or new commercial products by us or our competitors or the filing of ANDAs, NDAs or BLAs for products competitive with ours;
- announcements of results of clinical trials or nonclinical studies by us or third parties relating to our products, products in development or those of our competitors or of regulatory proceedings by us or our competitors;
- the timing, amount and receipt of revenue from sales of our products and margins on sales of our products;
- changes in governmental regulations;
- developments in patent rights or other proprietary rights;
- the extent to which our products are commercially successful globally;
- developments in our ongoing litigation and significant new litigation;
- developments or issues with our contract manufacturers;
- changes in our management; and
- general market conditions.

We believe that period-to-period comparisons of our financial results will not necessarily be indicative of our future performance. If our revenues in any particular period do not meet expectations, we may not be able to adjust our expenditures in that period, which could cause our operating results to suffer. If our operating results in any future period fall below the expectations of securities analysts or investors, our stock price may fall by a significant amount.

The stock markets in general, and The NASDAQ Global Select Market and the market for biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations recently. These fluctuations often have been unrelated or disproportionate to the operating performance of these companies. These broad market and industry factors may adversely affect the market price of our common stock, regardless of our actual operating performance.

We have been subject to securities class action litigation and may be subject to similar or other litigation in the future, which may divert management's attention and have a material adverse effect on our business, financial condition and results of operations.

In February 2014, a class action lawsuit was filed against us and certain of our current and former officers alleging, among other things, that we and certain of our current and former officers violated federal securities laws because we and certain current and former officers allegedly made misrepresentations or did not make proper disclosures regarding the results of clinical trials which tested the efficacy and safety of one of our recently divested products. On February 12, 2016, the parties executed a stipulation for a proposed class settlement, subject to court approval, and on June 7, 2016, the Court granted final approval of the settlement.

There may be additional suits or proceedings brought in the future. Monitoring and defending against legal actions, whether or not meritorious, is time-consuming for our management and detracts from our ability to fully focus our internal resources on our business activities, and we cannot predict how long it may take to resolve these matters. In addition, we may incur substantial legal fees and costs in connection with litigation. Although we have insurance, coverage could be denied or prove to be insufficient.

Our corporate governance structure, including provisions in our certificate of incorporation and by-laws and Delaware law, may prevent a change in control or management that security holders may consider desirable.

The General Corporation Law of the State of Delaware and our certificate of incorporation and by-laws contain provisions that might enable our management to resist a takeover of our company or discourage a third party from attempting to take over our company. These provisions include:

- Section 203 of the Delaware General Corporation Law, which provides that we may not enter into a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in the manner prescribed in Section 203;

- our board of directors has the authority to issue, without a vote or action of stockholders, up to 5,000,000 shares of a new series of preferred stock and to fix the price, rights, preferences and privileges of those shares, each of which could be superior to the rights of holders of our common stock;

- our directors currently are elected to staggered terms, which prevents our entire board of directors from being replaced in any single year; however, at our May 2016 annual meeting of stockholders, our stockholders approved an amendment to our certificate of incorporation that provided for the phased declassification of our board of directors over a two year period and, as a result, upon the election of directors at our 2018 annual meeting of stockholders, we will no longer have a classified board of directors;

- currently and until such time after our 2018 annual meeting of stockholders that our board of directors ceases to be classified, our directors may be removed only for cause and then only by the affirmative vote of the holders of at least 75% of the votes which all stockholders would be entitled to cast in any annual election of directors, and at all times after our board ceases to be classified, our directors may be removed with or without cause (but subject to the same 75% voting requirement as currently in effect);

- the size of our board of directors is determined by resolution of the board of directors;

- any vacancy on our board of directors, however occurring, including a vacancy resulting from an enlargement of our board, may only be filled by vote of a majority of our directors then in office, even if less than a quorum;

- only our board of directors may call special meetings of stockholders;

- our by-laws may be amended, altered or repealed by (i) the affirmative vote of a majority of our directors, subject to any limitations set forth in the by-laws, or (ii) the affirmative vote of the holders of at least 75% of the votes which all the stockholders would be entitled to cast in any annual election of directors;

- stockholders must provide us with advance notice, and certain information specified in our by-laws, in connection with nominations or proposals by such stockholder for consideration at an annual meeting;

- stockholders may not take any action by written consent in lieu of a meeting; and

- our certificate of incorporation may only be amended or repealed by the affirmative vote of a majority of our directors and the affirmative vote of the holders of at least 75% of the votes which all the stockholders would be entitled to cast in any annual election of directors (and plus any separate class vote that might in the future be required pursuant to the terms of any series of preferred stock that might be outstanding at the time any of these amendments are submitted to stockholders).

These provisions could have the effect of delaying, deferring, or preventing a change in control of us or a change in our management that stockholders may consider favorable or beneficial. These provisions could also discourage proxy contests and make it more difficult for stockholders to elect directors and take other corporate actions. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock or our other securities.

Our business could be negatively affected as a result of the actions of activist shareholders.

Proxy contests have been waged against many companies in the biopharmaceutical industry over the last few years. If faced with a proxy contest, we may not be able to successfully defend against the contest, which would be disruptive to our business. Even if we are successful, our business could be adversely affected by a proxy contest because:

- responding to proxy contests and other actions by activist shareholders may be costly and time-consuming and may disrupt our operations and divert the attention of management and our employees;

- perceived uncertainties as to our future direction may result in our inability to consummate potential acquisitions, collaborations or in-licensing opportunities and may make it more difficult to attract and retain qualified personnel and business partners; and

if individuals are elected to our board of directors with a specific agenda different from ours, it may adversely affect our ability to effectively and timely implement our strategic plan and create additional value for our stockholders.

Item 6. Exhibits

Exhibits

See the Exhibit Index on the page immediately preceding the exhibits for a list of exhibits filed as part of this Quarterly Report on Form 10-Q, which Exhibit Index is incorporated herein by this reference.

SIGNATURES

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

THE MEDICINES COMPANY

Date: November 9, 2017

By: /s/ William B. O'Connor
William B. O'Connor
Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT INDEX

Exhibit Number	Description
10.1†	Amendment No. 2 to the Supply and Distribution Agreement, dated July 1, 2017, by and between registrant and Sandoz Inc.
31.1	Chief Executive Officer Certification pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Chief Financial Officer Certification pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Chief Executive Officer Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Chief Financial Officer Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following materials from The Medicines Company Quarterly Report on Form 10-Q for the quarter ended September 30, 2017, formatted in XBRL (Extensible Business Reporting Language): (i) the Condensed Consolidated Balance Sheets, (ii) the Condensed Consolidated Statements of Operations, (iii) the Condensed Consolidated Statements of Comprehensive Loss, (iv) the Condensed Consolidated Statements of Cash Flows, and (v) Notes to Condensed Consolidated Financial Statements.

† Confidential treatment requested as to certain portions, which portions have been omitted and filed separately with the Securities and Exchange Commission.

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Double asterisks denote omissions.

AMENDMENT NO. 2 TO THE SUPPLY AND DISTRIBUTION AGREEMENT

This Amendment No. 2 (this "Amendment") to the Agreement (defined below) is entered into by and between **The Medicines Company**, a company with its principal offices located at 8 Sylvan Way, Parsippany, NJ 07054 ("Innovator"), and **Sandoz Inc.**, a Colorado corporation with a corporate address at 100 College Road West, Princeton, NJ 08540 ("Sandoz"), and shall be effective as of the Amendment Effective Date (defined below). Innovator and Sandoz may hereafter be referred to collectively as the "Parties" and individually as a "Party".

WHEREAS, the Parties entered into that certain Supply and Distribution Agreement, dated as of July 2, 2015, as amended by Amendment No. 1 to the Supply and Distribution Agreement, dated as of July 16, 2015 (the "Agreement"); and

WHEREAS, the Parties now desire to amend various provisions of the Agreement.

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements hereinafter set forth, the Parties hereto agree as follows:

1. **Defined Terms**. Any capitalized terms used herein that are not otherwise defined in this Amendment shall have the meanings ascribed to them in the Agreement.

2. **Amendment Effective Date**. The "Amendment Effective Date" means July 1, 2017.

3. **Schedule A ("Angiomax®")**. Schedule A is hereby amended as follows:

   a. Subsection (c) under "**Net Profit split**" is hereby deleted and replaced with the following:

      "(c) [**] percent ([**]%) of the Net Profit if more than two but less than five generic versions of the Innovator Branded Product (including the Product) are offered for sale in the Territory; or"

   b. In addition, the following are hereby added as new subsections (d) and (e) under "Net Profit split":

      "(d) [**] percent ([**]%) of the Net Profit if five or more but less than eight generic versions of the Innovator Branded Product (including the Product) are offered for sale in the Territory; or

      (e) [**] percent ([**]%) of the Net Profit if eight or more generic versions of the Innovator Branded Product (including the Product) are offered for sale in the Territory."

c. The section entitled “Table 1: Product Cost by Unit Type” is here by deleted and replaced with the following:

“The Product Cost shall be as set forth in the following table:

NDC Number	Unit Type	Product Cost
0781-3158-94	250mg vial	$[**]
0781-3158-95	10 vial carton	$[**]

Notwithstanding the foregoing, in the event that are eight or more generic versions of the Innovator Branded Product (including the Product) being are offered for sale in the Territory, then the Product Cost shall be:

NDC Number	Unit Type	Product Cost
0781-3158-94	250mg vial	$[**]
0781-3158-95	10 vial carton	$[**]

”

4. Profit Share Adjustment.

a. In addition to the adjustment of the Net Profit split percentages set forth in Paragraphs 3(a) and 3(b) above, within [**] Business Days after the Amendment Effective Date, the Innovator shall issue Sandoz a credit memo for an amount equal to $[**] and Sandoz shall be permitted to set-off any Net Profit payments that become due to the Medicines Company against such credit memo, until the amount of such credit memo has been exhausted in its entirety.

5. Full Force and Effect. Except as expressly provided in this Amendment, this Amendment does not in any way change, modify or delete the provisions of the Agreement (or the Parties’ rights, remedies or obligations thereunder), and all such provisions shall remain in full force and effect. On and after the date of this Amendment, each reference in the Agreement to “this Agreement,” “hereunder,” “hereof,” “herein,” or words of like import, and each reference to the Agreement in any other agreements, documents or instruments executed and delivered pursuant to the Agreement, shall mean and be a reference to the Agreement, as amended by this Amendment.

6. Counterparts; Facsimile/PDF Signature**.** This Amendment may be executed in one or more counterparts, all of which shall be considered one and the same agreement, and shall become effective when one or more counterparts have been signed by each of the Parties hereto and delivered, in person or by facsimile or electronic image scan, receipt acknowledged in each case, to the other Party to this Amendment.

7. Governing Law. This Amendment shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflicts of law principles thereof.

8. Severability. If any term or other provision of this Amendment is invalid, illegal or unenforceable, all other provisions of this Amendment shall remain in full force and effect so long as the economic or legal substance of the transactions contemplated hereby is not affected in any manner materially adverse to any party hereto.

9. Amendment. No amendment, supplement, modification or cancellation of this Amendment shall be effective unless it shall be in writing and signed by each Party.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties hereto have caused this Amendment to be executed by their duly authorized respective representatives as of the Amendment Effective Date.

The Medicines Company

By: /s/ William O'Connor
Name: William O'Connor
Title: CFO

Sandoz Inc.

By: /s/ Peter Goldschmidt
Name: Peter Goldschmidt
Title: President, Sandoz US
Head of North America

CERTIFICATIONS

I, Clive A. Meanwell, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of The Medicines Company;

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

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

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

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

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

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

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

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

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

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

/s/ Clive A. Meanwell

Clive A. Meanwell

Chief Executive Officer

Dated: November 9, 2017

EXHIBIT 31.2

CERTIFICATIONS

I, William B. O'Connor, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of The Medicines Company;

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

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

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

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

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

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

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

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

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

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

/s/ William B. O'Connor

William B. O'Connor

Chief Financial Officer

Dated: November 9, 2017

EXHIBIT 32.1

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

In connection with the Quarterly Report on Form 10-Q of The Medicines Company (the "Company") for the period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Clive A. Meanwell, Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

By: /s/ Clive A. Meanwell
Clive A. Meanwell
Chief Executive Officer

Dated: November 9, 2017

A signed original of this written statement required by Section 906 has been provided to The Medicines Company and will be retained by The Medicines Company and furnished to the SEC or its staff upon request

EXHIBIT 32.2

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

In connection with the Quarterly Report on Form 10-Q of The Medicines Company (the "Company") for the period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, William B. O'Connor, Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

By: /s/ William B. O'Connor
William B. O'Connor
Chief Financial Officer

Dated: November 9, 2017

A signed original of this written statement required by Section 906 has been provided to The Medicines Company and will be retained by The Medicines Company and furnished to the SEC or its staff upon request