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

FORM 10-Q

x **Quarterly report pursuant to Section 13 or 15 (d) of the Securities Exchange Act of 1934**
For the quarterly period ended March 31, 2017

or

☐ **Transition report pursuant to Section 13 or 15 (d) of the Securities Exchange Act of 1934**
For the transition period from to

Commission file number: 0-27756

ALEXION PHARMACEUTICALS, INC.
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**13-3648318**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**

100 College Street, New Haven, Connecticut 06510
(Address of Principal Executive Offices) (Zip Code)

475-230-2596
(Registrant's telephone number, including area code)

N/A
(Former name, former address, and former fiscal year, if changed since last report)

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 x No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, 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 x No ☐

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

Large accelerated filer x 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 ☐ No x

Common Stock, $0.0001 par value	224,556,542
Class	**Outstanding as of April 24, 2017**

Alexion Pharmaceuticals, Inc.

Contents

Alexion Pharmaceuticals, Inc.

Condensed Consolidated Balance Sheets
(unaudited)
(amounts in millions, except per share amounts)

	March 31, 2017	December 31, 2016
Assets		
Current Assets:		
Cash and cash equivalents	$ 713	$ 966
Marketable securities	749	327
Trade accounts receivable, net	660	650
Inventories	396	375
Prepaid expenses and other current assets	215	260
Total current assets	2,733	2,578
Property, plant and equipment, net	1,138	1,036
Intangible assets, net	4,223	4,303
Goodwill	5,037	5,037
Other assets	304	299
Total assets	$ 13,435	$ 13,253
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable	$ 61	$ 64
Accrued expenses	546	508
Deferred revenue	16	37
Current portion of long-term debt	167	167
Current portion of contingent consideration	25	24
Other current liabilities	22	23
Total current liabilities	837	823
Long-term debt, less current portion	2,846	2,888
Contingent consideration	132	129
Facility lease obligation	270	233
Deferred tax liabilities	384	396
Other liabilities	110	90
Total liabilities	4,579	4,559
Commitments and contingencies (Note 16)		
Stockholders' Equity:		
Common stock, $0.0001 par value; 290 shares authorized; 233 and 232 shares issued as of March 31, 2017 and December 31, 2016, respectively	—	—
Additional paid-in capital	8,060	7,957
Treasury stock, at cost, 9 and 8 shares as of March 31, 2017 and December 31, 2016, respectively	(1,209)	(1,141)
Accumulated other comprehensive income	36	60
Retained earnings	1,969	1,818
Total stockholders' equity	8,856	8,694
Total liabilities and stockholders' equity	$ 13,435	$ 13,253

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

Alexion Pharmaceuticals, Inc.

Condensed Consolidated Statements of Operations
(unaudited)
(amounts in millions, except per share amounts)

	Three months ended March 31,	
	2017	2016
Net product sales	$ 869	$ 700
Other revenue	1	1
Total revenues	870	701
Cost of sales	69	59
Operating expenses:		
Research and development	219	176
Selling, general and administrative	262	233
Amortization of purchased intangible assets	80	80
Change in fair value of contingent consideration	4	(15)
Acquisition-related costs	—	1
Restructuring expenses	24	1
Total operating expenses	589	476
Operating income	212	166
Other income and expense:		
Investment income	4	1
Interest expense	(24)	(24)
Other income	2	—
Income before income taxes	194	143
Income tax expense	24	51
Net income	$ 170	$ 92
Earnings per common share		
Basic	$ 0.76	$ 0.41
Diluted	$ 0.75	$ 0.41
Shares used in computing earnings per common share		
Basic	224	225
Diluted	226	227

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

Alexion Pharmaceuticals, Inc.

Condensed Consolidated Statements of Comprehensive Income
(unaudited)
(amounts in millions)

	Three months ended March 31,	
	2017	2016
Net income	$ 170	$ 92
Other comprehensive income (loss), net of tax:		
Foreign currency translation	3	2
Unrealized gains on marketable securities	1	2
Unrealized gains on pension obligation	—	2
Unrealized losses on hedging activities, net of tax of $(15), and $(36), respectively	(28)	(64)
Other comprehensive loss, net of tax	(24)	(58)
Comprehensive income	$ 146	$ 34

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

Alexion Pharmaceuticals, Inc.

Condensed Consolidated Statements of Cash Flows
(unaudited)
(amounts in millions)

	Three months ended March 31,	
	2017	**2016**
Cash flows from operating activities:		
Net income	$ 170	$ 92
Adjustments to reconcile net income to net cash flows from operating activities:		
Depreciation and amortization	99	97
Change in fair value of contingent consideration	4	(15)
Share-based compensation expense	54	57
Deferred taxes	(1)	29
Unrealized foreign currency gain	(15)	(14)
Unrealized loss on forward contracts	11	17
Other	2	1
Changes in operating assets and liabilities, excluding the effect of acquisitions:		
Accounts receivable	(3)	(37)
Inventories	(19)	(4)
Prepaid expenses and other assets	(13)	(65)
Accounts payable, accrued expenses and other liabilities	39	(42)
Deferred revenue	(20)	58
Net cash provided by operating activities	308	174
Cash flows from investing activities:		
Purchases of available-for-sale securities	(700)	(208)
Proceeds from maturity or sale of available-for-sale securities	282	269
Purchases of trading securities	(3)	(3)
Proceeds from sale of trading securities	1	—
Purchases of property, plant and equipment	(75)	(64)
Net cash used in investing activities	(495)	(6)
Cash flows from financing activities:		
Payments on term loan	(44)	(175)
Repurchase of common stock	(68)	(297)
Net proceeds from issuance of common stock under share-based compensation arrangements	47	4
Other	(4)	(4)
Net cash used in financing activities	(69)	(472)
Effect of exchange rate changes on cash	3	4
Net change in cash and cash equivalents	(253)	(300)
Cash and cash equivalents at beginning of period	966	1,010
Cash and cash equivalents at end of period	$ 713	$ 710
Supplemental cash flow disclosures from investing and financing activities:		
Capitalization of construction costs related to facility lease obligations	$ 39	$ 26
Accrued expenses for purchases of property, plant and equipment	$ 30	$ 25

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

1. Business

Alexion Pharmaceuticals, Inc. (Alexion, the Company, we, our or us) is a biopharmaceutical company focused on serving patients with devastating and rare disorders through the innovation, development and commercialization of life-transforming therapeutic products.

In our complement franchise, Soliris® is the first and only therapy approved for patients with either paroxysmal nocturnal hemoglobinuria (PNH), a life-threatening and ultra-rare genetic blood disorder, or atypical hemolytic uremic syndrome (aHUS), a life-threatening and ultra-rare genetic disease. PNH and aHUS are two disorders resulting from chronic uncontrolled activation of the complement component of the immune system.

In our metabolic franchise, we market Strensiq® for the treatment of patients with hypophosphatasia (HPP) and Kanuma® for the treatment of patients with lysosomal acid lipase deficiency (LAL-D). HPP is an ultra-rare genetic disease characterized by defective bone mineralization that can lead to deformity of bones and other skeletal abnormalities. LAL-D is a serious, life threatening ultra-rare disease in which genetic mutations result in decreased activity of the lysosomal acid lipase (LAL) enzyme leading to marked accumulation of lipids in vital organs, blood vessels and other tissues. We initiated sales of Strensiq and Kanuma in the third quarter 2015.

We are also evaluating additional potential indications for eculizumab in other severe and devastating diseases in which uncontrolled complement activation is the underlying mechanism, and we are progressing in various stages of development with additional product candidates as potential treatments for patients with devastating and ultra-rare disorders.

2. Basis of Presentation and Principles of Consolidation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by accounting principles generally accepted in the United States for complete financial statements. These accounting principles were applied on a basis consistent with those of the consolidated financial statements contained in the Company's Annual Report on Form 10-K for the year ended December 31, 2016. In our opinion, the accompanying unaudited consolidated financial statements include all adjustments, consisting of normal recurring accruals, necessary for a fair presentation of our financial statements for interim periods in accordance with accounting principles generally accepted in the United States. The condensed consolidated balance sheet data as of December 31, 2016 was derived from audited financial statements but does not include all disclosures required by accounting principles generally accepted in the United States. These interim financial statements should be read in conjunction with the audited financial statements for the year ended December 31, 2016 included in our Annual Report on Form 10-K. The results of operations for the three months ended March 31, 2017 are not necessarily indicative of the results to be expected for the full year.

The financial statements of our subsidiaries with functional currencies other than the U.S. dollar are translated into U.S. dollars using period-end exchange rates for assets and liabilities, historical exchange rates for stockholders' equity and weighted average exchange rates for operating results. Translation gains and losses are included in accumulated other comprehensive income (loss), net of tax, in stockholders' equity. Foreign currency transaction gains and losses are included in the results of operations in other income and expense.

The accompanying unaudited condensed consolidated financial statements include the accounts of Alexion Pharmaceuticals, Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Our significant accounting policies are described in Note 1 of the Notes to the Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2016.

Change in Accounting Estimates

We have historically deferred revenue recognition for sales to certain international customers, mainly distributors, until the product was received by the end customer due to various factors, including our inability to estimate product returns. On a regular basis, we review revenue arrangements, including our distributor relationships, to determine whether any changes in these arrangements or historical experience with these customers have an impact on revenue recognition. In the first quarter 2017, we determined that we had sufficient sales experience with certain customers to estimate product returns from such customers. We accounted for this prospectively as a change in estimate and began to recognize revenue for these customers when title to the product and the associated risk of loss passed to the customer. Some customers may purchase larger quantities

of product less frequently, which may result in revenue fluctuations from quarter to quarter. We do not believe these buying patterns increase the risk of product returns or our ability to estimate such returns.

New Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued a comprehensive new standard which amends revenue recognition principles and provides a single set of criteria for revenue recognition among all industries. The new standard provides a five step framework whereby revenue is recognized when promised goods or services are transferred to a customer at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard also requires enhanced disclosures pertaining to revenue recognition in both interim and annual periods. The standard is effective for interim and annual periods beginning after December 15, 2017 and allows for adoption using a full retrospective method, or a modified retrospective method. Entities may elect to early adopt the standard for annual periods beginning after December 15, 2016. We currently anticipate adopting the standard using the modified retrospective method. We do not expect the implementation of this new standard to have a material impact on our financial position and results of operations.

In February 2016, the FASB issued a new standard requiring that the rights and obligations arising from leases be recognized on the balance sheet by recording a right-of-use asset and corresponding lease liability. The new standard also requires qualitative and quantitative disclosures to understand the amount, timing, and uncertainty of cash flows arising from leases, as well as significant management estimates utilized. The standard is effective for interim and annual periods beginning after December 15, 2018 and requires a modified retrospective adoption. We are currently assessing the impact of this standard on our financial condition and results of operations.

In March 2016, the FASB issued a new standard intended to simplify certain aspects of the accounting for employee share-based payments. We elected to early adopt this standard in 2016. One aspect of the standard requires an entity to recognize all excess tax benefits and deficiencies associated with stock-based compensation as a reduction or increase to tax expense in the income statement. Previously, such amounts were recognized in additional paid-in capital. The amendments also require recognition of excess tax benefits regardless of whether the benefit reduces taxes payable in the current period. Furthermore, the amendment requires that excess tax benefits be classified as an operating activity in the statement of cash flows instead of a financing activity. We have also elected to continue to estimate the impact of forfeitures when determining the amount of compensation cost to be recognized each period rather than account for forfeitures as they occur.

In October 2016, the FASB issued a new income tax standard that eliminates the exception for an intra-entity asset transfer other than inventory. Under the new standard, entities should recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. Any deferred tax asset that arises in the buyer's jurisdiction would also be recognized at the time of the transfer. We elected to early adopt this standard in the first quarter 2017. As a result of the adoption, in the first quarter of 2017, we recorded a $19 decrease in retained earnings, primarily resulting from the elimination of previously recorded prepaid tax assets.

In January 2017, the FASB issued a new standard that clarifies the definition of a business and determines when an integrated set of assets and activities is not a business. This framework requires that if substantially all of the fair value of gross assets acquired or disposed of is concentrated in a single asset or group of similar identifiable assets, the assets would not represent a business. The standard is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. We are currently assessing the impact of this standard on our financial condition and results of operations.

(amounts in millions, except per share amounts)

3. Inventories

Inventories are stated at the lower of cost or estimated realizable value. We determine the cost of inventory on a standard cost basis, which approximates average costs.

The components of inventory are as follows:

	March 31, 2017	December 31, 2016
Raw materials	$ 22	$ 17
Work-in-process	171	143
Finished goods	203	215
	$ 396	$ 375

4. Intangible Assets and Goodwill

The following table summarizes the carrying amount of our intangible assets and goodwill, net of accumulated amortization:

		March 31, 2017			December 31, 2016		
	Estimated Life (years)	Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Licenses	6-8	$ 29	$ (29)	$ —	$ 29	$ (29)	$ —
Patents	7	11	(11)	—	11	(11)	—
Purchased technology	6-16	4,711	(519)	4,192	4,711	(439)	4,272
Acquired IPR&D	Indefinite	31	—	31	31	—	31
Total		$ 4,782	$ (559)	$ 4,223	$ 4,782	$ (479)	$ 4,303
Goodwill	Indefinite	$ 5,040	$ (3)	$ 5,037	$ 5,040	$ (3)	$ 5,037

Amortization expense was $80 for the three months ended March 31, 2017 and 2016. Assuming no changes in the gross cost basis of intangible assets, the total estimated amortization expense for finite-lived intangible assets is $240 for the nine months ending December 31, 2017, and $320 for each of the years ending December 31, 2018 through December 31, 2022.

5. Debt

On June 22, 2015, Alexion entered into a credit agreement (Credit Agreement) with a syndicate of banks, which provides for a $3,500 term loan facility and a $500 revolving credit facility maturing in five years. Borrowings under the term loan are payable in quarterly installments equal to 1.25% of the original loan amount, beginning December 31, 2015. Final repayment of the term loan and revolving credit loans are due on June 22, 2020. In addition to borrowings in which prior notice is required, the revolving credit facility includes a sublimit of $100 in the form of letters of credit and borrowings on same-day notice, referred to as swingline loans, of up to $25. Borrowings can be used for working capital requirements, acquisitions and other general corporate purposes. With the consent of the lenders and the administrative agent, and subject to satisfaction of certain conditions, we may increase the term loan facility and/or the revolving credit facility in an amount that does not cause our consolidated net leverage ratio to exceed the maximum allowable amount.

In connection with entering into the Credit Agreement, we paid $45 in financing costs which are being amortized as interest expense over the life of the debt. Amortization expense associated with deferred financing costs for the three months ended March 31, 2017 and 2016 was $2 and $3, respectively.

We made principal payments of $44 during the three months ended March 31, 2017. As of March 31, 2017, we had $3,037 outstanding on the term loan. As of March 31, 2017, we had open letters of credit of $16, and our borrowing availability under the revolving facility was $484.

The fair value of our long term debt, which is measured using Level 2 inputs, approximates book value.

6. Earnings Per Common Share

Basic earnings per common share (EPS) is computed by dividing net income by the weighted-average number of shares of common stock outstanding. For purposes of calculating diluted EPS, the denominator reflects the potential dilution that could occur if stock options, unvested restricted stock, unvested restricted stock units or other contracts to issue common stock were exercised or converted into common stock, using the treasury stock method.

The following table summarizes the calculation of basic and diluted EPS for the three months ended March 31, 2017 and 2016:

	Three months ended March 31,	
	2017	2016
Net income used for basic and diluted calculation	$ 170	$ 92
Shares used in computing earnings per common share—basic	224	225
Weighted-average effect of dilutive securities:		

Stock awards	2	2
Shares used in computing earnings per common share—diluted	226	227
Earnings per common share:		
Basic	$ 0.76	$ 0.41
Diluted	$ 0.75	$ 0.41

We exclude from EPS the weighted-average number of securities whose effect is anti-dilutive. Excluded from the calculation of EPS for the three months ended March 31, 2017 and 2016 were 6 and 4 shares of common stock, respectively, because their effect was anti-dilutive.

7. Marketable Securities

The amortized cost, gross unrealized holding gains, gross unrealized holding losses and estimated fair value of available-for-sale investments by type of security as of March 31, 2017 and December 31, 2016 were as follows:

	March 31, 2017			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Fair Value
Commercial paper	$ 38	$ —	$ —	$ 38
Corporate bonds	387	—	—	387
Municipal bonds	15	—	—	15
Other government-related obligations:				
U.S.	7	—	—	7
Foreign	331	—	(1)	330
Bank certificates of deposit	11	—	—	11
Total available-for-sale debt securities	789	—	(1)	788
Equity securities	—	1	—	1
Total available-for-sale securities	789	1	(1)	789

(amounts in millions, except per share amounts)

	December 31, 2016			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Fair Value
Commercial paper	$ 114	$ —	$ —	$ 114
Corporate bonds	124	—	(1)	123
Municipal bonds	91	—	—	91
Other government-related obligations:				
U.S.	28	—	—	28
Foreign	73	—	(1)	72
Bank certificates of deposit	5	—	—	5
Total available-for-sale debt securities	$ 435	$ —	$ (2)	$ 433
Equity securities	—	1	—	1
Total available-for-sale securities	435	1	(2)	434

The aggregate fair value of available-for-sale securities in an unrealized loss position as of March 31, 2017 and December 31, 2016 was $485 and $265, respectively. These investments have been in a continuous unrealized loss position for less than 12 months. As of March 31, 2017, we believe that the cost basis of our available-for-sale investments is recoverable.

The fair values of available-for-sale securities by classification in the condensed consolidated balance sheet were as follows:

	March 31, 2017	December 31, 2016
Cash and cash equivalents	$ 57	$ 120
Marketable securities	732	314
	$ 789	$ 434

The fair values of available-for-sale debt securities at March 31, 2017, by contractual maturity, are summarized as follows:

	March 31, 2017
Due in one year or less	$ 405
Due after one year through three years	383
	$ 788

As of March 31, 2017 and December 31, 2016, the fair value of our trading securities was $17 and $13, respectively.

We utilize the specific identification method in computing realized gains and losses. Realized gains and losses on our available-for-sale and trading securities were not material for the three months ended March 31, 2017 and 2016.

8. Derivative Instruments and Hedging Activities

We operate internationally and, in the normal course of business, are exposed to fluctuations in foreign currency exchange rates. The exposures result from portions of our revenues, as well as the related receivables, and expenses that are denominated in currencies other than the U.S. dollar, primarily the Euro and Japanese Yen. We are also exposed to fluctuations in interest rates on our outstanding term loan debt. We manage these exposures within specified guidelines through the use of derivatives. All of our derivative instruments are utilized for risk management purposes, and we do not use derivatives for speculative trading purposes.

We enter into foreign exchange forward contracts, with durations of up to 60 months, to hedge exposures resulting from portions of our forecasted revenues, including intercompany revenues that are denominated in currencies other than the U.S. dollar. The purpose of these hedges is to reduce the volatility of exchange rate fluctuations on our operating results and to

(amounts in millions, except per share amounts)

increase the visibility of the foreign exchange impact on forecasted revenues. These hedges are designated as cash flow hedges upon contract inception. As of March 31, 2017, we had open foreign exchange forward contracts with notional amounts totaling $1,733 that qualified for hedge accounting.

To achieve a desired mix of floating and fixed interest rates on our term loan, we enter into interest rate swap agreements that qualify for and are designated as cash flow hedges. These contracts convert the floating interest rate on a portion of our debt to a fixed rate, plus a borrowing spread. The interest rate swap contracts executed as of March 31, 2017 are as follows:

Type of Interest Rate Swap	Notional Amount	Effective Date	Termination Date	Fixed Interest Rate
Floating to Fixed	$656	December 31, 2016	December 31, 2019	0.98%
Floating to Fixed	$300	January 31, 2017	December 31, 2018	1.29%
Floating to Fixed	$300	January 02, 2019	December 31, 2019	2.08%

Subsequent to March 31, 2017, we entered into two additional interest rate swap agreements. The first agreement has a notional amount of $200 that is effective through December 31, 2019 and converts the floating rate on a portion of our term loan to a fixed rate of 1.62%, plus a borrowing spread. The second agreement has a notional amount of $200 that is effective through December 31, 2018 and converts the floating rate on a portion of our term loan to a fixed rate of 1.40%, plus a borrowing spread.

The impact on accumulated other comprehensive income (AOCI) and earnings from foreign exchange and interest rate swap contracts that qualified as cash flow hedges, for the three months ended March 31, 2017 and 2016, were as follows:

	Three months ended March 31,	
	2017	2016
Foreign Exchange Contracts:		
Gain (loss) recognized in AOCI, net of tax	$ (16)	$ (49)
Gain reclassified from AOCI to net product sales (effective portion), net of tax	$ 13	$ 15
Interest Rate Contracts:		
Gain recognized in AOCI, net of tax	$ 1	$ —
Gain reclassified from AOCI to interest expense, net of tax	$ —	$ —

Assuming no change in foreign exchange rates or LIBOR-based interest rates from market rates at March 31, 2017, $54 of gains recognized in AOCI will be reclassified to revenue over the next 12 months. The amount of gains recognized in AOCI that will be reclassified to interest expense over the next 12 months is $2.

We enter into foreign exchange forward contracts, with durations of approximately 90 days, designed to limit the balance sheet exposure of monetary assets and liabilities. We enter into these hedges to reduce the impact of fluctuating exchange rates on our operating results. Hedge accounting is not applied to these derivative instruments as gains and losses on these hedge transactions are designed to offset gains and losses on underlying balance sheet exposures. As of March 31, 2017, the notional amount of foreign exchange contracts where hedge accounting is not applied was $634.

We recognized a loss of $9 and $13, in other income and expense, for the three months ended March 31, 2017 and 2016, respectively, associated with the foreign exchange contracts not designated as hedging instruments. These amounts were partially offset by gains or losses on monetary assets and liabilities.

(amounts in millions, except per share amounts)

The following tables summarize the fair value of outstanding derivatives as of March 31, 2017 and December 31, 2016:

	March 31, 2017			
	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Foreign exchange forward contracts	Prepaid expenses and other current assets	$ 61	Other current liabilities	$ 7
Foreign exchange forward contracts	Other assets	43	Other liabilities	9
Interest rate contracts	Prepaid expenses and other current assets	2	Other current liabilities	—
Interest rate contracts	Other assets	10	Other liabilities	—
Derivatives not designated as hedging instruments:				
Foreign exchange forward contracts	Prepaid expenses and other current assets	4	Other current liabilities	7
Total fair value of derivative instruments		**$ 120**		**$ 23**

	December 31, 2016			
	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Foreign exchange forward contracts	Prepaid expenses and other current assets	$ 80	Other current liabilities	$ 2
Foreign exchange forward contracts	Other assets	59	Other liabilities	4
Interest rate contracts	Prepaid expenses and other current assets	—	Other current liabilities	—
Interest rate contracts	Other assets	10	Other liabilities	—
Derivatives not designated as hedging instruments:				
Foreign exchange forward contracts	Prepaid expenses and other current assets	17		10
Total fair value of derivative instruments		**$ 166**		**$ 16**

(amounts in millions, except per share amounts)

Although we do not offset derivative assets and liabilities within our condensed consolidated balance sheets, our International Swap and Derivatives Association agreements provide for net settlement of transactions that are due to or from the same counterparty upon early termination of the agreement due to an event of default or other termination event. The following tables summarize the potential effect on our condensed consolidated balance sheets of offsetting our foreign exchange forward contracts and interest rate contracts subject to such provisions:

	March 31, 2017					
				Gross Amounts Not Offset in the Condensed Consolidated Balance Sheet		
Description	Gross Amounts of Recognized Assets/Liabilities	Gross Amounts Offset in the Condensed Consolidated Balance Sheet	Net Amounts of Assets/Liabilities Presented in the Condensed Consolidated Balance Sheet	Derivative Financial Instruments	Cash Collateral Received (Pledged)	Net Amount
Derivative assets	$ 120	$ —	$ 120	$ (23)	$ —	$ 97
Derivative liabilities	(23)	—	(23)	23	—	—

	December 31, 2016					
				Gross Amounts Not Offset in the Condensed Consolidated Balance Sheet		
Description	Gross Amounts of Recognized Assets/Liabilities	Gross Amounts Offset in the Condensed Consolidated Balance Sheet	Net Amounts of Assets/Liabilities Presented in the Condensed Consolidated Balance Sheet	Derivative Financial Instruments	Cash Collateral Received (Pledged)	Net Amount
Derivative assets	$ 166	$ —	$ 166	$ (16)	$ —	$ 150
Derivative liabilities	(16)	—	(16)	16	—	—

9. Other Investments

Other investments include our investment of $38 in the preferred stock of Moderna Therapeutics, Inc. Our investment is recorded at cost within other assets in our condensed consolidated balance sheets. The carrying value of this investment was not impaired as of March 31, 2017.

10. Stockholders' Equity

In November 2012, our Board of Directors authorized a share repurchase program. The repurchase program does not have an expiration date, and we are not obligated to acquire a particular number of shares. The repurchase program may be discontinued at any time at the Company's discretion. In February 2017, our Board of Directors increased the authorization to acquire shares with an aggregate value of up to $1,000 for future purchases under the repurchase program, which superseded all prior repurchase programs. During the three months ended March 31, 2017 and 2016, we repurchased 1 and 2 shares of our common stock under the program at a cost of $68 and $297, respectively.

Subsequent to March 31, 2017, we repurchased common stock under our repurchase program at a cost of $32. As of April 27, 2017, there was a total of $900 remaining for repurchases under the repurchase program.

(amounts in millions, except per share amounts)

11. Other Comprehensive Income and Accumulated Other Comprehensive Income

The following tables summarize the changes in AOCI, by component, for the three months ended March 31, 2017 and 2016:

	Defined Benefit Pension Plans	Unrealized Gains (Losses) from Marketable Securities	Unrealized Gains (Losses) from Hedging Activities	Foreign Currency Translation Adjustment	Total Accumulated Other Comprehensive Income (Loss)
Balances, December 31, 2016	(7)	(1)	92	(24)	60
Other comprehensive income before reclassifications	—	—	(15)	—	(15)
Amounts reclassified from other comprehensive income	—	1	(13)	3	(9)
Net other comprehensive income (loss)	—	1	(28)	3	(24)
Balances, March 31, 2017	(7)	—	64	(21)	36

	Defined Benefit Pension Plan	Unrealized Gains (Losses) from Marketable Securities	Unrealized Gains (Losses) From Hedging Activities	Foreign Currency Translation Adjustment	Total Accumulated Other Comprehensive Income (Loss)
Balances, December 31, 2015	(10)	(1)	93	(20)	62
Other comprehensive income before reclassifications	2	1	(49)	2	(44)
Amounts reclassified from other comprehensive income	—	1	(15)	—	(14)
Net other comprehensive income (loss)	2	2	(64)	2	(58)
Balances, March 31, 2016	(8)	1	29	(18)	4

The table below provides details regarding significant reclassifications from AOCI during the three months ended March 31, 2017 and 2016:

Details about Accumulated Other Comprehensive Income Components	Amount Reclassified From Accumulated Other Comprehensive Income during the three months ended March 31, 2017	2016	Affected Line Item in the Condensed Consolidated Statements of Operations
Unrealized Gains (Losses) from Hedging Activity			
Effective portion of foreign exchange contracts	$ 20	$ 23	Net product sales
Effective portion of interest rate swap contracts	(1)	—	Interest expense
	19	23	
	(6)	(8)	Income tax expense
	$ 13	$ 15	

12. Fair Value Measurement

Authoritative guidance establishes a valuation hierarchy for disclosure of the inputs to the valuation used to measure fair value. This hierarchy prioritizes the inputs into three broad levels as follows. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value.

(amounts in millions, except per share amounts)

The following tables present information about our assets and liabilities that are measured at fair value on a recurring basis as of March 31, 2017 and December 31, 2016, and indicate the fair value hierarchy of the valuation techniques we utilized to determine such fair value.

		Fair Value Measurement at March 31, 2017			
Balance Sheet Classification	**Type of Instrument**	**Total**	**Level 1**	**Level 2**	**Level 3**
Cash equivalents	Money market funds	$ 32	$ —	$ 32	$ —
Cash equivalents	Commercial paper	$ 17	$ —	$ 17	$ —
Cash equivalents	Corporate bonds	$ 12	$ —	$ 12	$ —
Cash equivalents	Municipal bonds	$ 14	$ —	$ 14	$ —
Cash equivalents	Other government-related obligations	$ 14	$ —	$ 14	$ —
Marketable securities	Mutual funds	$ 17	$ 17	$ —	$ —
Marketable securities	Commercial paper	$ 21	$ —	$ 21	$ —
Marketable securities	Corporate bonds	$ 375	$ —	$ 375	$ —
Marketable securities	Municipal bonds	$ 1	$ —	$ 1	$ —
Marketable securities	Other government-related obligations	$ 323	$ —	$ 323	$ —
Marketable securities	Bank certificates of deposit	$ 11	$ —	$ 11	$ —
Marketable securities	Equity securities	$ 1	$ 1	$ —	$ —
Prepaid expenses and other current assets	Foreign exchange forward contracts	$ 65	$ —	$ 65	$ —
Other assets	Foreign exchange forward contracts	$ 43	$ —	$ 43	$ —
Other current liabilities	Foreign exchange forward contracts	$ 14	$ —	$ 14	$ —
Other liabilities	Foreign exchange forward contracts	$ 9	$ —	$ 9	$ —
Prepaid expenses and other current assets	Interest rate contracts	$ 2	$ —	$ 2	$ —
Other assets	Interest rate contracts	$ 10	$ —	$ 10	$ —
Current portion of contingent consideration	Acquisition-related contingent consideration	$ 25	$ —	$ —	$ 25
Contingent consideration	Acquisition-related contingent consideration	$ 132	$ —	$ —	$ 132

(amounts in millions, except per share amounts)

Balance Sheet Classification	Type of Instrument	Fair Value Measurement at December 31, 2016			
		Total	Level 1	Level 2	Level 3
Cash equivalents	Money market funds	$ 266	$ —	$ 266	$ —
Cash equivalents	Commercial paper	$ 70	$ —	$ 70	$ —
Cash equivalents	Corporate bonds	$ 10	$ —	$ 10	$ —
Cash equivalents	Municipal bonds	$ 40	$ —	$ 40	$ —
Marketable securities	Mutual funds	$ 13	$ 13	$ —	$ —
Marketable securities	Commercial paper	$ 44	$ —	$ 44	$ —
Marketable securities	Corporate bonds	$ 113	$ —	$ 113	$ —
Marketable securities	Municipal bonds	$ 51	$ —	$ 51	$ —
Marketable securities	Other government-related obligations	$ 100	$ —	$ 100	$ —
Marketable securities	Bank certificates of deposit	$ 5	$ —	$ 5	$ —
Marketable securities	Equity securities	$ 1	$ 1	$ —	$ —
Prepaid expenses and other current assets	Foreign exchange forward contracts	$ 97	$ —	$ 97	$ —
Other assets	Foreign exchange forward contracts	$ 59	$ —	$ 59	$ —
Other current liabilities	Foreign exchange forward contracts	$ 12	$ —	$ 12	$ —
Other liabilities	Foreign exchange forward contracts	$ 4	$ —	$ 4	$ —
Other assets	Interest rate contracts	$ 10	$ —	$ 10	$ —
Current portion of contingent consideration	Acquisition-related contingent consideration	$ 24	$ —	$ —	$ 24
Contingent consideration	Acquisition-related contingent consideration	$ 129	$ —	$ —	$ 129

There were no securities transferred between Level 1, 2 and 3 during the three months ended March 31, 2017.

Valuation Techniques

We classify mutual fund investments and equity securities, which are valued based on quoted market prices in active markets with no valuation adjustment, as Level 1 assets within the fair value hierarchy.

Cash equivalents and marketable securities classified as Level 2 within the valuation hierarchy consist of institutional money market funds, commercial paper, municipal bonds, U.S. and foreign government-related debt, corporate debt securities and certificates of deposit. We estimate the fair values of these marketable securities by taking into consideration valuations obtained from third-party pricing sources. These pricing sources utilize industry standard valuation models, including both income and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include market pricing based on real-time trade data for the same or similar securities, issuer credit spreads, benchmark yields, and other observable inputs. We validate the prices provided by our third-party pricing sources by understanding the models used, obtaining market values from other pricing sources and analyzing pricing data in certain instances.

Our derivative assets and liabilities include foreign exchange derivatives that are measured at fair value using observable market inputs such as forward rates, interest rates, our own credit risk as well as an evaluation of our counterparties' credit risks. Based on these inputs, the derivative assets and liabilities are classified within Level 2 of the valuation hierarchy.

Contingent consideration liabilities related to acquisitions are classified as Level 3 within the valuation hierarchy and are valued based on various estimates, including probability of success, discount rates and amount of time until the conditions of the milestone payments are met.

(amounts in millions, except per share amounts)

As of March 31, 2017, there has not been any impact to the fair value of our derivative liabilities due to our own credit risk. Similarly, there has not been any significant adverse impact to our derivative assets based on our evaluation of our counterparties' credit risks.

Contingent Consideration

In connection with prior acquisitions, we may be required to pay future consideration that is contingent upon the achievement of specified development, regulatory approvals or sales-based milestone events. We determine the fair value of these obligations on the acquisition date using various estimates that are not observable in the market and represent a Level 3 measurement within the fair value hierarchy. The resulting probability-weighted cash flows were discounted using a cost of debt of 4.7% for developmental milestones and a weighted average cost of capital ranging from 10% to 21% for sales-based milestones.

Each reporting period, we adjust the contingent consideration to fair value with changes in fair value recognized in operating earnings. Changes in fair values reflect new information about the probability and timing of meeting the conditions of the milestone payments. In the absence of new information, changes in fair value will only reflect the interest component of contingent consideration related to the passage of time.

Estimated future contingent milestone payments related to prior business combinations range from zero if no milestone events are achieved, to a maximum of $766 if all development, regulatory and sales-based milestones are reached. As of March 31, 2017, the fair value of acquisition-related contingent consideration was $157. The following table represents a roll-forward of our acquisition-related contingent consideration:

	Three months ended March 31, 2017
Balance as of December 31, 2016	$ (153)
Changes in fair value	(4)
Balance as of March 31, 2017	$ (157)

13. Income Taxes

The following table provides a comparative summary of our income tax expense and effective income tax rate for the three months ended March 31, 2017 and 2016:

	Three months ended March 31,	
	2017	2016
Income tax expense	$ 24	$ 51
Effective income tax rate	12.4%	35.8%

The income tax expense for the three months ended March 31, 2017 and 2016 is attributable to the U.S. federal, state and foreign income taxes on our profitable operations. The decrease in the effective tax rate for the three months ended March 31, 2017 as compared to the same period in the prior year is primarily attributable to the deferred tax cost associated with the distribution of earnings from our captive foreign partnership in 2016. The absence of this non-cash deferred tax cost decreased the effective tax rate by approximately 19%.

The Internal Revenue Service (IRS) has commenced an examination of our U.S. income tax returns for 2013 and 2014. We anticipate this audit will conclude within the next twelve months. As of April 27, 2017, we had not received a Notice of Proposed Adjustment from the IRS.

We continue to maintain a valuation allowance against certain deferred tax assets where realization is not certain.

14. Defined Benefit Plans

We maintain defined benefit plans for employees in certain countries outside the U.S., including retirement benefit plans required by applicable local law. The plans are valued by independent actuaries using the projected unit credit method. The liabilities correspond to the projected benefit obligations of which the discounted net present value is calculated based on years of employment, expected salary increases, and pension adjustments. The total net periodic benefit cost for each of the three months ended March 31, 2017 and 2016 was $2, primarily related to service costs.

15. Facility Lease Obligations

New Haven Facility Lease Obligation

In November 2012, we entered into a lease agreement for office and laboratory space to be constructed in New Haven, Connecticut. The term of the lease commenced in 2015 and will expire in 2030, with a renewal option of ten years. Although we do not legally own the premises, we are deemed to be the owner of the building due to the substantial improvements directly funded by us during the construction period based on applicable accounting guidance for build-to-suit leases. Accordingly, the landlord's costs of constructing the facility during construction period are required to be capitalized, as a non-cash transaction, offset by a corresponding facility lease obligation in our consolidated balance sheet.

Construction of the facility was completed and the building was placed into service in the first quarter 2016. As of March 31, 2017 and December 31, 2016, our total facility lease obligation was $135 and $136, respectively, recorded within other current liabilities and facility lease obligation on our condensed consolidated balance sheets.

Lonza Facility Lease Obligation

During the third quarter 2015, we entered into a new agreement with Lonza Group AG and its affiliates (Lonza) whereby Lonza will construct a new manufacturing facility dedicated to Alexion at one of its existing facilities. The agreement requires us to make certain payments during the construction of the new manufacturing facility and annual payments for ten years thereafter. As a result of our contractual right to full capacity of the new manufacturing facility, a portion of the payments under the agreement are considered to be lease payments and a portion as payment for the supply of inventory. Although we will not legally own the premises, we are deemed to be the owner of the manufacturing facility during the construction period based on applicable accounting guidance for build-to-suit leases due to our involvement during the construction period. As of March 31, 2017 and December 31, 2016, we recorded a construction-in-process asset of $158 and $118, respectively, and an offsetting facility lease obligation of $142 and $107, respectively, associated with the manufacturing facility.

Payments to Lonza under the agreement are allocated to the purchases of inventory and the repayment of the facility lease obligation on a relative fair value basis. In 2017, we incurred $29 of payments to Lonza under this agreement, of which $4 was applied against the outstanding facility lease obligation and $25 was recognized as a prepayment of inventory. See Note 16 for minimum fixed payments due under Lonza agreements.

16. Commitments and Contingencies

Commitments

License Agreements

We have entered into a number of license agreements in order to advance and obtain technologies and services related to our business. License agreements generally require us to pay an initial fee and certain agreements call for future payments upon the attainment of agreed upon development and/or commercial milestones. These agreements may also require minimum royalty payments based on sales of products developed from the applicable technologies, if any.

In March 2017, we entered into a license agreement with Arbutus Biopharma Corporation (Arbutus) for exclusive worldwide rights to Arbutus' proprietary lipid nanoparticle technology for use in a single target. Due to the early stage of the assets we are licensing in connection with the collaboration, we recorded expense for the upfront payment of approximately $8 during the first quarter 2017. In addition, we could be required to make payments of up to $75 if certain development, regulatory, and commercial milestones are met over time, as well as royalties on commercial sales.

Manufacturing Agreements

We have various manufacturing development and license agreements to support our clinical and commercial product needs.

We rely on Lonza, a third party manufacturer, to produce a portion of commercial and clinical quantities of Soliris and Strensiq. We have various manufacturing and license agreements with Lonza, with remaining total non-cancellable future commitments of approximately $1,126. If we terminate certain supply agreements with Lonza without cause, we will be required to pay for product scheduled for manufacture under our arrangement. Under an existing arrangement with Lonza, we also pay Lonza a royalty on sales of Soliris manufactured at Alexion Rhode Island Manufacturing Facility (ARIMF) and a payment with respect to sales of Soliris manufactured at Lonza facilities.

In addition to Lonza, we have non-cancellable commitments of $27 with other third party manufacturers.

Contingent Liabilities

We are currently involved in various claims, lawsuits and legal proceedings. On a quarterly basis, we review the status of each significant matter and assess its potential financial exposure. If the potential loss from any claim, asserted or unasserted, or legal proceeding is considered probable and the amount can be reasonably estimated, we accrue a liability for the estimated loss. Because of uncertainties related to claims and litigation, accruals are based on our best estimates based on available information. On a periodic basis, as additional information becomes available, or based on specific events such as the outcome of litigation or settlement of claims, we may reassess the potential liability related to these matters and may revise these estimates, which could result in a material adverse adjustment to our operating results.

We have in the past received, and may in the future receive, notices from third parties claiming that their patents may be infringed by the development, manufacture or sale of our products. Under the guidance of ASC 450, *Contingencies*, we record a royalty accrual based on our best estimate of the fair value percent of net sales of our products that we could be required to pay the owners of patents for technology used in the manufacture and sale of our products. A costly license, or inability to obtain a necessary license, could have a material adverse effect on our financial results.

In May 2015, we received a subpoena in connection with an investigation by the Enforcement Division of the SEC requesting information related to our grant-making activities and compliance with the FCPA in various countries. In addition, in October 2015, we received a request from the DOJ for the voluntary production of documents and other information pertaining to Alexion’s compliance with FCPA. The SEC and DOJ also seek information related to Alexion’s recalls of specific lots of Soliris and related securities disclosures. Alexion is cooperating with these investigations.

The investigations have focused on operations in various countries, including Brazil, Colombia, Japan, Russia and Turkey, and Alexion's compliance with the FCPA and other applicable laws.

At this time, Alexion is unable to predict the duration, scope or outcome of these investigations. While it is possible that a loss related to these matters may be incurred, given the ongoing nature of these investigations, management cannot reasonably estimate the potential magnitude of any such loss or range of loss, or the cost of the ongoing investigation. Any determination that our operations or activities are not in compliance with existing laws or regulations could result in the imposition of fines, civil and criminal penalties, equitable remedies, including disgorgement, injunctive relief, and/or other sanctions against us, and remediation of any such findings could have an adverse effect on our business operations.

Alexion is committed to strengthening its compliance program and has initiated a comprehensive company-wide transformation plan to enhance and remediate its business processes, structures, controls, training, talent and systems across Alexion’s global operations. For information concerning the risks associated with the investigation, see our Risk Factor - "If we fail to comply with laws or regulations, we may be subject to investigations and civil or criminal penalties and our business could be adversely affected."

In the fourth quarter 2016, several securities class action lawsuits were filed against the Company and its former officers in federal district court alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, 15 U.S.C. § 78j(b), and Rule 10b-5, promulgated thereunder, alleging that defendants made misstatements and/or omissions concerning the Company’s sales of Soliris. On April 12, 2017 the U.S. District Court for the District of Connecticut (the Court) awarded lead plaintiff status to Erste-Sparinvest KapitalanLagegesellschaft mbH (Erste) and the Public Employee Retirement System of Idaho (PERSI). Erste and PERSI filed its shareholder putative class action with the Court on December 29, 2016, alleging that defendants made misrepresentations and omissions about Soliris between February 10, 2014 and December 9, 2016. The litigation is in the early stages, and defendants have not yet responded to the complaint. Given the early stages of this litigation, management does not currently believe that a loss related to this matter is probable or that the potential magnitude of such loss or range of loss, if any, can be reasonably estimated.

In December 2016, we received a subpoena from the U.S. Attorney’s Office for the District of Massachusetts requesting documents relating generally to our support of 501(c)(3) organizations that provide financial assistance to Medicare patients taking drugs sold by Alexion, Alexion’s provision of free drug to Medicare patients, and Alexion compliance policies and training materials concerning the anti-kickback statute or payments to any 501(c)(3) organization that provides financial assistance to Medicare patients. Other companies have disclosed similar inquiries. We are cooperating with this inquiry.

In March 2013, we received a Warning Letter (Warning Letter) from the U.S. Food and Drug Administration (FDA) regarding compliance with current Good Manufacturing Practices (cGMP) at ARIMF. The Warning Letter followed receipt of a Form 483 Inspectional Observations by the FDA in connection with an FDA inspection that concluded in August 2012. The observations relate to commercial and clinical manufacture of Soliris at ARIMF. We responded to the Warning Letter in a letter

(amounts in millions, except per share amounts)

to the FDA dated in April 2013. As previously disclosed, the FDA issued Form 483s in August 2014 and August 2015 related to observations at ARIMF and the inspectional observations from the August 2014 and 2015 Forms 483s have since been closed out by the FDA. During July 2016, the FDA completed a routine inspection at ARIMF and have since confirmed receipt of our responses to the inspectional observations included in the Form 483 received during that inspection. The observations are inspectional and do not represent a final FDA determination of compliance. We continue to manufacture products, including Soliris, in this facility. While the resolution of the issues raised in the Warning Letter is difficult to predict, we do not currently believe a loss related to this matter is probable or that the potential magnitude of such loss or range of loss, if any, can be reasonably estimated.

17. Restructuring

In the first quarter 2017, we initiated a company-wide restructuring designed to help position the Company for sustainable, long-term growth that we believe will further allow us to fulfill our mission of serving patients and families with rare diseases. For the three months ended March 31, 2017 we recorded $24 of restructuring expenses primarily related to employee separation costs. We currently estimate incurring approximately $5 to $10 of additional restructuring related expenses in 2017. We expect to pay all accrued amounts related to this restructuring within twelve months.

The following table presents a reconciliation of the restructuring reserve recorded within accrued expenses on the Company's condensed consolidated balance sheet for the three months ended March 31, 2017:

	Employee Separation Costs	Contract Termination Costs	Other Costs	Total
Liability, beginning of period	$ —	$ —	$ —	$ —
Restructuring expenses	21	—	3	24
Cash settlements	—	—	—	—
Adjustments to previous estimates	—	—	—	—
Asset impairments	—	—	(3)	(3)
Liability, end of period	$ 21	$ —	$ —	$ 21

The restructuring reserve of $21 is recorded in accrued expenses on the Company's condensed consolidated balance sheet as of March 31, 2017.

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

Note Regarding Forward-Looking Statements

This quarterly report on Form 10-Q contains forward-looking statements that have been made pursuant to the provisions of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on current expectations, estimates and projections about our industry, management's beliefs, and certain assumptions made by our management, and may include, but are not limited to, statements regarding the potential benefits and commercial potential of Soliris®, Strensiq® and Kanuma® for approved indications and any expanded uses, timing and effect of sales of our products in various markets worldwide, pricing for our products, level of insurance coverage and reimbursement for our products, level of future product sales and collections, timing regarding development and regulatory approvals for additional indications or in additional territories, the medical and commercial potential of additional indications for Soliris, failure to satisfactorily address the issues raised by the U.S. Food and Drug Administration (FDA) in the March 2013 Warning Letter and Form 483s issued by the FDA, costs, expenses and capital requirements, cash outflows, cash from operations, status of reimbursement, price approval and funding processes in various countries worldwide, progress in developing interest about our products and our product candidates in the patient, physician and payer communities, the safety and efficacy of our products and our product candidates, estimates of the potential markets and estimated commercialization dates for our products and our product candidates around the world, sales and marketing plans, any changes in the current or anticipated market demand or medical need for our products or our product candidates, status of our ongoing clinical trials for eculizumab, asfotase alfa, sebelipase alfa and our other product candidates, commencement dates for new clinical trials, clinical trial results, evaluation of our clinical trial results by regulatory agencies, the adequacy of our pharmacovigilance and drug safety reporting processes, prospects for regulatory approval of our products and our product candidates, need for additional research and testing, the uncertainties involved in the drug development process and manufacturing, performance and reliance on third party service providers, our future research and development activities, plans for acquired programs, our ability to develop and commercialize products with our collaborators, assessment of competitors and potential competitors, the outcome of challenges and opposition proceedings to our intellectual property, assertion or potential assertion by third parties that the manufacture, use or sale of our products infringes their intellectual property, estimates of the capacity of manufacturing and other service facilities to support our products and our product candidates, potential costs resulting from product liability or other third party claims, the sufficiency of our existing capital resources and projected cash needs, the possibility that expected tax benefits will not be realized, assessment of impact of recent accounting pronouncements, declines in sovereign credit ratings or sovereign defaults in countries where we sell our products, delay of collection or reduction in reimbursement due to adverse economic conditions or changes in government and private insurer regulations and approaches to reimbursement, uncertainties surrounding legal proceedings, company investigations and government investigations, including our Securities and Exchange Commission (SEC) and U.S. Department of Justice (DOJ) investigations, the securities fraud class action litigation filed in December 2016, the investigation by our Audit and Finance Committee announced in November 2016 (the Audit Committee Investigation), and the inquiry by the U.S. Attorney's Office for the District of Massachusetts requesting documents relating generally to our support of patient assistance programs, risks related to potential disruptions to our business as a result of the leadership changes and transition announced in December 2016 and March 2017, the anticipated effects of the company-wide restructuring initiated in the first quarter 2017, the short and long-term effects of other government healthcare measures, and the effect of shifting foreign exchange rates. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates," variations of such words and similar expressions are intended to identify such forward-looking statements, although not all forward-looking statements contain these identifying words. These statements are not guarantees of future performance and are subject to certain risks, uncertainties, and assumptions that are difficult to predict; therefore, actual results may differ materially from those expressed or forecasted in any such forward-looking statements. Such risks and uncertainties include, but are not limited to, those discussed later in this report under the section entitled "Risk Factors." Unless required by law, we undertake no obligation to update publicly any forward-looking statements, whether because of new information, future events or otherwise. However, readers should carefully review the risk factors set forth in this and other reports or documents we file from time to time with the SEC.

Business

We are a biopharmaceutical company focused on serving patients with devastating and rare disorders through the innovation, development and commercialization of life-transforming therapeutic products.

In our complement franchise, Soliris is the first and only therapy approved for patients with either PNH or aHUS. In our metabolic franchise, we commercialize Strensiq for the treatment of patients with HPP and Kanuma for the treatment of patients with LAL-D.

We are also evaluating additional potential indications for eculizumab in other severe and devastating diseases in which uncontrolled complement activation is the underlying mechanism, and we are progressing in various stages of development with additional product candidates as potential treatments for patients with devastating and ultra-rare diseases.

Products and Development Programs

We focus our product development programs on life-transforming therapeutics for devastating and ultra-rare diseases for which current treatments are either non-existent or inadequate.

Marketed Products

Our marketed products include the following:

Product	Development Area	Indication
Soliris (eculizumab)	Hematology	Paroxysmal Nocturnal Hemoglobinuria (PNH)
	Hematology/Nephrology	Atypical Hemolytic Uremic Syndrome (aHUS)
Strensiq (asfotase alfa)	Metabolic Disorders	Hypophosphatasia (HPP)
Kanuma (sebelipase alfa)	Metabolic Disorders	Lysosomal Acid Lipase Deficiency (LAL-D)

Soliris (eculizumab)

Soliris is designed to inhibit a specific aspect of the complement component of the immune system and thereby treat inflammation associated with chronic disorders in several therapeutic areas, including hematology, nephrology, neurology and transplant rejection. Soliris is a humanized monoclonal antibody that effectively blocks terminal complement activity at the doses currently prescribed. The initial indication for which we received approval for Soliris is PNH.

Paroxysmal Nocturnal Hemoglobinuria (PNH)

PNH is a debilitating and life-threatening, ultra-rare genetic blood disorder defined by chronic uncontrolled complement activation leading to the destruction of red blood cells (hemolysis). The chronic hemolysis in patients with PNH may be associated with life-threatening thromboses, recurrent pain, kidney disease, disabling fatigue, impaired quality of life, severe anemia, pulmonary hypertension, shortness of breath and intermittent episodes of dark-colored urine (hemoglobinuria). We continue to work with researchers to expand the base of knowledge in PNH and the utility of Soliris to treat patients with PNH. Soliris is approved for the treatment of PNH in the U.S., Europe, Japan and in several other territories. We are sponsoring a multinational registry to gather information regarding the natural history of patients with PNH and the longer term outcomes during Soliris treatment. In addition, Soliris has been granted orphan drug designation for the treatment of PNH in the U.S., Europe, Japan and several other territories.

Atypical Hemolytic Uremic Syndrome (aHUS)

aHUS is a severe and life-threatening, ultra-rare genetic disease characterized by chronic uncontrolled complement activation and thrombotic microangiopathy (TMA), the formation of blood clots in small blood vessels throughout the body, causing a reduction in platelet count (thrombocytopenia) and life-threatening damage to the kidney, brain, heart and other vital organs. Soliris is approved for the treatment of pediatric and adult patients with aHUS in the U.S., Europe and Japan. We are sponsoring a multinational registry to gather information regarding the natural history of patients with aHUS and the longer-term outcomes during Soliris treatment. In addition, the FDA and European Commission (EC) have granted Soliris orphan drug designation for the treatment of patients with aHUS.

Strensiq (asfotase alfa)

Hypophosphatasia (HPP)

HPP is an ultra-rare genetic and progressive metabolic disease in which patients experience devastating effects on multiple systems of the body, leading to debilitating or life-threatening complications. HPP is characterized by defective bone mineralization that can lead to deformity of bones and other skeletal abnormalities, as well as systemic complications such as profound muscle weakness, seizures, pain, and respiratory failure leading to premature death in infants.

Strensiq, a targeted enzyme replacement therapy, is the first and only approved therapy for patients with HPP, and is designed to directly address underlying causes of HPP by aiming to restore the genetically defective metabolic process, thereby preventing or reversing the severe and potentially life-threatening complications in patients with HPP. In 2015, the FDA approved Strensiq for patients with perinatal-, infantile- and juvenile-onset HPP, the EC granted marketing authorization for Strensiq for the treatment of patients with pediatric-onset HPP, and Japan's Ministry of Health Labour and Welfare (MHLW) approved Strensiq for the treatment of patients with HPP. We are sponsoring a multinational registry to gather information regarding the natural history of patients with HPP and the longer-term outcomes during Strensiq treatment.

Kanuma (sebelipase alfa)

Lysosomal Acid Lipase Deficiency (LAL Deficiency or LAL-D)

LAL-D is a serious, life-threatening ultra-rare disease associated with premature mortality and significant morbidity. LAL-D is a chronic disease in which genetic mutations result in decreased activity of the LAL enzyme that leads to marked accumulation of lipids in vital organs, blood vessels, and other tissues, resulting in progressive and systemic organ damage including hepatic fibrosis, cirrhosis, liver failure, accelerated atherosclerosis, cardiovascular disease, and other devastating consequences.

Kanuma, a recombinant form of the human LAL enzyme, is the only enzyme-replacement therapy that is approved for the treatment for patients with LAL-D. In 2015, the FDA approved Kanuma for the treatment of patients with LAL-D and the EC granted marketing authorization of Kanuma for long-term enzyme replacement therapy in patients of all ages with LAL-D. On March 28, 2016, we announced that the MHLW approved Kanuma for the treatment of patients of all ages in Japan with LAL-D. We are sponsoring a multinational registry to gather information regarding the natural history of patients with LAL-D and the longer-term outcomes during Kanuma treatment.

Clinical Development Programs

Our programs, including investigator sponsored clinical programs, include the following:

Product	Development Area	Indication	Development Stage
Soliris (eculizumab)	Neurology	Refractory Generalized Myasthenia Gravis (gMG)	Phase III
		Relapsing Neuromyelitis Optica Spectrum Disorder (NMOSD)	Phase III
	Transplant	Antibody Mediated Rejection (AMR) Presensitized Renal Transplant - Deceased Donor	Phase II
ALXN1210 (IV)	Next Generation Complement Inhibitor	Paroxysmal Nocturnal Hemoglobinuria (PNH)	Phase III
		Atypical Hemolytic Uremic Syndrome (aHUS)	Phase III
ALXN1210 (Subcutaneous)	Next Generation Complement Inhibitor		Phase I
cPMP (ALXN1101)	Metabolic Disorders	Molybdenum Cofactor Deficiency (MoCD) Type A	Phase II / III
SBC-103	Metabolic Disorders	Mucopolysaccharidoses IIIB (MPS IIIB)	Phase I / II
Samalizumab (ALXN6000)	Immuno-Oncology	Advanced Solid Tumors	Phase I
		Acute Myeloid Leukemia (AML)	Phase I/II

Soliris (eculizumab)

Neurology

Refractory Generalized Myasthenia Gravis (gMG)

Refractory gMG is an ultra-rare segment of Myasthenia Gravis, a debilitating, complement-mediated neuromuscular disease in which patients suffer profound muscle weakness throughout the body, resulting in slurred speech, impaired swallowing and choking, double vision, upper and lower extremity weakness, disabling fatigue, shortness of breath due to respiratory muscle weakness and episodes of respiratory failure. The FDA, EC and MHLW have granted orphan drug designation for eculizumab as a treatment for patients with refractory gMG.

In June 2016, we announced topline results of the Phase III REGAIN trial of eculizumab for the treatment of refractory gMG. The primary efficacy endpoint of change from baseline in Myasthenia Gravis-Activities of Daily Living Profile (MG-ADL) total score, a patient-reported assessment, at week 26, did not reach statistical significance (p=0.0698) as measured by a worst-rank analysis. The totality of data reviewed to date, including the first three secondary endpoints and a series of prospectively defined sensitivity analyses, shows early and sustained substantial improvements over 26 weeks for patients treated with eculizumab compared to placebo. The safety of eculizumab in this study was consistent with the Soliris labels. Additional data from the Phase III study was presented in July 2016. The data showed that 18 of 22 pre-defined endpoints and pre-specified analyses in the study, based on the primary and five secondary endpoints, achieved p-values below 0.05.

In January 2017, we announced that we filed for regulatory approval for eculizumab in refractory gMG in both the U.S. and Europe. These marketing applications were based on the comprehensive data from the Phase III REGAIN trial. In January, the European submission was validated by the European Medicines Agency (EMA), marking the beginning of the review process in Europe for this potential new indication for Soliris. In March 2017, the FDA accepted for review the Company's supplemental Biologics License Application to extend the indication for Soliris as a potential treatment for patients with gMG. Additionally, in March 2017, we submitted an application to the MHLW to extend the indication for Soliris as a potential treatment for patients with gMG.

Relapsing Neuromyelitis Optica Spectrum Disorder (NMOSD)

Relapsing NMOSD is a severe and ultra-rare autoimmune disease of the central nervous system (CNS) that primarily affects the optic nerves and spinal cord. The disease leads to severe weakness, paralysis, respiratory failure, loss of bowel and bladder function, blindness and premature death. Enrollment and dosing are ongoing in a global, randomized, double-blind, placebo-controlled trial to evaluate eculizumab as a treatment for patients with relapsing NMOSD. The FDA, EC, and MHLW have each granted orphan designation for eculizumab as a treatment for patients with relapsing NMOSD.

Transplant

Antibody Mediated Rejection (AMR) in Presensitized Kidney Transplant Patients

AMR is the term used to describe a type of transplant rejection that occurs when the recipient has antibodies to the donor organ. Enrollment in a multi-national, multi-center controlled clinical trial of eculizumab in presensitized kidney transplant patients at elevated risk for AMR who received kidneys from deceased organ donors was completed in March 2013 and patient follow-up in the trial is continuing. In September 2013, researchers presented positive preliminary data from the eculizumab deceased-donor AMR kidney transplant study. In May 2015, new data from the Phase II single-arm deceased-donor transplant trial of eculizumab in prevention of acute AMR was presented and was consistent with previous positive reports.

ALXN1210

ALXN1210 is a highly innovative, longer-acting anti-C5 antibody discovered and developed by Alexion that inhibits terminal complement. In early studies, ALXN1210 demonstrated rapid, complete, and sustained reduction of free C5 levels. Alexion has completed enrollment in two ongoing clinical studies of ALXN1210 in patients with PNH-a Phase I/II dose-escalating study and an open-label, multi-dose Phase II study that is also evaluating longer dosing intervals beyond eight weeks.

Paroxysmal Nocturnal Hemoglobinuria (PNH)

In June 2016, we announced interim data from a Phase I/II study in patients with PNH showing that once-monthly dosing of ALXN1210 achieved rapid and sustained reductions in hemolysis, as measured by mean levels of lactate dehydrogenase (LDH), in 100 percent of treated patients. Chronic hemolysis in patients with PNH may be associated with life-threatening thromboses, recurrent pain, kidney disease, disabling fatigue, impaired quality of life, severe anemia, pulmonary hypertension, shortness of breath and intermittent episodes of dark-colored urine (hemoglobinuria). Researchers also reported that, at the time of analysis, 80 percent of patients who required at least 1 blood transfusion in the 12 months prior to treatment with ALXN1210 did not require transfusions while on treatment with ALXN1210. Furthermore, in December 2016, we reported new data from this same ongoing study that showed rapid and sustained reductions LDH in patients with PNH treated with once-monthly dosing. Patients also had improvements in Functional Assessment of Chronic Illness Therapy (FACIT)-Fatigue score from baseline, with patients in the higher-dose cohort achieving a two-fold greater improvement compared with the lower-dose cohort. In addition, we have completed enrollment and treatment is ongoing in an open-label, multi-dose Phase II study of ALXN1210 in patients with PNH designed to measure reductions in hemolysis and safety in several dosing cohorts and intervals evaluating monthly and longer dosing intervals. We have initiated a Phase III open-label, multinational, active-controlled study of ALXN1210 compared to eculizumab (Soliris) in adult patients with PNH who have never been treated with a complement inhibitor. The study is evaluating ALXN1210 administered intravenously every eight weeks. Patient enrollment is ongoing in this trial.

In June 2016 and January 2017, the EC and the FDA, respectively, granted orphan drug designation to ALXN1210, for the treatment of patients with PNH.

Atypical Hemolytic Uremic Syndrome (aHUS)

We initiated a Phase III open-label, single arm, multicenter study of ALXN1210 in adolescent and adult patients with aHUS who have never been treated with a complement inhibitor. In patients with aHUS, complement-mediated TMA leads to life-threatening damage to the kidney, brain, heart and other vital organs. The study will evaluate ALXN1210 administered intravenously every eight weeks. Patient enrollment is ongoing in this trial.

Subcutaneous (SC) Delivery

We have completed enrollment in a Phase I study in healthy volunteers to evaluate ALXN1210 delivered subcutaneously.

cPMP (ALXN1101)

Molybdenum Cofactor Deficiency (MoCD) Disease Type A (MoCD Type A)

MoCD Type A is an ultra-rare metabolic disorder characterized by severe and rapidly progressive neurologic damage and death in newborns. MoCD Type A results from a genetic deficiency in cyclic Pyranopterin Monophosphate (cPMP), a molecule that enables the function of certain enzymes and the absence of which allows neurotoxic sulfite to accumulate in the brain. To date, there is no approved therapy available for MoCD Type A. There has been some early clinical experience with the recombinant cPMP replacement therapy in a small number of children with MoCD Type A, and we have completed enrollment in a natural history study in patients with MoCD Type A. cPMP has received Breakthrough Therapy Designation from the FDA for the treatment of patients with MoCD Type A. Evaluation of our synthetic form of cPMP replacement therapy in a Phase I healthy volunteer study is complete. In addition, we completed enrollment in a multi-center, multinational open-label clinical trial of synthetic cPMP in patients with MoCD Type A switched from treatment with recombinant cPMP. Enrollment is ongoing in the Phase II/III pivotal open-label, single-arm trial of ALXN1101 for treatment-naïve neonates with MoCD Type A.

SBC-103

Mucopolysaccharidosis IIIB (MPS IIIB)

MPS IIIB is an ultra-rare, devastating and life-threatening disease which typically presents in children during the first few years of life. Genetic mutations result in decreased activity of the alpha-N-acetyl-glucosaminidase (NAGLU) enzyme, which leads to a buildup of abnormal amounts of heparan sulfate (HS) in the brain and throughout the body. Over time, this unrelenting systemic accumulation of HS causes progressive and severe cognitive decline, behavioral problems, speech loss, increasing loss of mobility, and premature death. Current treatments are palliative for the behavioral problems, sleep disturbances, seizures, and other complications, and these treatments do not address the root cause of MPS IIIB or stop disease progression.

SBC-103, a recombinant form of natural human NAGLU is designed to replace the missing (or deficient) NAGLU enzyme. SBC-103 was granted orphan drug designation by the FDA and by the EC. It received Fast Track designation by the FDA. The first-in-human trial of patients with MPS IIIB is ongoing. In March 2016, researchers presented 24-week results from this study that showed a 26.2 percent mean reduction in heparan sulfate in cerebrospinal fluid at the highest dose studied (3mg/kg every other week) in a Phase I/II study at six months. In July 2016, researchers presented preliminary results on brain

MRI and neurocognitive assessments performed after 24 weeks of dosing suggesting preliminary evidence of potential for dose-dependent disease stabilization in patients treated with 0.3, 1, or 3mg/kg every other week of doses of SBC-103. Planned dose escalation of SBC-103 is now ongoing in this trial. This trial will not be expanded and no new patients will be added to the trial. Patients currently enrolled in the trial will continue to receive therapy. No additional studies are planned.

Samalizumab (ALXN6000)

Samalizumab is a first-in-class immunomodulatory humanized monoclonal antibody that blocks CD200 a key immune checkpoint protein expressed in both hematologic and solid malignancies. Alexion is currently enrolling patients in a Phase I trial evaluating the safety and efficacy of samalizumab in patients with advanced solid tumors.

Patients are also being dosed in The Leukemia and Lymphoma Society's BEAT AML Master Trial, a Phase I/II multi-arm clinical trial, which is evaluating samalizumab as well as other potential therapies for the treatment of previously untreated patients with AML.

Manufacturing

We currently rely on internal manufacturing facilities and third party contract manufacturers, including Lonza Group AG and its affiliates (Lonza), to supply clinical and commercial quantities of our commercial products and product candidates. Our internal manufacturing facilities include our Ireland manufacturing facilities, our Rhode Island manufacturing facility (ARIMF), and facilities in Massachusetts and Georgia. We also utilize third party contract manufacturers for other manufacturing services including purification, product filling, finishing, packaging, and labeling.

We have various agreements with Lonza through 2028, with remaining total non-cancellable commitments of approximately $1,126. If we terminate certain supply agreements with Lonza without cause, we will be required to pay for product scheduled for manufacture under our arrangements. Under an existing arrangement with Lonza, we also pay Lonza a royalty on sales of Soliris manufactured at ARIMF and a payment with respect to sales of Soliris manufactured at Lonza facilities. During 2015, we entered into a new supply agreement with Lonza whereby Lonza will construct a new manufacturing facility dedicated to Alexion manufacturing at one of its existing facilities.

In addition, we have non-cancellable commitments of approximately $27 through 2019 with other third party manufacturers.

In March 2013, we received a Warning Letter (Warning Letter) from the FDA regarding compliance with current Good Manufacturing Practices (cGMP) at ARIMF. The Warning Letter followed receipt of a Form 483 Inspectional Observations by the FDA in connection with an FDA inspection that concluded in August 2012. The observations relate to commercial and clinical manufacture of Soliris at ARIMF. We responded to the Warning Letter in a letter to the FDA dated in April 2013. As previously disclosed, the FDA issued Form 483s in August 2014 and August 2015 relating to observations at ARIMF and the inspectional observations from the August 2014 and 2015 Form 483s have since been closed out by the FDA. During July 2016, the FDA completed a routine inspection at ARIMF and have since confirmed receipt of our responses to the inspectional observations included in the Form 483 received during that inspection. We continue to manufacture products, including Soliris, at ARIMF, and we anticipate that the supply of Soliris to patients will not be interrupted as a result of the inspectional observations. While the resolution of the issues raised in the Warning Letter is difficult to predict, we do not currently believe a loss related to this matter is probable or that the potential magnitude of such loss or range of loss, if any, can be reasonably estimated.

In April 2014, we purchased a fill/finish facility in Athlone, Ireland. Our refurbishment of the facility is substantially complete and after regulatory approvals, the facility will become our first company-owned fill/finish facility for our commercial and clinical products. In July 2016, we announced plans to construct a new biologics manufacturing facility at this site, which is expected to be completed by 2018.

In May 2015, we announced plans to construct a new biologics manufacturing facility on our existing property in Dublin, Ireland, which is expected to be completed by 2020.

Critical Accounting Policies and the Use of Estimates

The significant accounting policies and basis of preparation of our consolidated financial statements are described in Note 1, “Business Overview and Summary of Significant Accounting Policies” of the Consolidated Financial Statements included in our Form 10-K for the year ended December 31, 2016. Under accounting principles generally accepted in the United States, we are required to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and disclosure of contingent assets and liabilities in our financial statements. Actual results could differ from those estimates.

We believe the judgments, estimates and assumptions associated with the following critical accounting policies have the greatest potential impact on our consolidated financial statements:

- Revenue recognition;
- Contingent liabilities;
- Inventories;
- Share-based compensation;
- Valuation of goodwill, acquired intangible assets and in-process research and development (IPR&D);
- Valuation of contingent consideration; and
- Income taxes.

For a complete discussion of these critical accounting policies, refer to “Critical Accounting Policies and Use of Estimates” within “Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations” included within our Form 10-K for the year ended December 31, 2016. We have reviewed our critical accounting policies as disclosed in our Form 10-K, and we have not noted any material changes.

New Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued a comprehensive new standard which amends revenue recognition principles and provides a single set of criteria for revenue recognition among all industries. The new standard provides a five step framework whereby revenue is recognized when promised goods or services are transferred to a customer at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard also requires enhanced disclosures pertaining to revenue recognition in both interim and annual periods. The standard is effective for interim and annual periods beginning after December 15, 2017 and allows for adoption using a full retrospective method, or a modified retrospective method. Entities may elect to early adopt the standard for annual periods beginning after December 15, 2016. We currently anticipate adopting the standard using the modified retrospective method. We do not expect the implementation of this new standard to have a material impact on our financial position and results of operations.

In February 2016, the FASB issued a new standard requiring that the rights and obligations arising from leases be recognized on the balance sheet by recording a right-of-use asset and corresponding lease liability. The new standard also requires qualitative and quantitative disclosures to understand the amount, timing, and uncertainty of cash flows arising from leases, as well as significant management estimates utilized. The standard is effective for interim and annual periods beginning after December 15, 2018 and requires a modified retrospective adoption. We are currently assessing the impact of this standard on our financial condition and results of operations.

In March 2016, the FASB issued a new standard intended to simplify certain aspects of the accounting for employee share-based payments. We elected to early adopt this standard in 2016. One aspect of the standard requires an entity to recognize all excess tax benefits and deficiencies associated with stock-based compensation as a reduction or increase to tax expense in the income statement. Previously, such amounts were recognized in additional paid-in capital. The amendments also require recognition of excess tax benefits regardless of whether the benefit reduces taxes payable in the current period. Furthermore, the amendment requires that excess tax benefits be classified as an operating activity in the statement of cash flows instead of a financing activity. We have also elected to continue to estimate the impact of forfeitures when determining the amount of compensation cost to be recognized each period rather than account for forfeitures as they occur.

In October 2016, the FASB issued a new income tax standard that eliminates the exception for an intra-entity asset transfer other than inventory. Under the new standard, entities should recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. Any deferred tax asset that arises in the buyer's jurisdiction would also be recognized at the time of the transfer. We elected to early adopt this standard in the first quarter 2017. As a result of the adoption, in the first quarter of 2017, we recorded a $19 decrease in retained earnings, primarily resulting from the elimination of previously recorded prepaid tax assets.

In January 2017, the FASB issued a new standard that clarifies the definition of a business and determines when an integrated set of assets and activities is not a business. This framework requires that if substantially all of the fair value of gross assets acquired or disposed of is concentrated in a single asset or group of similar identifiable assets, the assets would not represent a business. The standard is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. We are currently assessing the impact of this standard on our financial condition and results of operations.

(amounts in millions, except per share amounts)

Results of Operations

Net Product Sales

Net product sales by significant geographic region for the three months ended March 31, 2017 and 2016 are as follows:

	Three months ended March 31,		
	2017	2016	% Change
Net product sales:			
United States	360	265	36%
Europe	248	227	9%
Asia Pacific	83	72	15%
Rest of World	178	136	31%
	$ 869	$ 700	24%

Net product sales by product are as follows:

	Three months ended March 31,		
	2017	2016	% Change
Net product sales:			
Soliris	$ 783	$ 665	18%
Strensiq	74	33	124%
Kanuma	12	2	500%
	$ 869	$ 700	24%

The components of this increase in revenues are as follows:

Components of change:	
Price	— %
Volume	26 %
Foreign exchange	(2)%
Total change in net product sales	**24 %**

The increase in net product sales for the three months ended March 31, 2017, as compared to the same period in 2016, was primarily due to an increase in unit volumes of 26%. This increase in unit volumes is due to increased global demand for Soliris therapy for patients with PNH or aHUS, as well as increased sales of Strensiq and Kanuma during 2017 as a result of our continuing efforts to identify and reach more patients with HPP and LAL-D globally. Approximately 3% of the year-over-year increase in unit volumes was due to increased unit volumes in Latin America primarily driven by large orders of Soliris in the first quarter 2017. We have historically deferred revenue recognition for sales to certain international customers, mainly distributors, until the product was received by the end customer due to various factors, including our inability to estimate product returns. On a regular basis, we review revenue arrangements, including our distributor relationships, to determine whether any changes in these arrangements or historical experience with these customers have an impact on revenue recognition. In the first quarter 2017, we determined that we had sufficient sales experience with certain customers to estimate product returns from such customers. As a result, we began to recognize revenue for these customers when title to the product and the associated risk of loss passed to the customer. Some customers may purchase larger quantities of product less frequently, which may result in revenue fluctuations from quarter to quarter.

Foreign exchange had a negative impact of 2% for the three months ended March 31, 2017, as compared to the same period in 2016. The negative impact on foreign exchange of $12 or 2%, was due to changes in foreign currency exchange rates (inclusive of hedging activity) versus the U.S. dollar for the three months ended March 31, 2017. The negative impact was primarily due to the weakening of the Euro and British Pound, offset in part by gains in the Russian Ruble. Offsetting the impact of the stronger dollar, we recorded a gain in revenue of $20 and $23 related to our foreign currency cash flow hedging program for the three months ended March 31, 2017 and 2016, respectively. We expect to maintain our current hedging program to mitigate foreign currency risk associated with our revenues in 2017.

(amounts in millions, except per share amounts)

Cost of Sales

Cost of sales includes manufacturing costs as well as actual and estimated royalty expenses associated with sales of our products.

The following table summarizes cost of sales for the three months ended March 31, 2017 and 2016:

	Three months ended March 31,		
	2017	2016	Change
Cost of sales	$ 69	$ 59	$ 10
Cost of sales as a percentage of net product sales	8%	8%	—%

Research and Development Expense

Our research and development expense includes personnel, facility and external costs associated with the research and development of our product candidates, as well as product development costs. We group our research and development expenses into two major categories: external direct expenses and all other research and development (R&D) expenses.

External direct expenses are comprised of costs paid to outside parties for clinical development, product development and discovery research, as well as costs associated with strategic licensing agreements we have entered into with third parties. Clinical development costs are comprised of costs to conduct and manage clinical trials related to eculizumab and other product candidates, including ALXN1210. Product development costs are those incurred in performing duties related to manufacturing development and regulatory functions, including manufacturing of material for clinical and research activities. Discovery research costs are incurred in conducting laboratory studies and performing preclinical research for other uses of our products and other product candidates. Licensing agreement costs include upfront and milestone payments made in connection with strategic licensing arrangements we have entered into with third parties. Clinical development costs have been accumulated and allocated to each of our programs, while product development and discovery research costs have not been allocated.

All other R&D expenses consist of costs to compensate personnel, to maintain our facilities, equipment and overhead and similar costs of our research and development efforts. These costs relate to efforts on our clinical and preclinical products, our product development and our discovery research efforts. These costs have not been allocated directly to each program.

The following table provides information regarding research and development expenses:

	Three months ended March 31,		$	%
	2017	2016	Change	Change
Clinical development	$ 58	$ 50	$ 8	16 %
Product development	54	30	24	80 %
Licensing agreements	9	3	6	200 %
Discovery research	12	13	(1)	(8)%
Total external direct expenses	**133**	**96**	**37**	**39 %**
Payroll and benefits	74	71	3	4 %
Facilities and other costs	12	9	3	33 %
Total other R&D expenses	**86**	**80**	**6**	**8 %**
Research and development expense	**$ 219**	**$ 176**	**$ 43**	**24 %**

For the three months ended March 31, 2017, the increase of $43 in research and development expense, as compared to the same period in the prior year, was primarily related to the following:

- Increase of $24 in external product development expenses related primarily to an increase in costs associated with the manufacturing of material for ALXN1210 and ALXN6000 clinical research activities as compared to the first quarter of 2016.
- Increase of $8 in external clinical development expenses related primarily to an expansion of clinical studies for ALXN 1210 (see table below).
- Increase of $6 in licensing agreement expenses primarily related to upfront payments made in the first quarter 2017 related to our licensing arrangement with Arbutus Biopharma Corporation.

(amounts in millions, except per share amounts)

The following table summarizes external direct expenses related to our clinical development programs. Please refer to "Clinical Development Programs" above for a description of each of these programs:

	Three months ended March 31,		$
	2017	2016	Change
External direct expenses			
eculizumab	$ 20	$ 22	$ (2)
ALXN1210	17	4	13
sebelipase alfa	7	5	2
asfotase alfa	6	5	1
cPMP	1	2	(1)
ALXN1007	1	3	(2)
SBC-103	2	1	1
Other programs	1	3	(2)
Shared expenses	3	5	(2)
	$ 58	**$ 50**	**$ 8**

The successful development of our drug candidates is uncertain and subject to a number of risks. We cannot guarantee that results of clinical trials will be favorable or sufficient to support regulatory approvals for our other programs. We could decide to abandon development or be required to spend considerable resources not otherwise contemplated. For additional discussion regarding the risks and uncertainties regarding our development programs, please refer to Item 1A "Risk Factors" in this Form 10-Q.

Selling, General and Administrative Expense

Our selling, general and administrative expense includes commercial and administrative personnel, corporate facility and external costs required to support the marketing and sales of our commercialized products. These selling, general and administrative costs include: corporate facility operating expenses and depreciation; marketing and sales operations in support of our products; human resources; finance, legal, information technology and support personnel expenses; and other corporate costs such as telecommunications, insurance, audit, government affairs and our global corporate compliance program.

The table below provides information regarding selling, general and administrative expense:

	Three months ended March 31,		$	%
	2017	2016	Change	Change
Salary, benefits and other labor expense	$ 157	$ 148	$ 9	6%
External selling, general and administrative expense	105	85	20	24%
Total selling, general and administrative expense	**$ 262**	**$ 233**	**$ 29**	**12%**

For the three months ended March 31, 2017, the increase of $29 in selling, general and administrative expense, as compared to the same period in the prior year, was related to the following:

- Increase in salary, benefits and other labor expenses of $9. The increase was a result of increased staff costs of our commercial activities to support the continued global launches of Strensiq and Kanuma.
- Increase in external selling, general and administrative expenses of $20. The increase was primarily due to an increase in legal expenses from the SEC/DOJ FCPA investigation and additional charitable contributions as compared to the first quarter 2016, offset in part by decreases in advertising and promotional cost as compared to the first quarter 2016. Additionally, facilities costs increased from 2016 as a result of continuing growth of operations worldwide.

Amortization of Purchase Intangible Assets

For each of the three months ended March 31, 2017 and 2016, we recorded amortization expense of $80, primarily associated with intangible assets related to Strensiq and Kanuma, for which we received regulatory approval in the third quarter 2015.

(amounts in millions, except per share amounts)

Change in Fair Value of Contingent Consideration

For the three months ended March 31, 2017 and 2016, the change in fair value of contingent consideration expense associated with our prior business combinations was $4 and $(15), respectively. The increase in the expense associated with the change in the fair value of contingent consideration for the three months ended March 31, 2017 compared to the same period in 2016 was primarily due to decreases in the likelihood of payments for contingent consideration in 2016.

Restructuring Expenses

In the first quarter 2017, Alexion initiated a company-wide restructuring designed to help position the Company for sustainable, long-term growth and to further allow us to fulfill our mission of serving patients and families with rare diseases. For the three months ended March 31, 2017 we recorded $24 of restructuring expenses primarily related to employee separation costs. We currently estimate incurring approximately $5 to $10 of additional restructuring related expenses in 2017. We expect to pay all accrued amounts related to this restructuring within twelve months. As a result of this restructuring , we expect research and development and selling, general, and administrative expenses to grow at a slower rate than in prior periods.

Other Income and Expense

The following table provides information regarding other income and expense:

	Three months ended March 31,		$
	2017	2016	Change
Investment income	$ 4	$ 1	$ 3
Interest expense	(24)	(24)	—
Other income	2	—	2
Total other income (expense)	**$ (18)**	**$ (23)**	**$ 5**

Income Taxes

During the three months ended March 31, 2017, we recorded an income tax expense of $24 and an effective tax rate of 12.4%, compared to an income tax expense of $51 and an effective tax rate of 35.8% for the three months ended March 31, 2016.

The income tax expense for the three months ended March 31, 2017 and 2016 is attributable to the U.S. federal, state and foreign income taxes on our profitable operations. The decrease in the effective tax rate for the three months ended March 31, 2017 as compared to the same period in the prior year is primarily attributable to the deferred tax cost associated with the distribution of earnings from our captive foreign partnership in 2016. We expect to continue to benefit from a reduced tax rate as a result of our centralized global supply chain and technical operations in Ireland.

We continue to maintain a valuation allowance against certain other deferred tax assets where realization is not certain. We periodically evaluate the likelihood of realizing deferred tax assets and reduce the carrying amount of these deferred tax assets by a valuation allowance to the extent we believe a portion will not be realized.

Financial Condition, Liquidity and Capital Resources

The following table summarizes the components of our financial condition as of March 31, 2017 and December 31, 2016:

	March 31, 2017	December 31, 2016	$ Change
Cash and cash equivalents	$ 713	$ 966	$ (253)
Marketable securities	$ 749	$ 327	$ 422
Long-term debt (includes current portion)	$ 3,037	$ 3,081	$ (44)
Current assets	$ 2,733	$ 2,578	$ 155
Current liabilities	837	823	14
Working capital	$ 1,896	$ 1,755	$ 141

The aggregate increase in cash and cash equivalents and marketable securities was primarily attributable to cash generated from operations and net proceeds from the issuance of common stock under share-based compensation arrangements.

Partially offsetting these increases in cash was cash utilized to repurchase shares, principal payments on our term loan, and purchases of property, plant, and equipment.

We expect continued growth in our expenditures and capital investment. However, we anticipate that cash generated from operations and our existing available cash, cash equivalents and marketable securities should provide us adequate resources to fund our operations as currently planned.

We have financed our operations and capital expenditures primarily through positive cash flows from operations. We expect to continue to be able to fund our operations, including principal and interest payments on our credit facility and contingent payments from our acquisitions principally through our cash flows from operations. We may, from time to time, also seek additional funding through a combination of equity or debt financings or from other sources, if necessary for future acquisitions or other strategic purposes.

Financial Instruments

Until required for use in the business, we may invest our cash reserves in money market funds, bank deposits, and high-quality marketable securities in accordance with our investment policy. The stated objectives of our investment policy is to preserve capital, provide liquidity consistent with forecasted cash flow requirements, maintain appropriate diversification and generate returns relative to these investment objectives and prevailing market conditions.

Financial instruments that potentially expose us to concentrations of credit risk are cash equivalents, marketable securities, accounts receivable and our derivative contracts. As of March 31, 2017 and December 31, 2016, three customers accounted for 47% of the accounts receivable balance, with these individual customers accounting for 14% to 19% of the accounts receivable balance. For the three months ended March 31, 2017, three customers accounted for 35% of our product sales, with these individual customers accounting for 10% to 15% of our product sales. For the three months ended March 31, 2016, three customers accounted for 39% of our product sales, with these individual customers accounting for 11% to 16% of our product sales.

We continue to monitor economic conditions, including volatility associated with international economies and the associated impacts on the financial markets and our business. A substantial portion of our accounts receivable due from these countries are due from or backed by sovereign or local governments, and the amount of non-sovereign accounts receivable is not material. Although collection of our accounts receivables from certain countries may extend beyond our credit terms, we do not expect any such delays to have a material impact on our financial condition or results of operations.

We manage our foreign currency transaction risk and interest rate risk within specified guidelines through the use of derivatives. All of our derivative instruments are utilized for risk management purposes, and we do not use derivatives for speculative trading purposes. As of March 31, 2017, we had foreign exchange forward contracts with notional amounts totaling $2,367. These outstanding foreign exchange forward contracts had a net fair value of $85, of which $108 is included in other current assets and noncurrent assets and $23 is included in other current liabilities and noncurrent liabilities. As of March 31, 2017, we had interest rate swap contracts with notional amounts totaling $1,256. These outstanding interest rate swap contracts had a net fair value of $12, which is included in other current assets and noncurrent assets. The counterparties to these contracts are large domestic and multinational commercial banks, and we believe the risk of nonperformance is not material.

As of March 31, 2017, our financial assets and liabilities were recorded at fair value. We have classified our financial assets and liabilities as Level 1, 2 or 3 within the fair value hierarchy. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Our Level 1 assets consist of mutual fund investments and equity securities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, but substantially the full term of the financial instrument. Our Level 2 assets consist primarily of institutional money market funds, commercial paper, municipal bonds, U.S. and foreign government-related debt, corporate debt securities, certificates of deposit and derivative contracts. Our Level 2 liabilities consist also of derivative contracts. Level 3 inputs are unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value. Our Level 3 liabilities consist of contingent consideration related to acquisitions.

Business Combinations and Contingent Consideration Obligations

The purchase agreements for our business combinations include contingent payments totaling up to $766 that will become payable if and when certain development and commercial milestones are achieved. Of these milestone amounts, $451 and $315 of the contingent payments relate to development and commercial milestones, respectively. We do not expect these amounts to have an impact on our liquidity in the near-term and, during the next 12 months, we expect to make milestone payments of approximately $25, associated with our prior business combinations. As additional future payments become probable, we will evaluate methods of funding payments, which could be made from available cash and marketable securities, cash generated from operations or proceeds from other financing.

License Agreements

Our license agreements include contingent payments that will become payable if and when certain development, regulatory and commercial milestones are achieved. We do not expect the payments associated with these milestones to have a significant impact on our liquidity in the near-term. During the next 12 months, we expect to make milestone payments related to our license agreements of approximately $7.

Financing Lease Obligations

In November 2012, we entered into a lease agreement for office and laboratory space to be constructed in New Haven, Connecticut. The term of the lease commenced in 2015 and will expire in 2030, with a renewal option of ten years. Although we do not legally own the premises, we are deemed to be the owner of the building due to the substantial improvements directly funded during the construction period based on applicable accounting guidance for build-to-suit leases. Accordingly, the landlord's costs of constructing the facility during the construction period are required to be capitalized, as a non-cash transaction, offset by a corresponding facility lease obligation in our consolidated balance sheet. Construction of the new facility was completed and the building was placed into service in the first quarter 2016. As of March 31, 2017 and December 31, 2016, our total facility lease obligation was $135 and $136, respectively, recorded within other current liabilities and facility lease obligation on our condensed consolidated balance sheets.

During the third quarter 2015, we entered into a new agreement with Lonza whereby Lonza will construct a new manufacturing facility dedicated to Alexion at one of its existing facilities. As a result of our contractual right to full capacity of the new manufacturing facility, a portion of the payments under the agreement are considered to be lease payments and a portion as payment for the supply of inventory. Although we will not legally own the premises, we are deemed to be the owner of the manufacturing facility during the construction period based on applicable accounting guidance for build-to-suit leases due to our involvement during the construction period. As of March 31, 2017 and December 31, 2016, we recorded a construction-in-process asset of $158 and $118, respectively, and an offsetting facility lease obligation of $142 and $107, respectively, within other current liabilities and facility lease obligation on our condensed consolidated balance sheets.

Long-term Debt

On June 22, 2015, Alexion entered into a credit agreement (the Credit Agreement) with a syndicate of banks, which provides for a $3,500 term loan facility and a $500 revolving facility. Borrowings under the term loan facility are payable in quarterly installments equal to 1.25% of the original loan amount, beginning December 31, 2015. Final repayment of the term loan and any draw down of revolving credit loans are due on June 22, 2020. In addition to borrowings in which prior notice is required, the revolving credit facility includes a sublimit of $100 in the form of letters of credit and borrowings on same-day notice, referred to as swingline loans, of up to $25. Borrowings can be used for working capital requirements, acquisitions and other general corporate purposes.

As of March 31, 2017, we had $3,037 outstanding on the term loan. As of March 31, 2017, we had open letters of credit of $16, and our borrowing availability under the revolving facility was $484.

Manufacturing Obligations

We have supply agreements with Lonza relating to the manufacture of Soliris and Strensiq, which requires payments to Lonza at the inception of contract and upon the initiation and completion of product manufactured. On an ongoing basis, we evaluate our plans for future levels of manufacturing by Lonza, which depends upon our commercial requirements, the progress of our clinical development programs and the production levels of ARIMF.

We have various agreements with Lonza, with remaining total non-cancellable commitments of approximately $1,126 through 2028. Certain commitments may be canceled only in limited circumstances. If we terminate certain supply agreements with Lonza without cause, we will be required to pay for product scheduled for manufacture under our arrangement. Under an existing arrangement with Lonza, we also pay Lonza a royalty on sales of Soliris manufactured at ARIMF and a payment with respect to sales of Soliris manufactured at Lonza facilities.

In addition to Lonza, we have non-cancellable commitments of approximately $27 through 2019 with other third party manufacturers.

Taxes

We do not record U.S. tax expense on the undistributed earnings of our controlled foreign corporation (CFC) subsidiaries. These earnings relate to ongoing operations and were approximately $1,462 at December 31, 2016. We intend to reinvest these earnings permanently outside the U.S. or repatriate the earnings only when it is tax efficient to do so. Accordingly, we believe that U.S. tax on any earnings that might be repatriated would be substantially offset by realizing the benefit of tax attributes, such as U.S. foreign tax credits or by utilizing deficits in the foreign earnings and profits account.

(amounts in millions, except per share amounts)

During the fourth quarter of 2013, in connection with the centralization of our global supply chain and technical operations in Ireland, our U.S. parent company became a direct partner in a captive foreign partnership. To the extent that our U.S. parent company receives its allocation of partnership taxable income, the amounts will be taxable in the U.S., and therefore the permanent reinvestment assertion will no longer apply.

We do not have any present or anticipated future need for cash held by our CFCs, as cash generated in the U.S., as well as borrowings, are expected to be sufficient to meet U.S. liquidity needs for the foreseeable future. As of March 31, 2017, approximately $476 of our cash and cash equivalents was held by foreign subsidiaries, a significant portion of which is required for liquidity needs of our foreign subsidiaries. These subsidiaries will settle any outstanding intercompany trade payables prior to having excess cash available which could be repatriated to our entities in the U.S. While we intend to reinvest CFC earnings permanently outside the U.S. or repatriate the earnings only when it is tax efficient to do so, certain unforeseen future events could impact our permanent reinvestment assertion. Such events include acquisitions, corporate restructurings or tax law changes not currently contemplated.

Common Stock Repurchase Program

In November 2012, our Board of Directors authorized a share repurchase program. The repurchase program does not have an expiration date, and we are not obligated to acquire a particular number of shares. The repurchase program may be discontinued at any time at the Company's discretion. In February 2017, our Board of Directors increased the authorization to acquire shares with an aggregate value of up to $1,000 for future purchases under the repurchase program, which superseded all prior repurchase programs. During the three months ended March 31, 2017 and 2016 under the program, we repurchased 1 and 2 shares of our common stock at a cost of $68 and $297, respectively.

Subsequent to March 31, 2017, we repurchased common stock under our repurchase program at a cost of $32. As of April 27, 2017, there is a total of $900 remaining for repurchases under the repurchase program.

Cash Flows

The following summarizes our net change in cash and cash equivalents:

	Three months ended March 31,		
	2017	2016	$ Change
Net cash provided by operating activities	$ 308	$ 174	$ 134
Net cash used in investing activities	(495)	(6)	(489)
Net cash used in financing activities	(69)	(472)	403
Effect of exchange rate changes on cash	3	4	(1)
Net change in cash and cash equivalents	$ (253)	$ (300)	$ 47

Operating Activities

Cash flows provided by operations for the three months ended March 31, 2017 were $308 compared to $174 for the three months ended March 31, 2016. The increase was primarily due to an increase in gross margin on product sales of $159 resulting primarily from an increase in global demand for Soliris as well as increased sales of Strensiq and Kanuma during 2017 as a result of our continuing efforts to identify and reach more patients with HPP and LAL-D globally. Partially offsetting this increase was an increase in R&D product development costs and selling, general and administrative expenses during 2017.

We expect increases in cash flow from operations, which will be highly dependent on sales levels and the related cash collections from sales of our products.

Investing Activities

Cash used for investing activities for the three months ended March 31, 2017 were $495 compared to $6 for the three months ended March 31, 2016. The increase in cash used for investing activities was primarily due to purchases of available-for-sale marketable securities of $700 for the three months ended March 31, 2017, compared to $208 for the three months ended March 31, 2016.

We expect to have significant spending on property, plant and equipment in 2017 related to the construction of our new biologics manufacturing facilities in Ireland.

Financing Activities

Cash flows used in financing activities for the three months ended March 31, 2017 were $69 compared to $472 for the three months ended March 31, 2016. The decrease in cash used for financing activities was primarily due to the following:

- Principal payments on our credit facility of $44 during the three months ended March 31, 2017, compared to $175 during the three months ended March 31, 2016.
- Repurchases of common stock of $68 for the three months ended March 31, 2017, compared to $297 for the three months ended March 31, 2016.
- Proceeds from the issuance of stock for share-based compensation arrangements of $47 for the three months ended March 31, 2017, compared to $4 for the three months ended March 31, 2016.

Contractual Obligations

The disclosure of payments we have committed to make under our contractual obligations are summarized in our Annual Report on Form 10-K for the twelve months ended December 31, 2016, in the section titled “Management's Discussion and Analysis of Financial Condition and Results of Operations” under the caption “Contractual Obligations.”

Item 3. ***QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.***
(amounts in millions, except percentages)

Interest Rate Risk

As of March 31, 2017, we invested our cash in a variety of financial instruments, principally money market funds, corporate bonds, municipal bonds, commercial paper and government-related obligations. Most of our interest-bearing securities are subject to interest rate risk and could decline in value if interest rates fluctuate. Our investment portfolio is comprised of marketable securities of highly rated financial institutions and investment-grade debt instruments, and we have guidelines to limit the term to maturity of our investments. Based on the type of securities we hold, we do not believe a change in interest rates would have a material impact on our financial statements. If interest rates were to increase or decrease by 1%, the fair value of our investment portfolio would (decrease) increase by approximately $(3) and $3, respectively.

In June 2015, we entered into the Credit Agreement with interest at a rate per annum equal to either a base rate or a Eurodollar rate plus, in each case, an applicable margin. The applicable margins on base rate loans range from 0.25% to 1.00% and the applicable margins on Eurodollar loans range from 1.25% to 2.00%, in each case depending upon our consolidated net leverage ratio (as calculated in accordance with the Credit Agreement). Changes in interest rates related to the Credit Agreement could have a material effect on our financial statements.

To achieve a desired mix of floating and fixed interest rates on our term loan, we entered into a number of interest rate swap agreements that qualified for and are designated as cash flow hedges. We currently have cash flow hedges with aggregate notional amounts of approximately 45% of our outstanding term loan. If interest rates were to increase or decrease by 1%, interest expense over the next year would increase or decrease by $17, based on the unhedged portion of our outstanding term loan.

Foreign Exchange Market Risk

Our operations include activities in many countries outside the U.S. As a result, our financial results are impacted by factors such as changes in foreign currency exchange rates or weak economic conditions in the foreign markets where we operate. We have exposure to movements in foreign currency exchange rates, the most significant of which are the Euro, the Ruble, and Japanese Yen, against the U.S. dollar. We are a net receiver of many foreign currencies, and our consolidated financial results benefit from a weaker U.S. dollar and are adversely impacted by a stronger U.S. dollar relative to foreign currencies in which we sell our product.

Our monetary exposures on our balance sheet arise primarily from cash, accounts receivable, intercompany receivables and payables denominated in foreign currencies. Approximately 47% of our product sales were denominated in foreign currencies during the three months ended March 31, 2017, and our revenues are also exposed to fluctuations in the foreign currency exchange rates over time. In certain foreign countries, we may sell in U.S. dollar, but our customers may be impacted adversely in fluctuations in foreign currency exchange rates which may also impact the timing and amount of our revenue.

Both positive and negative impacts to our international product sales from movements in foreign currency exchange rates are only partially mitigated by the natural, opposite impact that foreign currency exchange rates have on our international operating expenses. Additionally, we have operations based in Europe and accordingly, our expenses are impacted by fluctuations in the value of the Euro against the U.S. dollar.

We currently have a derivative program in place to achieve the following: 1) limit the foreign currency exposure of our monetary assets and liabilities on our balance sheet, using contracts with durations of approximately 90 days and 2) hedge a portion of our forecasted product sales (in some currencies), including intercompany sales, using contracts with durations of up to 60 months. The objectives of this program are to reduce the volatility of our operating results due to fluctuation of foreign exchange and to increase the visibility of the foreign exchange impact on forecasted revenues. This program utilizes foreign exchange forward contracts intended to reduce, not eliminate, the volatility of operating results due to fluctuations in foreign exchange rates.

As of March 31, 2017 and December 31, 2016, we held foreign exchange forward contracts with notional amounts totaling $2,367 and $2,389, respectively. As of March 31, 2017 and December 31, 2016, our outstanding foreign exchange forward contracts had a net fair value of $85 and $140, respectively.

We do not use derivative financial instruments for speculative trading purposes. The counterparties to these foreign exchange forward contracts are large domestic and multinational commercial banks. We believe the risk of counterparty nonperformance is not material.

Based on our foreign currency exchange rate exposures as of March 31, 2017, a hypothetical 10% adverse fluctuation in exchange rates would decrease the fair value of our foreign exchange forward contracts that are designated as cash flow hedges by approximately $166 as of March 31, 2017. The resulting loss on these forward contracts would be offset by the gain on the underlying transactions and therefore would have minimal impact on future anticipated earnings and cash flows. Similarly, adverse fluctuations in exchange rates that would decrease the fair value of our foreign exchange forward contracts that are not designated as hedge instruments would be offset by a positive impact of the underlying monetary assets and liabilities.

Credit Risk

As a result of our foreign operations, we are exposed to changes in the general economic conditions in the countries in which we conduct business. The majority of our receivables are due from wholesale distributors, public hospitals and other government entities. We monitor the financial performance and creditworthiness of our large customers so that we can properly assess and respond to changes in their credit profile. We continue to monitor these conditions, including the volatility associated with international economies and the relevant financial markets, and assess their possible impact on our business. Although collection of our accounts receivables from certain countries may extend beyond our standard credit terms, we do not expect any such delays to have a material impact on our financial condition or results of operations.

Item 4. *CONTROLS AND PROCEDURES*

Evaluation of Disclosure Controls and Procedures

We have established disclosure controls and procedures to provide reasonable assurance that information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure, and ensure that information required to be disclosed in the reports we file or submit under the Securities Exchange Act of 1934, as amended (Exchange Act) is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of March 31, 2017. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were not effective as of March 31, 2017, due to the material weakness in internal control over financial reporting that was previously disclosed in our Quarterly Report on Form 10-Q filed on January 4, 2017 and in our Annual Report on Form 10-K filed on February 16, 2017 and described below, which was not remediated as of March 31, 2017.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

We did not maintain an effective control environment as our senior management failed to set an appropriate Tone at the Top. Specifically, senior management failed to reinforce the need for compliance with the Company's policies and procedures, which resulted in inappropriate business conduct. This control deficiency did not require restatement of our previously reported historical financial results. However, this control deficiency could result in a misstatement to disclosures that would result in a material misstatement to our annual or interim consolidated financial statements that would not be prevented or detected. Accordingly, our management has determined that this control deficiency constitutes a material weakness.

Notwithstanding the material weaknesses in our internal control over financial reporting, management has concluded that the consolidated financial statements included in this Quarterly Report on Form 10-Q present fairly, in all material respects, our financial position, results of operations and cash flows for the periods presented.

Remediation Plan and Activities

Management has been engaged and will continue to advance in remedial activities to address the material weakness described above. The remedial activities include the following:

- The Board of Directors has and will reinforce to key leadership the importance of setting appropriate Tone at the Top and of appropriate behavior with respect to the Company's commitment to ethics and compliance programs in the performance of the Company's mission, as well as adherence to the Company's internal control over financial reporting framework;
- Members of senior management, with the participation and input of the Audit and Finance Committee and the Board of Directors, have and will increase communication with, and training of employees regarding:
    - Our commitment to ethical standards and the integrity of our business practices;
    - Requirements for compliance with applicable laws, our Code of Ethics and Business Conduct and other Company policies; and
    - Availability of and processes for reporting suspected violations of law or our Code of Ethics and Business Conduct.
- Revised financial reporting processes to ensure that all employees annually confirm compliance with the Company's Code of Ethics and Business Conduct and that deviations are identified and timely remediated; and
- The Board of Directors, together with management, has evaluated and will continue to evaluate certain Company practices and procedures, including those related to compensation, planning and forecasting, as well as the Company's organizational structure, and determine which practices and procedures should be modified or terminated, and management has assessed and will continue to assess roles and responsibilities to enhance controls and compliance.

In addition, on December 11, 2016, our Board of Directors oversaw a change in the Company's senior leadership when it appointed an Interim Chief Executive Officer and a new Chief Financial Officer following the departures of our former Chief Executive Officer and Chief Financial Officer, as well as other personnel changes. The Board of Directors subsequently appointed Dr. Hantson as Chief Executive Officer effective March 27, 2017.

The Company is committed to maintaining a strong internal control environment. Management believes the foregoing efforts will effectively remediate the material weakness. However, it will take time to determine whether the additional controls we implement will be sufficient to accomplish their intended purpose. While our Board of Directors and senior management are closely monitoring the remediation efforts discussed in this section, until such efforts, and any additional activities that our senior management determines are necessary, are completed and determined to be effective, we will not be able to conclude that the material weakness has been remediated. We will provide further updates to the Board of Directors on an ongoing basis with measurable milestones and responsibilities regarding the progress of our remediation efforts.

Changes in Internal Control over Financial Reporting

Other than the remediation efforts described above, there has been no change in our internal control over financial reporting that occurred during the quarter ended March 31, 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.***

In May 2015, we received a subpoena in connection with an investigation by the Enforcement Division of the SEC requesting information related to our grant-making activities and compliance with the FCPA in various countries. In addition, in October 2015, we received a request from the DOJ for the voluntary production of documents and other information pertaining to Alexion's compliance with FCPA. The SEC and DOJ also seek information related to Alexion's recalls of specific lots of Soliris and related securities disclosures. Alexion is cooperating with these investigations.

The investigations have focused on operations in various countries, including Brazil, Colombia, Japan, Russia and Turkey, and Alexion's compliance with the FCPA and other applicable laws.

At this time, Alexion is unable to predict the duration, scope or outcome of these investigations. While it is possible that a loss related to these matters may be incurred, given the ongoing nature of these investigations, management cannot reasonably estimate the potential magnitude of any such loss or range of loss, or the cost of the ongoing investigation. Any determination that our operations or activities are not in compliance with existing laws or regulations could result in the imposition of fines, civil and criminal penalties, equitable remedies, including disgorgement, injunctive relief, and/or other sanctions against us, and remediation of any such findings could have an adverse effect on our business operations.

Alexion is committed to strengthening its compliance program and has initiated a comprehensive company-wide transformation plan to enhance and remediate its business processes, structures, controls, training, talent and systems across Alexion's global operations. For information concerning the risks associated with the investigation, see our Risk Factor - "If we fail to comply with laws or regulations, we may be subject to investigations and civil or criminal penalties and our business could be adversely affected."

In the fourth quarter 2016, several securities class action lawsuits were filed against the Company and its former officers in federal district court alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, 15 U.S.C. § 78j(b), and Rule 10b-5, promulgated thereunder, alleging that defendants made misstatements and/or omissions concerning the Company's sales of Soliris. On April 12, 2017, the U.S. District Court for the District of Connecticut (the Court) awarded lead plaintiff status to Erste-Sparinvest KapitalanLagegesellschaft mbH (Erste) and the Public Employee Retirement System of Idaho (PERSI). Erste and PERSI filed its shareholder putative class action with the Court on December 29, 2016, alleging that defendants made misrepresentations and omissions about Soliris between February 10, 2014 and December 9, 2016. The litigation is in the early stages, and defendants have not yet responded to the complaint. Given the early stages of this litigation, management does not currently believe that a loss related to this matter is probable or that the potential magnitude of such loss or range of loss, if any, can be reasonably estimated.

In December 2016, we received a subpoena from the U.S. Attorney's Office for the District of Massachusetts requesting documents relating generally to our support of 501(c)(3) organizations that provide financial assistance to Medicare patients taking drugs sold by Alexion, Alexion's provision of free drug to Medicare patients, and Alexion compliance policies and training materials concerning the anti-kickback statute or payments to any 501(c)(3) organization that provides financial assistance to Medicare patients. Other companies have disclosed similar inquiries. We are cooperating with this inquiry.

Item 1A. ***Risk Factors.***

(amounts in millions, except percentages)

You should carefully consider the following risk factors before you decide to invest in Alexion and our business because these risk factors may have a significant impact on our business, operating results, financial condition, and cash flows. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. If any of the following risks actually occurs, our business, financial condition and results of operations could be materially and adversely affected.

Risks Related to Our Products

We depend heavily on the success of our lead product, Soliris. If sales of Soliris are adversely affected, our business may be materially harmed.

Currently, our ability to generate revenues depends primarily on the commercial success of Soliris and whether physicians, patients and healthcare payers view Soliris as therapeutically effective and safe relative to cost. Since we launched Soliris in the U.S. in 2007, substantially all of our revenue has been attributed to sales of Soliris. In 2015, we received marketing approval in the U.S., the EU and Japan, of our second marketed product, Strensiq, for the treatment of HPP. We also received marketing approval in 2015 in the U.S. and the EU for our third product, Kanuma, for the treatment of LAL-D.

However, we anticipate that Soliris product sales will continue to contribute a significant percentage of our total revenue over the next several years.

The commercial success of Soliris and our ability to generate revenues depends on several factors, as discussed in greater detail below, including safety and efficacy of Soliris, coverage or reimbursement by government or third-party payers, pricing, manufacturing and uninterrupted supply, the introduction of and success of competing products, the size of patient populations and the number of patients diagnosed who may be treated with Soliris, adverse legal, administrative, regulatory or legislative developments, and our ability to develop, register and commercialize Soliris for new indications.

If we are not able to maintain revenues from sales of Soliris, or our revenues do not grow as anticipated, our results of operations and stock price could be adversely affected.

Our future commercial success depends on gaining regulatory approval for new products and obtaining approvals for existing products for new indications.

Our long-term success and revenue growth will depend upon the successful development of new products and technologies from our research and development activities, including those licensed or acquired from third parties and approval of additional indications for our existing products. Product development is very expensive and involves a high degree of risk. Only a small number of research and development programs result in the commercialization of a product. The process for obtaining regulatory approval to market a biologic is expensive, often takes many years, and can vary substantially based on the type, complexity, and novelty of the product candidates involved. Our ability to grow revenues would be adversely affected if we are delayed or unable to successfully develop the products in our pipeline, including Soliris for additional indications, obtain marketing approval for Strensiq and Kanuma in additional territories or acquire or license products and technologies from third parties.

We dedicate significant resources to the worldwide development, manufacture and commercialization of our products. We cannot guarantee that any marketing application for our product candidates will be approved or maintained in any country where we seek marketing authorization. If we do not obtain regulatory approval of new products or additional indications for existing products, or are significantly delayed or limited in doing so, our revenue growth will be adversely affected, we may experience surplus inventory, our business may be materially harmed and we may need to significantly curtail operations.

Because the target patient populations of Kanuma and Strensiq are small and have not been definitively determined, we must be able to successfully identify patients in order to maintain growth.

Kanuma and Strensiq are currently approved to treat ultra-rare diseases with small patient populations that have not been definitively determined. There can be no guarantee that any of our programs will be effective at identifying patients and the number of patients in the United States, Japan and Europe and elsewhere may turn out to be lower than expected, may not be otherwise amenable to treatment with Kanuma and Strensiq, or new patients may become increasingly difficult to identify, all of which would adversely affect our results of operations and our business.

Sales of our products depend on reimbursement by government health administration authorities, private health insurers and other organizations. If we are unable to obtain, or maintain at anticipated levels, reimbursement for our products, or coverage is reduced, our pricing may be affected or our product sales, results of operations or financial condition could be harmed.

We may not be able to sell our products on a profitable basis or our profitability may be reduced if we are required to sell our products at lower than anticipated prices or reimbursement is unavailable or limited in scope or amount. Our products are significantly more expensive than traditional drug treatments and almost all patients require some form of third party coverage to afford their cost. We depend, to a significant extent, on governmental payers, such as Medicare and Medicaid in the U.S. or country specific governmental organizations in foreign countries, and private third-party payers to defray the cost of our products to patients. These entities may refuse to provide coverage and reimbursement, determine to provide a lower level of coverage and reimbursement than anticipated, or reduce previously approved levels of coverage and reimbursement, including in the form of higher mandatory rebates or modified pricing terms.

In certain countries where we sell or are seeking or may seek to commercialize our products, pricing, coverage and level of reimbursement or funding of prescription drugs are subject to governmental control. We may be unable to timely or successfully negotiate coverage, pricing, and reimbursement on terms that are favorable to us, or such coverage, pricing, and reimbursement may differ in separate regions in the same country. In some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country, which may include a combination of distinct potential payers, including private insurance and governmental payers as well as a HTA assessment of medicinal products for pricing and reimbursement methodologies. Therefore, we may not successfully conclude the necessary processes and commercialize our products in every, or even most countries in which we seek to sell our products.

A significant reduction in the amount of reimbursement or pricing for our products in one or more countries may reduce our profitability and adversely affect our financial condition. Certain countries establish pricing and reimbursement amounts by reference to the price of the same or similar products in other countries. Therefore, if coverage or the level of reimbursement is limited in one or more countries, we may be unable to obtain or maintain anticipated pricing or reimbursement in current or new territories. In the U.S., the EU member states, and elsewhere, there have been, and we expect there will continue to be, efforts to control and reduce healthcare costs. In the U.S. for example, the price of drugs has come under intense scrutiny by the U.S. Congress. Third party payers decide which drugs they will pay for and establish reimbursement and co-payment levels. Government and other third-party payers are increasingly challenging the prices charged for healthcare products, examining the cost effectiveness of drugs in addition to their safety and efficacy, and limiting or attempting to limit both coverage and the level of reimbursement for prescription drugs. See additional discussion below under the headings "Changes in healthcare law and implementing regulations, including those based on recently enacted legislation, as well as changes in healthcare policy and government initiatives that affect coverage and reimbursement of drug products may impact our business in ways that we cannot currently predict and these changes could adversely affect our business and financial condition" and "The credit and financial market conditions may aggravate certain risks affecting our business."

The potential increase in the number of patients receiving Soliris may cause third-party payers to modify or limit coverage or reimbursement for Soliris for the treatment of PNH, aHUS, or both indications. To the extent we are successful in developing Soliris for indications other than PNH and aHUS, the potential increase in the number of patients receiving Soliris may cause third-party payers to refuse or limit coverage or reimbursement for Soliris for the treatment of PNH, aHUS or for any other approved indication, or provide a lower level of coverage or reimbursement than anticipated or currently in effect.

Health insurance programs may restrict coverage of some products by using payer formularies under which only selected drugs are covered, variable co-payments that make drugs that are not preferred by the payer more expensive for patients, and by using utilization management controls, such as requirements for prior authorization or failure first on another type of treatment. Payers may especially impose these obstacles to coverage for higher-priced drugs, and consequently our products may be subject to payer-driven restrictions. Additionally, U.S. payers are increasingly considering new metrics as the basis for reimbursement rates.

In countries where patients have access to insurance, their insurance co-payment amounts or other benefit limits may represent a barrier to obtaining or continuing Soliris. We have financially supported non-profit organizations that assist patients in accessing treatment for PNH and aHUS, including Soliris. Such organizations assist patients whose insurance coverage imposes prohibitive co-payment amounts or other expensive financial obligations. Such organizations' ability to provide assistance to patients is dependent on funding from external sources, and we cannot guarantee that such funding will be provided at adequate levels, if at all. We have also provided our products without charge to patients who have no insurance coverage for drugs through related charitable purposes. We are not able to predict the financial impact of the support we may provide for these and other charitable purposes; however, substantial support could have a material adverse effect on our profitability in the future.

Our commercial success depends on obtaining and maintaining reimbursement at anticipated levels reimbursement for our products. It may be difficult to project the impact of evolving reimbursement mechanics on the willingness of payers to cover our products. If we are unable to obtain or maintain coverage, or coverage is reduced in one or more countries, our pricing may be affected or our product sales, results of operations or financial condition could be harmed.

We may not be able to maintain market acceptance of our products among the medical community or patients, or gain market acceptance of our products in the future, which could prevent us from maintaining profitability or growth.

We cannot be certain that our products will maintain market acceptance in a particular country among physicians, patients, healthcare payers, and others. Although we have received regulatory approval of our products in certain territories, such approvals do not guarantee future revenue. We cannot predict whether physicians, other healthcare providers, government agencies or private insurers will determine or continue to accept that our products are safe and therapeutically effective relative to their cost. Physicians' willingness to prescribe, and patients' willingness to accept, our products, depends on many factors, including prevalence and severity of adverse side effects in both clinical trials and commercial use, the timing of the market introduction of competitive drugs, lower demonstrated clinical safety and efficacy compared to other drugs, perceived lack of cost-effectiveness, pricing and lack of availability of reimbursement from third-party payers, convenience and ease of administration, effectiveness of our marketing strategy, publicity concerning the product, our other product candidates and availability of alternative treatments, including bone marrow transplant as an alternative treatment for PNH. The likelihood of physicians to prescribe Soliris for patients with aHUS may also depend on how quickly Soliris can be delivered to the hospital or clinic and our distribution methods may not be sufficient to satisfy this need. In addition, we are aware that medical doctors have determined not to continue Soliris treatment for some patients with aHUS.

If our products fail to achieve or maintain market acceptance among the medical community or patients in a particular country, we may not be able to market and sell our products successfully in such country, which would limit our ability to generate revenue and could harm our overall business.

Manufacturing issues at our facilities or the facilities of our third party service providers could cause product shortages, stop or delay commercialization of our products, disrupt or delay our clinical trials or regulatory approvals, and adversely affect our business.

The manufacture of our products and our product candidates is highly regulated, complex and difficult, requiring a multi-step controlled process and even minor problems or deviations could result in defects or failures. We have limited experience manufacturing commercial quantities of Strensiq and Kanuma. Only a small number of companies have the ability and capacity to manufacture our products for our development and commercialization needs. Due to the highly technical requirements of manufacturing our products and the strict quality and control specifications, we and our third party providers may be unable to manufacture or supply our products despite our and their efforts. Failure to produce sufficient quantities of our products and product candidates could result in lost revenue, diminish our profitability, delay the development of our product candidates, or result in supply shortages for our patients, which may lead to lawsuits or could accelerate introduction of competing products to the market.

The manufacture of our products and product candidates is at high risk of product loss due to contamination, equipment malfunctions, human error, or raw material shortages. Deviations from established manufacturing processes could result in reduced production yields, product defects and other supply disruptions. If microbial, viral or other contaminations are discovered in our products or manufacturing facilities, we may need to close our manufacturing facilities for an extended period of time to investigate and remediate the contaminant. The occurrence of any such event could adversely affect our ability to satisfy demand for any of our products, which could materially and adversely affect our operating results.

Many additional factors could cause production interruptions at our facilities or at the facilities of our third party providers, including natural disasters, labor disputes, acts of terrorism or war. The occurrence of any such event could adversely affect our ability to satisfy demand for Soliris, which could materially and adversely affect our operating results.

We expect that the demand for Soliris will increase. We may underestimate demand for Soliris or any of our products, or experience product interruptions at Alexion's internal manufacturing facilities or a facility of a third party provider, including as a result of risks and uncertainties described in this report.

We and our third party providers are required to maintain compliance with cGMP and other stringent requirements and are subject to inspections by the FDA and comparable agencies in other jurisdictions to confirm such compliance. Any delay, interruption or other issues that arise in the manufacture, fill-finish, packaging, or storage of our products as a result of a failure of our facilities or the facilities or operations of third parties to pass any regulatory agency inspection could significantly impair our ability to supply our products and product candidates. Significant noncompliance could also result in the imposition of monetary penalties or other civil or criminal sanctions and damage our reputation.

We rely on one to two facilities to manufacture each of our products. We are authorized to sell Soliris that is manufactured by Lonza and at ARIMF in the U.S., the EU, Japan and certain other territories. However, manufacturing Soliris for commercial sale in certain other territories may only be performed at a single facility in some cases until such time as we have received the required regulatory approval for an additional facility, if ever, however, in certain territories only a single manufacturing facility may be registered and we will continue to rely on a single manufacturing facility in such instances. We will continue to depend entirely on one facility to manufacture Soliris for commercial sale in such other territories until that time. We also depend entirely on one facility to manufacture Strensiq and on one facility for the purification of Kanuma for commercial sale. Regarding Kanuma, we rely on two animal facilities to produce the starting material, and a single manufacturing facility to manufacture the drug product.

We depend on a very limited number of third party providers for supply chain services with respect to our clinical and commercial product requirements, including product filling, finishing, packaging, and labeling. Our third party providers operate as independent entities and we do not have control over any third party provider's compliance with our internal or external specifications or the rules and regulations of regulatory agencies, including the FDA, competent authorities of the EU member states, or any other applicable regulations or standards.

Any difficulties or delays in our third party manufacturing, or any failure of our third party providers to comply with our internal and external specifications or any applicable rules, regulations and standards could increase our costs, constrain our ability to satisfy demand for our products from customers, cause us to lose revenue or incur penalties for failure to deliver product, make us postpone or cancel clinical trials, or cause our products to be recalled or withdrawn, such as the voluntary recalls that we initiated in 2013 and 2014 due to the presence of visible particles in a limited number of vials in specific lots. Even if we are able to find alternatives they may ultimately be insufficient for our needs. No guarantee can be made that regulators will approve additional third party providers in a timely manner or at all, or that any third party providers will be able to perform services for sufficient product volumes for any country or territory. Further, due to the nature of the current market for third-party commercial manufacturing, many arrangements require substantial penalty payments by the customer for failure to use the manufacturing capacity for which it contracted. Penalty payments under these agreements typically decrease

over the life of the agreement, and may be substantial initially and de minimis or non-existent in the final period. The payment of a substantial penalty could harm our financial condition.

It can take longer than five years to build and validate a new manufacturing facility and it can take longer than three years to qualify and validate a new contract manufacturer. We have completed the build-out of a fill-finish facility in Ireland to support global drug product manufacture or vial fill finish of Soliris and Alexion's other clinical and commercial products. We cannot guarantee that this facility will receive the necessary global regulatory approvals in a timely manner and we will continue to rely on appropriate third parties to supplement our fill-finish operations until that time. We also completed construction of a new facility in Dublin, Ireland in the fourth quarter of 2015, which is comprised of laboratories, packaging and warehousing operations and we intend to make significant further investment in this facility for the manufacture our products. We cannot guarantee that we will be able to successfully and timely complete the appropriate validation processes or obtain the necessary regulatory approvals, or that we will be able to perform the intended supply chain services at either of these facilities for commercial or clinical use.

Certain of the raw materials required in the manufacture and the formulation of our products are derived from biological sources. Such raw materials are difficult to procure and may be subject to contamination or recall. Access to and supply of sufficient quantities of raw materials which meet the technical specifications for the production process is challenging, and often limited to single-source suppliers. Finding an alternative supplier could take a significant amount of time and involve significant expense due to the nature of the products and the need to obtain regulatory approvals. The failure of these single-source suppliers to supply adequate quantities of raw materials for the production process in a timely manner may impact our ability to produce sufficient quantities of our products for clinical or commercial requirements. A material shortage, contamination, recall, or restriction on the use of certain biologically derived substances or any raw material used in the manufacture of our products could adversely impact or disrupt manufacturing.

In addition, Kanuma is a transgenic product. It is produced in the egg whites of genetically modified chickens who receive copies of the human lysosomal acid lipase gene to produce recombinant human lysosomal acid lipase. The facilities on which we rely to produce raw material for recombinant lysosomal acid lipase are the only animal facilities in the world that produces the necessary egg whites from transgenic chickens. Natural disasters, disease, such as exotic Newcastle disease or avian influenza, or other catastrophic events could have a significant impact on the supply of unpurified Kanuma, or destroy Alexion’s animal operations altogether. If our animal operations are disrupted or destroyed, it will be extremely difficult to set up another animal facility to supply the unpurified Kanuma. This would adversely affect our ability to satisfy demand for Kanuma, which could materially and adversely affect our operating results.

Any adverse developments affecting our manufacturing operations or the operations of our third-party providers could result in a product shortage of clinical or commercial requirements, withdrawal of our product candidates or any approved products, shipment delays, lot failures, or recalls. We may also have to write-off inventory and incur other charges and expenses for products that fail to meet specifications, undertake costly remediation efforts or seek more costly manufacturing alternatives. Such manufacturing issues could increase our cost of goods, cause us to lose revenue, reduce our profitability or damage our reputation.

We operate in a highly regulated industry and if we or our third party providers fail to comply with U.S. and foreign regulations, we or our third party providers could lose our approvals to market our products or our product candidates, and our business would be seriously harmed.

We and our current and future partners, contract manufacturers and suppliers are subject to rigorous and extensive regulation by governmental authorities around the world, including the FDA, EMA, the competent authorities of the EU member states, and MHLW. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, or in the case of Kanuma, problems with animal operations, a regulatory agency may impose restrictions on that product, the manufacturing facility or us. For example, in March 2013, we received a Warning Letter from the FDA relating to compliance with FDA’s cGMP requirements at ARIMF. We are working with the FDA to resolve the issues identified in the Warning Letter. Failure to address the FDA’s concerns may lead the FDA or other regulatory authorities to take regulatory action, including fines, civil penalties, recalls, seizure of product, suspension of manufacturing operations, operating restrictions, injunctions, withdrawal of FDA approval, and/or criminal prosecution.

If we do not resolve outstanding concerns expressed by the FDA in the Warning Letter and the Form 483s to the satisfaction of the FDA, EMA or any other regulatory agency, or we or our third-party providers, including our product fill-finish providers, packagers and labelers, fail to comply fully with applicable regulations, then we may be required to initiate a recall or withdrawal of our products. Like our contract manufacturers’ manufacturing operations, our animal operations will also be subject to FDA inspection to evaluate whether our animal husbandry, containment, personnel, and record keeping practices are sufficient to ensure safety and security of our transgenic chickens and animal products (*e.g.*, eggs, waste, etc.). Our animal operations may also be subject to inspection by the U.S. Department of Agriculture, Animal and Plant Health

Inspection Service (USDA APHIS), the agency responsible for administering the Animal Welfare Act. Any failure to ensure safety and security of our transgenic chickens and/or animal products could result in regulatory action by the FDA or another regulatory body, including USDA APHIS.

The safety profile of any product continues to be closely monitored by the FDA and other foreign regulatory authorities after approval. Regulations continue to apply after product approval, and cover, among other things, testing, manufacturing, quality control, finishing, filling, labeling, advertising, promotion, risk mitigation, adverse event reporting requirements, and export of biologics. For example, the risk management program established in 2007 upon the FDA's approval of Soliris for the treatment of PNH was replaced with a Risk Evaluation and Mitigation Strategy (REMS) program, approved by the FDA in 2010, and further revised in December 2015 concerning prescribing information regarding the level of fever needed to seek medical attention and reporting adverse events. Future changes to the Soliris REMS could be costly and burdensome to implement.

We are required to report any serious and unexpected adverse experiences and certain quality problems with our products to the FDA, the EMA, and other health agencies. We or any health agency may have to notify healthcare providers of any such developments. Non-compliance with safety reporting requirements could result in regulatory action that may include civil action or criminal penalties. Regulatory agencies inspect our pharmacovigilance processes, including our adverse event reporting. If regulatory agencies determine that we or other parties, including clinical trial investigators, have not complied with the applicable reporting or other pharmacovigilance requirements, we may become subject to additional inspections, warning letters or other enforcement actions, including monetary fines, marketing authorization withdrawal and other penalties.

As a condition of approval for marketing our products, governmental authorities may require us to conduct additional studies. In connection with the approval of Soliris in the U.S., EU and Japan, for the treatment of PNH, we agreed to establish a PNH Registry, monitor immunogenicity, monitor compliance with vaccination requirements, and determine the effects of anticoagulant withdrawal among PNH patients receiving eculizumab, and, specifically in Japan, we agreed to conduct a trial in a limited number of Japanese PNH patients to evaluate the safety of a meningococcal vaccine. In connection with the approval of Soliris in the U.S. for the treatment of aHUS, we agreed to establish an aHUS Registry and complete additional human clinical studies in adult and pediatric patients. Furthermore, in connection with the approval of Strensiq in the U.S., we agreed to conduct a prospective observational study in treated patients to assess the long-term safety of Strensiq therapy and to develop complementary assays. Similarly, in connection with the approval of Kanuma in the U.S., we have agreed to conduct a long-term observational study of treated patients, either as a standalone study or as a component of the existing LAL Registry. In the EU, in connection with the grant of authorization for Strensiq, we agreed to conduct a multicenter, randomized, open-label, Phase 2a study of Strensiq in patients with HPP and to extend the studies ENB-008-10 and ENB-009-10 to provide efficacy data in patients 13 to 18 years of age. We also agreed to set up an observational, longitudinal, prospective, long-term registry of patients with HPP to collect information on the epidemiology of the disease, including clinical outcomes and quality of life, and to evaluate safety and effectiveness data in patients treated with Strensiq. In the U.S., the FDA can also propose to withdraw approval for a product if it determines that such additional studies are inadequate or if new clinical data or information shows that a product is not safe for use in an approved indication.

Failure to comply with the laws and requirements, including statutes and regulations, administered by the FDA, the EC, the competent authorities of the EU member states, the MHLW or other agencies, including without limitation, failures or delays in resolving the concerns raised by the FDA in the Warning Letter, could result in:

- a product recall;
- a product withdrawal;
- significant administrative and judicial sanctions, including, warning letters or untitled letters;
- significant fines and other civil penalties;
- suspension, variation or withdrawal of a previously granted approval for Soliris;
- interruption of production;
- operating restrictions, such as a shutdown of production facilities or production lines, or new manufacturing requirements;
- suspension of ongoing clinical trials;
- delays in approving or refusal to approve our products including pending BLAs or BLA supplements for our products or a facility that manufactures our products;
- seizing or detaining product;
- requiring us or our partners to enter into a consent decree, which can include imposition of various fines, reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- injunctions; and/or
- criminal prosecution.

If the use of our products harms people, or is perceived to harm patients even when such harm is unrelated to our products, our regulatory approvals could be revoked or otherwise negatively impacted and we could be subject to costly and damaging product liability claims.

The testing, manufacturing, marketing and sale of drugs for use in humans exposes us to product liability risks. Side effects and other problems from using our products could (1) lessen the frequency with which physicians decide to prescribe our products, (2) encourage physicians to stop prescribing our products to their patients who previously had been prescribed our products, (3) cause serious adverse events and give rise to product liability claims against us, and (4) result in our need to withdraw or recall our products from the marketplace. Some of these risks are unknown at this time.

Our products and our product candidates treat patients with ultra-rare diseases. We generally test our products in only a small number of patients. For example, the FDA marketing approval for the treatment of patients with aHUS was based on two prospective studies in a total of 37 adult and adolescent patients, together with a retrospective study that included 19 pediatric patients. As more patients use our products, including more children and adolescents, new risks and side effects may be discovered, the rate of known risks or side effects may increase, and risks previously viewed as less significant could be determined to be significant. Previously unknown risks and adverse effects may also be discovered in connection with unapproved uses of our products, which may include administration of our products under acute emergency conditions, such as the Enterohemorrhagic E. coli health crisis in Europe, primarily Germany, which began in May 2011. We do not promote, or in any way support or encourage the promotion of our products for unapproved uses in violation of applicable law, but physicians are permitted to use products for unapproved purposes and we are aware of such uses of Soliris. In addition, we are studying and expect to continue to study Soliris in diseases other than PNH and aHUS in controlled clinical settings, and independent investigators are doing so as well. In the event of any new risks or adverse effects discovered as new patients are treated for approved indications, or as our products are studied in or used by patients for other indications, regulatory authorities may delay or revoke their approvals, we may be required to conduct additional clinical trials and safety studies, make changes in labeling, reformulate our products or make changes and obtain new approvals for our and our suppliers' manufacturing facilities. We may also experience a significant drop in potential sales, experience harm to our reputation and the reputation of our products in the marketplace or become subject to lawsuits, including class actions. Any of these results could decrease or prevent any sales or substantially increase the costs and expenses of commercializing and marketing our products.

We may be sued by people who use our products, whether as a prescribed therapy, during a clinical trial, during an investigator initiated study, or otherwise. Many patients who use our products are already very ill. Any informed consents or waivers obtained from people who enroll in our trials or use our products may not protect us from liability or litigation. Our product liability insurance may not cover all potential types of liabilities or may not cover certain liabilities completely. Moreover, we may not be able to maintain our insurance on acceptable terms. In addition, negative publicity relating to the use of our products or a product candidate, or to a product liability claim, may make it more difficult, or impossible, for us to market and sell. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, financial condition or results of operations.

Patients who use our products already often have severe and advanced stages of disease and known as well as unknown significant pre-existing and potentially life-threatening health risks. During the course of treatment, patients may suffer adverse events, including death, for reasons that may or may not be related to our products. Some patients treated with our products, including patients who have participated in our clinical trials, have died or suffered potentially life-threatening diseases either during or after ending their treatments. Patients who delay or miss a dose or discontinue treatment may also experience complications, including death. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market our products, or require us to suspend or abandon our commercialization efforts. Even in a circumstance in which we do not believe that an adverse event is related to our products, the investigation into the circumstance may be time consuming or inconclusive. These investigations may interrupt our sales efforts, delay our regulatory approval process in other countries, or impact and limit the type of regulatory approvals that our products receive or maintain.

For example, use of C5 Inhibitors, such as Soliris, is associated with an increased risk for certain types of infection, including meningococcal infection. Under controlled settings, patients in our eculizumab trials all receive vaccination against meningococcal infection prior to first administration of Soliris and patients who are prescribed Soliris in most countries are required by prescribing guidelines to be vaccinated prior to receiving their first dose. A physician may not have the opportunity to timely vaccinate a patient in the event of an acute emergency episode, such as in a patient presenting with aHUS or during the health crisis that began in May 2011 in Europe, principally in Germany, due to the epidemic of infections from Enterohemorrhagic E. coli. Vaccination does not, however, eliminate all risk of meningococcal infection. Additionally, in some countries there may not be any vaccine approved for general use or approved for use in infants and children. Some patients treated with Soliris who had been vaccinated have nonetheless experienced meningococcal infection, including patients who have suffered serious illness or death. Each such incident is required to be reported to appropriate regulatory agencies in accordance with relevant regulations.

Clinical evaluations of outcomes in the post-marketing setting are required to be reported to appropriate regulatory agencies in accordance with relevant regulations. Determination of significant complications associated with the delay or discontinuation of our products could have a material adverse effect on our ability to sell our products.

If we are unable to establish and maintain effective sales, marketing and distribution capabilities, or to enter into agreements with third parties to do so, we will be unable to successfully commercialize our products.

We are marketing and selling our products ourselves in the U.S., Europe, Japan and several other territories. Strensiq and Kanuma were approved in 2015, are in the early stages of commercial launch and are the second and third new product launches in Alexion's history. If we are unable to establish and/or expand our capabilities to sell, market and distribute our products, either through our own capabilities or by entering into agreements with others, or to maintain such capabilities in countries where we have already commenced commercial sales, we will not be able to successfully sell our products. In that event, we will not be able to generate significant revenues. We cannot guarantee that we will be able to establish and maintain our own capabilities or enter into and maintain any marketing or distribution agreements with third-party providers on acceptable terms, if at all. Even if we hire the qualified sales and marketing personnel we need to support our objectives, or enter into marketing and distribution agreements with third parties on acceptable terms, we may not do so in an efficient manner or on a timely basis. We may not be able to correctly judge the size and experience of the sales and marketing force and the scale of distribution capabilities necessary to successfully market and sell our products. Establishing and maintaining sales, marketing and distribution capabilities are competitive, expensive and time-consuming. Our expenses associated with building up and maintaining the sales force and distribution capabilities around the world may be disproportionate compared to the revenues we may be able to generate on sales. We cannot guarantee that we will be successful in commercializing any of our products.

If we fail to comply with laws or regulations, we may be subject to investigations and civil or criminal penalties and our business could be adversely affected.

In addition to FDA and related regulatory requirements, we are subject to healthcare "fraud and abuse" laws, such as the federal False Claims Act (FCA), the anti-kickback provisions of the federal Social Security Act, and other related federal laws and regulations. The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, in cash or in kind to induce, or reward the purchasing, leasing, ordering or arranging for or recommending the purchase, lease or order of any healthcare item or service reimbursable under Medicare, Medicaid, or other federal healthcare programs. Liability may be established without a person or entity having actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it. A conviction for violation of the Anti-kickback Statute requires mandatory exclusion from participation in federal healthcare programs. The majority of states also have statutes similar to the federal Anti-Kickback Statute and false claims laws that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payer. We seek to comply with the anti-kickback laws and with the available statutory exemptions and safe harbors. However, our practices may not in all cases fit within the safe harbors, and our practices may therefore be subject to scrutiny on a case-by-case basis. The FCA prohibits any person from knowingly presenting, or causing to be presented, a false or fraudulent claim for payment of government funds, or knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim. Pharmaceutical companies have been investigated and have reached substantial financial settlements with the Federal government under the FCA for a variety of alleged promotional and marketing activities, such as allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product; providing consulting fees and other benefits to physicians to induce them to prescribe products; engaging in promotion for uses that the FDA has not approved, or “off-label” uses; and submitting inflated best price information to the Medicaid Rebate Program. We seek to comply with the FCA laws, but we cannot assure that our compliance program, policies and procedures will always protect Alexion from acts committed by its employees or third-party distributors or service providers. Violations of U.S. federal and state fraud and abuse laws may result in criminal, civil and administrative sanctions, including fines, damages, civil monetary penalties and exclusion from federal healthcare programs (including Medicare and Medicaid).

Although physicians in the U.S. are permitted to, based on their medical judgment, prescribe products for indications other than those cleared or approved by the FDA, manufacturers are prohibited from promoting their products for such off-label uses. In the U.S., we market our products for their approved uses. Although we believe our marketing materials and training programs for physicians do not constitute improper promotion, the FDA, the U.S. Justice Department, or other federal or state government agencies may disagree. If the FDA or other government agencies determine that our promotional materials, training or other activities constitute improper promotion of any of our products, it could request that we modify our training or promotional materials or other activities or subject us to regulatory enforcement actions, including the issuance of a warning letter, injunction, seizure, civil fine and criminal penalties. It is also possible that other federal or state enforcement authorities might take action if they believe that the alleged improper promotion led to the submission and payment of claims for an unapproved use, which could result in significant fines or penalties under other statutory authorities, such as laws prohibiting false or fraudulent claims for payment of government funds.

The EU imposes similar strict restrictions on the promotion and marketing of drug products. The off-label promotion of medicinal products is prohibited in the EU and in other territories. The promotion of medicinal products that are not subject to a marketing authorization is also prohibited in the EU. Violations of the rules governing the promotion of medicinal products in the EU and in other territories could be penalized by administrative measures, fines and imprisonment.

We are subject to FCPA, the U.K. Bribery Act, and other anti-corruption laws and regulations that generally prohibit companies and their intermediaries from making improper payments to government officials and/or other persons for the purpose of obtaining or retaining business and we operate in countries that are recognized as having a greater potential for governmental and commercial corruption. We cannot assure that our compliance program, policies and procedures will always protect Alexion from acts committed by its employees or third-party distributors or service providers.

In May 2015, we received a subpoena in connection with an investigation by the Enforcement Division of the SEC requesting information related to our grant-making activities and compliance with the FCPA in various countries. The SEC also seeks information related to Alexion’s recalls of specific lots of Soliris and related securities disclosures. In addition, in October 2015, Alexion received a request from the DOJ for the voluntary production of documents and other information pertaining to Alexion's compliance with the FCPA, and in December 2016, we received a subpoena from the U.S. Attorney's Office for the District of Massachusetts requesting documents relating generally to our support of 501(c)(3) organizations that provide financial assistance to Medicare patients, Alexion’s provision of free drug to Medicare patients and Alexion’s related compliance policies and training materials. Alexion is cooperating with these investigations. At this time, Alexion is unable to predict the duration, scope or outcome of these investigations.

Any determination that our operations or activities are not, or were not, in compliance with existing U.S. or foreign laws or regulations, including by the SEC or DOJ pursuant to its investigation of our compliance with the FCPA and other matters, could result in the imposition of a broad range of civil and criminal sanctions against Alexion and certain of our directors, officers and/or employees, including injunctive relief, disgorgement, substantial fines or penalties, imprisonment, and other legal or equitable sanctions. Additionally, remediation of any such findings could have an adverse effect on our business operations, and we could experience interruptions of business, harm to our reputation, debarment from government contracts, loss of supplier, vendor or other third-party relationships, and necessary licenses and permits could be terminated. Other internal or government investigations or legal or regulatory proceedings, including lawsuits brought by private litigants, may also follow as a consequence. Cooperating with and responding to the SEC and the DOJ in connection with its investigation of our FCPA practices and other matters, as well as responding to any future U.S. or foreign governmental investigation or whistleblower lawsuit, could result in substantial expenses, and could divert management’s attention from other business concerns and could have a material adverse effect on our business and financial condition and growth prospects.

Completion of preclinical studies or clinical trials does not guarantee advancement to the next phase of development.

Completion of preclinical studies or clinical trials does not guarantee that we will initiate additional studies or trials for our product candidates, that if further studies or trials are initiated what the scope and phase of the trial will be or that they will be completed, or that if these further studies or trials are completed, that the design or results will provide a sufficient basis to apply for or receive regulatory approvals or to commercialize products. Results of clinical trials could be inconclusive, requiring additional or repeat trials. Data obtained from preclinical studies and clinical trials are subject to varying interpretations that could delay, limit or prevent regulatory approval. If the design or results achieved in our clinical trials are insufficient to proceed to further trials or to regulatory approval of our product candidates, our company could be materially adversely affected. Failure of a clinical trial to achieve its pre-specified primary endpoint, such as the Phase III Soliris trial for gMG that we announced in June 2016, generally increases the likelihood that additional studies or trials will be required if we determine to continue development of the product candidate, reduces the likelihood of timely development of and regulatory approval to market the product candidate, and may decrease the chances for successfully achieving the primary endpoint in scientifically similar indications.

Our clinical studies may be costly and lengthy, and there are many reasons why drug testing could be delayed or terminated.

For human trials, patients must be recruited and each product candidate must be tested at various doses and formulations for each clinical indication. In addition, to ensure safety and effectiveness, the effect of drugs often must be studied over a long period of time, especially for the chronic diseases that we are studying. Many of our programs focus on diseases with small patient populations making patient enrollment difficult. Insufficient patient enrollment in our clinical trials could delay or cause us to abandon a product development program. We may decide to abandon development of a product candidate or a study at any time due to unfavorable results or other reasons, or we may have to spend considerable resources repeating clinical trials or conducting additional trials, either of which would increase costs and delay any revenue from those product candidates, if any. We may open clinical sites and enroll patients in countries where we have little experience. We rely on a small number of clinical research organizations to carry out our clinical trial related activities, and one CRO is responsible for many of our studies. We rely on such parties to accurately report their results. Our reliance on CROs may impact our ability to control the timing, conduct, expense and quality of our clinical trials.

Additional factors that can cause delay, impairment or termination of our clinical trials or our product development efforts include:

- delay or failure in obtaining institutional review board (IRB), approval or the approval of other reviewing entities to conduct a clinical trial at each site;
- delay or failure in reaching agreement on acceptable terms with prospective contract research organizations (CROs), and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- withdrawal of clinical trial sites from our clinical trials as a result of changing standards of care or the ineligibility of a site to participate in our clinical trials;
- clinical sites and investigators deviating from trial protocol, failing to conduct the trial in accordance with regulatory requirements, or dropping out of a trial;
- slow patient enrollment, including, for example, due to the rarity of the disease being studied;
- delay or failure in having patients complete a trial or return for post-treatment follow-up;
- long treatment time required to demonstrate effectiveness;
- lack of sufficient supplies of the product candidate;
- disruption of operations at the clinical trial sites;
- adverse medical events or side effects in treated patients, and the threat of legal claims and litigation alleging injuries;
- failure of patients taking the placebo to continue to participate in our clinical trials;
- insufficient clinical trial data to support effectiveness of the product candidates;
- lack of effectiveness or safety of the product candidate being tested;
- lack of sufficient funds;
- inability to meet required specifications or to manufacture sufficient quantities of the product candidate for development or commercialization activities in a timely and cost-efficient manner;
- decisions by regulatory authorities, the IRB, ethics committee, or us, or recommendation by a data safety monitoring board, to suspend or terminate clinical trials at any time for safety issues or for any other reason;
- failure to obtain the necessary regulatory approvals for the product candidate or the approvals for the facilities in which such product candidate is manufactured; and
- decisions by competent authorities, IRBs or ethics committees to demand variations in protocols or conduct of clinical trials.

Risks Related to Intellectual Property

If we cannot obtain new patents, maintain our existing patents and protect the confidentiality and proprietary nature of our trade secrets and other intellectual property, our business and competitive position will be harmed.

Our success will depend in part on our ability to obtain and maintain patent and regulatory protections for our products and investigational compounds, to preserve our trade secrets and other proprietary rights, to operate without infringing the proprietary rights of third parties, and to prevent third parties from circumventing our rights. Due to the time and expense of bringing new products through development and regulatory approval to the marketplace, there is particular importance in obtaining patent and trade secret protection for significant new technologies, products and processes.

We have and may in the future obtain patents or the right to practice patents through ownership or license. Our patent applications may not result in the issue of patents in the U.S. or other countries. Our patents may not afford adequate protection for our products. Third parties may challenge our patents, and have challenged our patents in the past. If any of our patents are narrowed, invalidated or become unenforceable, competitors may develop and market products similar to ours that do not conflict with or infringe our patents rights, which could have a material adverse effect on our financial condition. We may also finance and collaborate in research conducted by government organizations, hospitals, universities or other educational or research institutions. Such research partners may be unwilling to grant us exclusive rights to technology or products developed

through such collaborations. There is also a risk that disputes may arise as to the rights to technology or products developed in collaboration with other parties. Our products and product candidates are expensive and time-consuming to test and develop. Even if we obtain and maintain patents, our business may be significantly harmed if the patents are not broad enough to protect our products from copycat products.

Significant legal questions exist concerning the extent and scope of patent protection for biopharmaceutical products and processes in the U.S. and elsewhere. Accordingly, there is no certainty that patent applications owned or licensed by us will issue as patents, or that our issued patents will afford meaningful protection against competitors. Once issued, patents are subject to challenge through both administrative and judicial proceedings in the U.S. and other countries. Such proceedings include re-examinations, inter partes reviews, post-grant reviews and interference proceedings before the U.S. Patent and Trademark Office, as well as opposition proceedings before the European Patent Office and other non-U.S. patent offices. Litigation may be required to enforce, defend or obtain our patent and other intellectual property rights. Any administrative proceeding or litigation could require a significant commitment of our resources and, depending on outcome, could adversely affect the scope, validity or enforceability of certain of our patent or other proprietary rights.

In addition, our business requires using sensitive technology, techniques and proprietary compounds that we protect as trade secrets. However, we may also rely heavily on collaboration with, or discuss the potential for collaboration with, suppliers, outside scientists and other biopharmaceutical companies. Collaboration and discussion of potential collaboration present a strong risk of exposing our trade secrets. If our trade secrets were exposed, it would help our competitors and adversely affect our business prospects.

If we are found to be infringing on patents owned by others, we may be forced to pay damages to the patent owner and/or obtain a license to continue the manufacture, sale or development of our products. If we cannot obtain a license, we may be prevented from the manufacture, sale or development of our products, which would adversely affect our business.

Parts of our technology, techniques, proprietary compounds and potential product candidates, including those which are or may be in-licensed, may be found to infringe patents owned by or granted to others. We previously reported that certain third parties filed civil lawsuits against us claiming infringement of their intellectual property rights. Each of those matters was resolved. However, additional third parties may claim that the manufacture, use or sale of our products or product candidates infringes patents owned or granted to such third parties. We have in the past received, and may in the future receive, notices from third parties claiming that their patents may be infringed by the development, manufacture or sale of our products or product candidates. We are aware of patents owned by third parties that might be claimed by such third parties to be infringed by the development and commercialization of our products or investigational compounds. In respect to some of these patents, we have obtained licenses, or expect to obtain licenses. However, with regard to other patents, we have determined in our judgment that:

- our products and investigational compounds do not infringe the patents;
- the patents are not valid or enforceable; and/or
- we have identified and are testing various alternatives that should not infringe the patents and which should permit continued development and commercialization of our products and investigational compounds.

Any holder of these patents or other patents covering similar technology could sue us for damages and seek to prevent us from manufacturing, selling or developing our products. Legal disputes can be costly and time consuming to defend. If we cannot successfully defend against any future actions or conflicts, if they arise, we may incur substantial legal costs and may be liable for damages, be required to obtain costly licenses or need to stop manufacturing, using or selling our products, which would adversely affect our business. We may seek to obtain a license prior to or during legal actions in order to reduce further costs and the risk of a court determination that our product infringes the third party's patents. A required license may be costly or may not be available on acceptable terms, if at all. A costly license, or inability to obtain a necessary license, could have a material adverse effect on our business.

There can be no assurance that we would prevail in a patent infringement action or that we would be able to obtain a license to any third-party patent on commercially reasonable terms or any terms at all; successfully develop non-infringing alternatives on a timely basis; or license alternative non-infringing technology, if any exists, on commercially reasonable terms. Any impediment to our ability to manufacture, use or sell approved forms of our products or our product candidates could have a material adverse effect on our business and prospects.

It is possible that we could lose market exclusivity for a product earlier than expected, which would harm our competitive position.

In our industry, much of an innovative product’s commercial value is realized while it has market exclusivity. When market exclusivity expires and biosimilar or generic versions of the product are approved and marketed, there can be substantial decline in the innovative product’s sales.

Market exclusivity for our products is based upon patent rights and certain regulatory forms of exclusivity. The scope of our product patent rights vary from country to country and are dependent on the availability of meaningful legal remedies in each country. The failure to obtain patent and other intellectual property rights, or limitations on the use, or loss of such rights, could be material to our business. In some countries, patent protections for our products may not exist because certain countries did not historically offer the right to obtain specific types of patents or we did not file patents in those markets. Also, the patent environment is unpredictable and the validity and enforceability of patents cannot be predicted with certainty. Absent relevant patent protection for a product, once regulatory exclusivity periods expire, biosimilar or generic versions of the product can be approved and marketed. Even prior to the expiration of regulatory exclusivity, a competitor could seek to obtain marketing approval by submitting its own clinical trial data.

The market exclusivity of our products may be impacted by competitive products that are either innovative or biosimilar or generic copies. In our industry, the potential for biosimilar challenges has been an increasing risk to product market exclusivity. U.S. law includes an approval pathway for biosimilar versions of innovative biological products. Under the pathway, the FDA may approve products that are similar to (but not generic copies of) innovative biologics on the basis of less extensive data than is required for a full biologic license application. After an innovator has marketed its product for four years, other manufacturers may apply for approval of a biosimilar version of the innovator product. However, qualified innovative biological products will receive 12 years of regulatory exclusivity, meaning that the FDA may not actually approve a biosimilar version until 12 years after the innovative product received its approval. The law also provides a mechanism for innovators to enforce their patents that protect their products and for biosimilar applicants to challenge the patents. Such litigation may begin as early as four years after the innovative biological product is first approved by the FDA. Pathways for biosimilar products also exist in many other markets, including Europe and Japan.

Risks Related to Our Operations

We have identified a material weakness in our internal control over financial reporting. If we are unable to remediate this material weaknesses, or if we experience additional material weaknesses or deficiencies in the future or otherwise fail to maintain an effective system of internal controls, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect investor confidence in us and, as a result, the value of our common stock.

Current management concluded and the Audit Committee concurred that there was a material weakness in the Company's internal controls over financial reporting because we did not maintain an effective control environment as senior management failed to set an appropriate "Tone at the Top." A "material weakness" is defined as a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. As further described in Item 4 "Controls and Procedures", the aforementioned material weakness arose from actions identified during the Audit Committee Investigation which found that senior management applied pressure on personnel to use pull-in sales to meet targets, and such pressure was particularly significant during the fourth quarter 2015. The Audit Committee Investigation also found that certain Company personnel engaged in inappropriate business conduct to realize pull-in sales, as a result of pressure from senior management.

As further described in Item 4 "Controls and Procedures-Remediation Plan and Activities", we have undertaken steps to improve our internal controls over financial reporting. However, there can be no assurance that we will be successful in making the improvements necessary to remediate the material weakness identified by management, that we will do so in a timely manner, or that we will not identify additional control deficiencies or material weaknesses in the future. If we are unable to successfully remediate our existing or any future material weaknesses in our internal control over financial reporting, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities laws and NASDAQ listing requirements regarding the timely filing of periodic reports, investors may lose confidence in our financial reporting and our stock price may decline.

We may not accurately forecast demand for our products, including our new products, which may cause our operating results to fluctuate, and we cannot guarantee that we will achieve our financial goals, including our ability to maintain profitability on a quarterly or annual basis in the future.

We have maintained profitability on a quarterly basis since the quarter ended June 30, 2008 and on an annual basis beginning with the year ended December 31, 2008. Our quarterly revenues, expenses and net income (loss) may fluctuate, even significantly, due to the risks described in these "Risk Factors" as well as the timing of charges and expenses that we may take. We believe that we formulate our annual operating budgets with reasonable assumptions and targets, however we may not generate sufficient revenues or control expenses to achieve our financial goals, including continued profitability. We may not be able to sustain or increase profitability on a quarterly or annual basis. You should not consider our financial performance, including our revenue growth, in recent periods as indicative of our future performance. We may not accurately forecast demand for our products, especially Strensiq and Kanuma. Strensiq and Kanuma are in the early stages of commercial launch

having each received marketing approval in 2015, and both products treat rare diseases for which there was no existing therapy in a new therapeutic area. Product demand is dependent on a number of factors. Our investors may have widely varying expectations that may be materially higher or lower than actual revenues and if our revenues are different from these expectations, our stock price may experience significant volatility. Our revenues are also subject to foreign exchange rate fluctuations due to the global nature of our operations and our results of operations could be adversely affected due to unfavorable foreign exchange rates. Although we use derivative instruments to manage foreign currency risk, our efforts to reduce currency exchange losses may not be successful.

We have significant debt service obligations as a result of the debt we incurred to finance the acquisition of Synageva. Changes in interest rates related to this debt could significantly increase our annual interest expense. As we advance our most robust pipeline in our history and launch our second and third products worldwide, we will have substantial expenses as we continue our research and development efforts, continue to conduct clinical trials and continue to develop manufacturing, sales, marketing and distribution capabilities worldwide, some of which could be delayed, scaled-back or eliminated to achieve our financial objectives.

We have also recorded, or may be required to record, charges that include inventory write-downs for failed quality specifications or recalls, impairments with respect to investments, fixed assets and long-lived assets, outcomes of litigation and other legal or administrative proceedings, regulatory matters and tax matters, and payments in connection with acquisitions and other business development activities, such as milestone payments.

Each of our products is currently the only approved drug for the disease(s) the product treats. If a competitive product is approved for sale, including a biosimilar or generic product, our market share and our revenues could decline, particularly if the competitive product is perceived to be more effective or is less expensive than our product.

We operate in a highly competitive environment. Soliris is currently the only approved therapy for the treatment of PNH and aHUS. We are in advanced clinical studies of Soliris for the treatment of other diseases, and there are currently no approved drugs for any of these other diseases. Strensiq is currently the only product approved to treat HPP and Kanuma is the only product approved to treat LAL-D. In the future, Soliris may compete with new drugs currently in development, and Strensiq and Kanuma may also experience competition. Other companies have initiated clinical studies for the treatment of PNH and NMO, and we are aware of companies that are planning to initiate studies for diseases that we are also targeting. Our revenues could be negatively affected if patients or potential patients enroll in our clinical trials or clinical trials of other companies with respect to diseases that we also target with approved therapies.

Pharmaceutical companies have publicly announced intentions to establish or develop rare disease programs and these companies may introduce products that are competitive with ours. These and other companies, many of which have significantly greater financial, technical and marketing resources than us, may commercialize products that are cheaper, more effective, safer, or easier to administer than our products. In the future, our products may also compete with biosimilars or generics. We experience competition in drug development from universities and other research institutions, and pharmaceutical companies compete with us to attract universities and academic research institutions as drug development partners, including for licensing their proprietary technology. If our competitors successfully enter into such arrangements with academic institutions, we will be precluded from pursuing those unique opportunities and may not be able to find equivalent opportunities elsewhere.

If a company announces successful clinical trial results for a product that may be competitive with one of our products or product candidates, receives marketing approval of a competitive product, or gets to the market before we do with a competitive product, our business may be harmed or our stock price may decline.

If we fail to attract and retain highly qualified personnel, we may not be able to successfully develop, manufacture or commercialize our products or products candidates.

The success of our business is dependent in large part on our continued ability to attract and retain our senior management, and other highly qualified personnel in our scientific, clinical, manufacturing and commercial organizations. There is intense competition in the biopharmaceutical industry for these types of personnel. In March 2017, our Board appointed a new CEO and we have experienced other recent management changes. Such changes have the potential to adversely impact our ability to retain key employees, including other members of senior management, as well as to disrupt our business operations, financial conditions, programs, plans and strategies.

Our business is specialized and global and we must attract and retain highly qualified individuals across many geographies. We may not be able to continue to attract and retain the highly qualified personnel necessary for developing, manufacturing and commercializing our products and product candidates. If we are unsuccessful in our recruitment and retention efforts, or if our recruitment efforts take longer than anticipated, our business may be harmed.

If we fail to satisfy our debt service obligations or obtain the capital necessary to fund our operations, we may be unable to commercialize our products or continue or complete our product development.

In June 2015, we acquired Synageva and used a substantial portion of our cash on hand and incurred significant debt under the terms of a senior secured credit facility to finance the acquisition. In addition, we have substantial contingent liabilities, including milestone and royalty obligations under earlier acquisitions and strategic transactions. Our increased indebtedness, including increased interest expense, together with our significant contingent liabilities, could, among other things:

- make us more vulnerable to economic or industry downturns and competitive pressures;
- make it difficult for us to make payments on the credit facilities and require us to use cash flow from operations to satisfy our debt obligations, which would reduce the availability of our cash flow for other purposes, including business development efforts, research and development and mergers and acquisitions;
- limit our ability to incur additional debt or access the capital markets; and
- limit our flexibility in planning for, or reacting to changes in, our business.

The Credit Agreement requires us to comply with certain financial covenants on a quarterly basis and includes negative covenants, subject to exceptions, restricting or limiting our ability and the ability of our subsidiaries to, among other things, incur additional indebtedness, grant liens, and engage in certain investment, acquisition and disposition transactions. If an event of default occurs, the interest rate would increase and the administrative agent would be entitled to take various actions, including the acceleration of amounts due under the Credit Agreement.

Our ability to satisfy our obligations under the Credit Agreement and meet our debt service obligations will depend upon our future performance, which will be subject to financial, business and other factors affecting our operations, many of which are beyond our control.

We may not be able to access the capital and credit markets on terms that are favorable to us.

We may need to raise additional capital to supplement our existing funds and cash generated from operations for working capital, capital expenditure and debt service requirements, and other business activities. Funding needs may shift and the amount of capital we may need depends on many factors, including, the cost of any acquisition or any new collaborative, licensing or other commercial relationships that we may establish, the time and cost necessary to build our manufacturing facilities or enhance our manufacturing operations, the cost of obtaining and maintaining the necessary regulatory approvals for our manufacturing facilities, and the progress, timing and scope of our preclinical studies and clinical trials. The capital and credit markets have experienced extreme volatility and disruption. We may not receive additional funding when we need it or funding may only be available on unfavorable terms. If we cannot raise adequate funds to satisfy our capital requirements, we may have to delay, scale-back or eliminate certain research, development, manufacturing or commercial activities.

Our business involves environmental risks and potential exposure to environmental liabilities.

As a biopharmaceutical company, our business involves the use of certain hazardous materials in our research, development, manufacturing, and other activities. We and our third party providers are subject to various federal, state and local environmental laws and regulations concerning the handling and disposal of non-hazardous and hazardous wastes, such as medical and biological wastes, and emissions and discharges into the environment, such as air, soils and water sources. We also are subject to laws and regulations that impose liability and clean-up responsibility for releases of hazardous substances into the environment and a current or previous owner or operator of property may be liable for the costs of remediating its property or locations, without regard to whether the owner or operator knew of or caused the contamination. If an accident or environmental discharge occurs, or if we discover contamination caused by prior owners and operators of properties we acquire, we could be liable for remediation obligations, damages and fines that could exceed our insurance coverage and financial resources. Such obligations and liabilities, which to date have not been material, could have a material impact on our business and financial condition. Additionally, the cost of compliance with environmental and safety laws and regulations may increase in the future, and we may be required dedicate more resources to comply with such developments or purchase supplemental insurance coverage.

We are seeking to expand our business through strategic initiatives. Our efforts to identify opportunities or complete transactions that satisfy our strategic criteria may not be successful, and we not realize the anticipated benefits of any completed acquisition or other strategic transaction.

Our business strategy includes expanding our products and capabilities. We regularly evaluate potential merger, acquisition, partnering and in-license opportunities that we expect will expand our pipeline or product offerings, and enhance our research platforms. Acquisitions of new businesses or products and in-licensing of new products may involve numerous risks, including:

- substantial cash expenditures;
- potentially dilutive issuance of equity securities;
- incurrence of debt and contingent liabilities, some of which may be difficult or impossible to identify at the time of acquisition;

- difficulties in assimilating the operations of the acquired companies;
- failure of any acquired businesses or products or in-licensed products to achieve the scientific, medical, commercial or other results anticipated;
- diverting our management's attention away from other business concerns;
- the potential loss of our key employees or key employees of the acquired companies; and
- risks of entering markets in which we have limited or no direct experience.

A substantial portion of our strategic efforts are focused on opportunities for rare disorders and life-saving therapies, but the availability of such opportunities is limited. We may not be able to identify opportunities that satisfy our strategic criteria or are acceptable to us or our stockholders. Several companies have publicly announced intentions to establish or develop rare disease programs and we may compete with these companies for the same opportunities. For these and other reasons, we may not be able to acquire the rights to additional product candidates or approved products on terms that we or our stockholders find acceptable, or at all.

Even if we are able to successfully identify and complete acquisitions and other strategic transactions, we may not be able to integrate them or take full advantage of them. An acquisition or other strategic transaction may not result in short-term or long-term benefits to us. We may also incorrectly judge the value or worth of an acquired company or business or an acquired or in-licensed product.

To effectively manage our current and future potential growth, we must continue to effectively enhance and develop our global employee base, and our operational and financial processes. Supporting our growth strategy will require significant capital expenditures and management resources, including investments in research, development, sales and marketing, manufacturing and other areas of our operations. The development or expansion of our business, any acquired business or any acquired or in-licensed products may require a substantial capital investment by us. We may not have these necessary funds or they might not be available to us on acceptable terms or at all. We may also seek to raise funds by selling shares of our capital stock, which could dilute current stockholders' ownership interest in our company, or securities convertible into our capital stock, which could dilute current stockholders' ownership interest in our company upon conversion.

We may be required to recognize impairment charges for our goodwill and other intangible assets.

As of March 31, 2017, the net carrying value of our goodwill and other intangible assets totaled $9,260. As required by generally accepted accounting principles, we periodically assess these assets to determine if they are impaired. Impairment of intangible assets may be triggered by developments both within and outside our control. Deteriorating economic conditions, technological changes, disruptions to our business, inability to effectively integrate acquired businesses, unexpected significant changes or planned changes in use of the assets, intensified competition, divestitures, market capitalization declines and other factors may impair our goodwill and other intangible assets. Any charges relating to such impairments could adversely affect our results of operations in the periods in which an impairment is recognized.

Our business could be affected by litigation, government investigations and enforcement actions.

We operate in many jurisdictions in a highly regulated industry and we could be subject to litigation, government investigation and enforcement actions on a variety of matters in the U.S. or foreign jurisdictions, including, without limitation, intellectual property, regulatory, product liability, environmental, whistleblower, Qui Tam, false claims, privacy, anti-kickback, anti-bribery, securities, commercial, employment, and other claims and legal proceedings which may arise from conducting our business. As previously disclosed, in May 2015, we received a subpoena in connection with an investigation by the Enforcement Division of the SEC requesting information related to our grant-making activities and compliance with the FCPA in various countries. The SEC also seeks information related to Alexion’s recalls of specific lots of Soliris and related securities disclosures. In October 2015, Alexion received a request from the DOJ for the voluntary production of documents and other information pertaining to Alexion's compliance with the FCPA. Any determination that our operations or activities are not in compliance with existing laws or regulations could result in the imposition of fines, civil and criminal penalties, equitable remedies, including disgorgement, injunctive relief, and/or other sanctions against us, and remediation of any such findings could have an adverse effect on our business operations. In addition, in December 2016, we received a subpoena from the U.S. Attorney's Office for the District of Massachusetts requesting documents relating generally to our support of 501(c)(3) organizations that provide financial assistance to Medicare patients, Alexion’s provision of free drug to Medicare patients and Alexion’s related compliance policies and training materials. Further, securities fraud class action litigation has been filed against the Company, and certain former executives, and we could also become subject to legal proceedings and government investigations relating to matters addressed in the Audit Committee Investigation. Legal proceedings, government investigations, including the SEC and DOJ investigations, and enforcement actions can be expensive and time consuming. An adverse outcome could result in significant damages awards, fines, penalties, exclusion from the federal healthcare programs, healthcare debarment, injunctive relief, product recalls, reputational damage and modifications of our business practices, which could have a material adverse effect on our business and results of operations.

The intended efficiency of our corporate structure depends on the application of the tax laws and regulations in the countries where we operate and we may have exposure to additional tax liabilities or our effective tax rate could change, which could have a material impact on our results of operations and financial position.

As a company with international operations, we are subject to income taxes, as well as non-income based taxes, in both the U.S. and various foreign jurisdictions. Significant judgment is required in determining our worldwide tax liabilities. Although we believe our estimates are reasonable, the ultimate outcome with respect to the taxes we owe may differ from the amounts recorded in our financial statements. If the Internal Revenue Service, or other taxing authority, disagrees with the positions we take, we could have additional tax liability, and this could have a material impact on our results of operations and financial position. Our effective tax rate could be adversely affected by changes in the mix of earnings in countries with different statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in tax laws and regulations, changes in interpretations of tax laws, including pending tax law changes, changes in our manufacturing activities and changes in our future levels of research and development spending.

We have designed our corporate structure, the manner in which we develop and use our intellectual property, and our intercompany transactions between our affiliates in a way that is intended to enhance our operational and financial efficiency and increase our overall profitability. The application of the tax laws and regulations of various countries in which we operate and to our global operations is subject to interpretation. We also must operate our business in a manner consistent with our corporate structure to realize such efficiencies. The tax authorities of the countries in which we operate may challenge our methodologies for valuing developed technology or for transfer pricing. If tax authorities determine that the manner in which we operate results in our business not achieving the intended tax consequences, our effective tax rate could increase and harm our financial position and results of operations.

In addition, the U.S. Federal government and other U.S. state and foreign governments are considering and may adopt tax reform measures that significantly increase our worldwide tax liabilities. The U.S. Congress, the Organization for Economic Co-operation and Development and other government agencies in countries where we and our affiliates operate have focused on issues related to the taxation of multinational corporations, including, for example, in the area of “base erosion and profit shifting,” where payments are made between affiliates from a jurisdiction with high tax rates to a jurisdiction with lower tax rates. We established operations in Ireland in 2013 and Ireland tax authorities announced changes to the treatment of non-resident Irish entities. The changes are not expected to impact existing non-resident Irish entities, such as ours, until after December 31, 2020. These changes and other prospective changes in the U.S. and other countries in which we and our affiliates operate could increase our effective tax rate, and harm our financial position and results of operations.

Our sales and operations are subject to a variety of risks relating to the conduct and expansion of our international business.

We continue to increase our international presence, including in emerging markets. Our operations in foreign countries subject us to a variety of risks, including:

- difficulties or the inability to obtain necessary foreign regulatory or reimbursement approvals of our products in a timely manner;
- political or economic determinations that adversely impact pricing or reimbursement policies;
- economic problems or political instability;
- fluctuations in currency exchange rates;
- difficulties or inability to obtain financing in markets;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- difficulties enforcing contractual and intellectual property rights;
- compliance with complex import and export control laws;
- trade restrictions and restrictions on direct investments by foreign entities;
- compliance with tax, employment and labor laws;
- costs and difficulties in recruiting and retaining qualified managers and employees to manage and operate the business in local jurisdictions;
- costs and difficulties in managing and monitoring international operations; and
- longer payment cycles.

Additionally, our business and marketing methods are subject to the laws and regulations of the countries in which we operate, which may differ significantly from country to country and may conflict with U.S. laws and regulations. The FCPA and anti-bribery laws and regulations are extensive and far-reaching, and we must maintain accurate records and control over the activities of our distributors and third party service providers in countries where we operate. We have policies and procedures designed to help ensure that we and our representatives, including our employees, comply with such laws, however we cannot guarantee that these policies and procedures will protect us against liability under the FCPA or other anti-bribery laws for actions taken by our representatives. Any determination that our operation or activities are not in compliance with

existing laws or regulations, including the FCPA, could result in the imposition of fines, civil and criminal penalties, equitable remedies, including disgorgement, injunctive relief, and/or other sanctions against us, and remediation of such findings could have an adverse effect on our business operations. Although we conducted due diligence of Synageva's operations prior to the acquisition, we may discover or identify deficiencies or non-compliance with such laws as we complete the integration of the Synageva business and conduct operations. Failure to comply with the laws and regulations of the countries in which we operate could materially harm our business.

Currency fluctuations and changes in exchange rates could adversely affect our revenue growth, increase our costs and negatively affect our profitability.

We conduct a substantial portion of our business in currencies other than the U.S. dollar. We are exposed to fluctuations in foreign currency exchange rates and fluctuations in foreign currency exchange rates affect our operating results. The exposures result from portions of our revenues, as well as the related receivables, and expenses that are denominated in currencies other than the U.S. dollar, including the Euro, Japanese Yen, British Pound, Swiss Franc, and Russian Ruble. As the U.S. dollar strengthens against these foreign currencies, the relative value of sales made in the respective foreign currencies decrease. When the U.S. dollar weakens against these currencies, the relative value of such sales increase. We manage our foreign currency transaction risk within specified guidelines through the use of derivatives. All of our derivative instruments are utilized for risk management purposes, and we do not use derivatives for speculative trading purposes. We enter into foreign exchange forward contracts to hedge exposures resulting from portions of our forecasted revenues, including intercompany revenues, that are denominated in currencies other than the U.S. dollar. The purpose of the hedges of revenue is to reduce the volatility of exchange rate fluctuations on our operating results and to increase the visibility of the foreign exchange impact on forecasted revenues. Further, we enter into foreign exchange forward contracts, with durations of approximately 30 days, designed to limit the balance sheet exposure of monetary assets and liabilities. We enter into these hedges to reduce the impact of fluctuating exchange rates on our operating results. Gains and losses on these hedge transactions are designed to offset gains and losses on underlying balance sheet exposures. While we attempt to hedge certain currency risks, currency fluctuations between the U.S. dollar and the currencies in which we do business have, in the past, caused foreign currency transaction gains and losses and have also impacted the amounts of revenues and expenses calculated in U.S. dollars and will do so in the future. Likewise, past currency fluctuations have at times resulted in foreign currency transaction gains, and there can be no assurance that these gains can be reproduced. Any significant foreign currency exchange rate fluctuations could adversely affect our financial condition and results of operations.

Changes in healthcare laws and implementing regulations, as well as changes in healthcare policy, may affect coverage and reimbursement of our products in ways that we cannot currently predict and these changes could adversely affect our business and financial condition.

In the U.S., there have been a number of legislative and regulatory initiatives focused on containing the cost of healthcare. The Patient Protection and Affordable Care Act (PPACA) was enacted in the U.S. in March 2010. This law substantially changes the way healthcare is financed by both governmental and private insurers in the U.S., and significantly impacts the pharmaceutical industry. PPACA contains a number of provisions that are expected to impact our business and operations, in some cases in ways we cannot currently predict. Changes that may affect our business include those governing enrollment in federal healthcare programs, reimbursement changes, rules regarding prescription drug benefits under health insurance exchanges, expansion of the 340B program, expansion of state Medicaid programs, fraud and abuse enforcement and rules governing the approval of biosimilar products. These changes will impact existing government healthcare programs and will result in the development of new programs, including Medicare payment for performance initiatives and improvements to the physician quality reporting system and feedback program. In early 2016, CMS issued final regulations to implement the changes to the Medicaid Drug Rebate Program under PPACA. These regulations became effective on April 1, 2016. Moreover, in the future, Congress could enact legislation that further increases Medicaid drug rebates or other costs and charges associated with participating in the Medicaid Drug Rebate Program. Legislative changes to the PPACA also remain possible and appear likely in the 115th U.S. Congress under the Trump Administration. The issuance of regulations and coverage expansion by various governmental agencies relating to the Medicaid Drug Rebate Program has and will continue to increase our costs and the complexity of compliance, has been and will be time-consuming, and could have a material adverse effect on our results of operations.

Governments in countries where we operate have adopted or have shown significant interest in pursuing legislative initiatives to reduce costs of healthcare. We expect that the implementation of current laws and policies, the amendment of those laws and policies in the future, as well as the adoption of new laws and policies, could have a material adverse effect on our industry generally and on our ability to maintain or increase our product sales or successfully commercialize our product candidates, or could limit or eliminate our future spending on development projects. In many cases, these government initiatives, even if enacted into law, are subject to future rulemaking by regulatory agencies. Although we have evaluated these government initiatives and the impact on our business, we cannot know with certainty whether any such law, rule or regulation will adversely affect coverage and reimbursement of our products, or to what extent, until such laws, rules and regulations are promulgated, implemented and enforced, which could sometimes take many years. The announcement or adoption of

regulatory or legislative proposals could delay or prevent our entry into new markets, affect our reimbursement or sales in the markets where we are already selling our products and materially harm our business, financial condition and results of operations.

If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program, Medicare, or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Pricing and rebate calculations vary among products and programs. The calculations are complex and are often subject to interpretation by us, governmental or regulatory agencies and the courts. We cannot assure you that our submissions will not be found by CMS to be incomplete or incorrect. Governmental agencies may also make changes in program interpretations, requirements or conditions of participation, some of which may have implications for amounts previously estimated or paid. The Medicaid rebate amount is computed each quarter based on our submission to CMS of our current average manufacturer price and best price for the quarter. If we become aware that our reporting for a prior quarter was incorrect, or has changed as a result of recalculation of the pricing data, we are obligated to resubmit the corrected data for a period not to exceed twelve quarters from the quarter in which the data originally were due, and CMS may request or require restatements for earlier periods as well. Such restatements and recalculations increase our costs for complying with the laws and regulations governing the Medicaid Drug Rebate Program. Any corrections to our rebate calculations could result in an overage or underage in our rebate liability for past quarters, depending on the nature of the correction. Price recalculations also may affect the ceiling price at which we are required to offer our products to certain covered entities, such as safety-net providers, under the 340B drug discount program.

We are liable for errors associated with our submission of pricing data. In addition to retroactive rebates and the potential for 340B program refunds, if we are found to have knowingly submitted false average manufacturer price, ASP, or best price information to the government, we may be liable for civil monetary penalties in the amount of one hundred seventy-eight thousand dollars per item of false information. If we are found to have made a misrepresentation in the reporting of our ASP, the Medicare statute provides for civil monetary penalties of up to thirteen thousand dollars for each misrepresentation for each day in which the misrepresentation was applied. Our failure to submit monthly/quarterly average manufacturer price, ASP, and best price data on a timely basis could result in a civil monetary penalty of eighteen thousand dollars per day for each day the information is late beyond the due date. Such failure also could be grounds for CMS to terminate our Medicaid drug rebate agreement, pursuant to which we participate in the Medicaid program. In the event that CMS terminates our rebate agreement, federal payments may not be available under Medicaid or Medicare Part B for our covered outpatient drugs. A final regulation that has been published but is not yet effective would impose a civil monetary penalty of up to five thousand dollars for each instance of knowingly and intentionally charging a 340B covered entity more than the 340B ceiling price.

Federal law requires that a company must participate in the FSS pricing program to be eligible to have its products paid for with federal funds. If we overcharge the government in connection with our FSS contract or Section 703 Agreement, whether due to a misstated FCP or otherwise, we are required to refund the difference to the government. Failure to make necessary disclosures and/or to identify contract overcharges can result in allegations against us under the FCA and other laws and regulations. Unexpected refunds to the government, and responding to a government investigation or enforcement action, would be expensive and time-consuming, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We may be subject to numerous and varying privacy and security laws, and our failure to comply could result in penalties and reputational damage.

We are subject to laws and regulations covering data privacy and the protection of personal information including health information. The legislative and regulatory landscape for privacy and data protection continues to evolve, and there has been an increasing focus on privacy and data protection issues which may affect our business. In the U.S., we may be subject to state security breach notification laws, state health information privacy laws and federal and state consumer protections laws which impose requirements for the collection, use, disclosure and transmission of personal information. Each of these laws are subject to varying interpretations by courts and government agencies, creating complex compliance issues for us. If we fail to comply with applicable laws and regulations we could be subject to penalties or sanctions, including criminal penalties if we knowingly obtain individually identifiable health information from a covered entity in a manner that is not authorized or permitted by the federal Health Insurance Portability and Accountability Act of 1996, as amended (HIPAA) or for aiding and abetting the violation of HIPAA.

Numerous other countries have, or are developing, laws governing the collection, use and transmission of personal information as well. EU member states and other jurisdictions have adopted data protection laws and regulations, which impose significant compliance obligations. For example, the EC adopted the EU Data Protection Directive, as implemented into national laws by the EU member states, which imposed strict obligations and restrictions on the ability to collect, analyze, and transfer personal data, including health data from clinical trials and adverse event reporting. Data protection authorities from

different EU member states have interpreted the privacy laws differently, which adds to the complexity of processing personal data in the EU, and guidance on implementation and compliance practices are often updated or otherwise revised. Any failure to comply with the rules arising from the EU Data Protection Directive and related national laws of EU member states could lead to government enforcement actions and significant penalties against us, and adversely impact our operating results.

In May 2016, the EU formally adopted the General Data Protection Regulation, which will apply to all EU member states from May 25, 2018 and will replace the current EU Data Protection Directive on that date. The regulation introduces new data protection requirements in the EU and substantial fines for breaches of the data protection rules. It will increase our responsibility and liability in relation to personal data that we process and we may be required to put in place additional mechanisms ensuring compliance with the new EU data protection rules.

Security breaches, cyber-attacks, or other disruptions could expose us to liability and affect our business and reputation.

We are increasingly dependent on our information technology systems and infrastructure for our business. We collect, store, and transmit sensitive information including intellectual property, proprietary business information and personal information in connection with business operations. The secure maintenance of this information is critical to our operations and business strategy. Some of this information could be an attractive target of criminal attack by third parties with a wide range of motives and expertise, including organized criminal groups, “hactivists,” patient groups, disgruntled current or former employees, and others. Cyber-attacks are of ever-increasing levels of sophistication, and despite our security measures, our information technology and infrastructure may be vulnerable to such attacks or may be breached, including due to employee error or malfeasance. We have implemented information security measures to protect patients’ personal information against the risk of inappropriate and unauthorized external use and disclosure. However, despite these measures, and due to the ever changing information cyber-threat landscape, we may be subject to data breaches through cyber-attacks. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. If our systems become compromised, we may not promptly discover the intrusion. Like other companies in our industry, we have experienced attacks to our data and systems, including malware and computer viruses. If our systems failed or were breached or disrupted, we could lose product sales, and suffer reputational damage and loss of customer confidence. Such incidents would result in notification obligations to affected individuals and government agencies, legal claims or proceedings, and liability under federal and state laws that protect the privacy and security of personal information. Any one of these events could cause our business to be materially harmed and our results of operations would be adversely impacted.

Negative public opinion and increased regulatory scrutiny of recombinant and transgenic products, genetically modified products, and genetically modified animals generally may damage public perception of our current and future products or adversely affect our ability to conduct our business and obtain regulatory approvals we may seek.

Kanuma is a transgenic product produced in the egg whites of genetically modified chickens who receive copies of the human lysosomal acid lipase gene to produce recombinant human lysosomal acid lipase. The success of Kanuma will depend in part on public attitudes of the use of genetic engineering. Public attitudes may be influenced by claims and perceptions that these types of activities or products are unsafe, and our products may not gain sufficient acceptance by, or fall out of favor with, the public or the medical community. Negative public attitudes to genetic engineering activities in general could result in more restrictive legislation or regulations and could impede our ability to conduct our business, delay preclinical or clinical studies, or otherwise prevent us from commercializing our product.

Risks Related to Our Common Stock

Our stock price is extremely volatile.

The trading price of our common stock has been extremely volatile and may continue to be volatile in the future. Many factors could have an impact on our stock price, including fluctuations in our or our competitors' operating results, clinical trial results or adverse events associated with our products, product development by us or our competitors, changes in laws, including healthcare, tax or intellectual property laws, intellectual property developments, changes in reimbursement or drug pricing, the existence or outcome of litigation or government proceedings, including the SEC/DOJ investigation, failure to resolve, delays in resolving or other developments with respect to the issues raised in the Warning Letter, acquisitions or other strategic transactions, and the perceptions of our investors that we are not performing or meeting expectations. The trading price of the common stock of many biopharmaceutical companies, including ours, has experienced extreme price and volume fluctuations, which have at times been unrelated to the operating performance of the companies whose stocks were affected.

Anti-takeover provisions in our charter and bylaws and under Delaware law could make a third-party acquisition of us difficult and may frustrate any attempt to remove or replace our current management.

Our corporate charter and by-law provisions may discourage certain types of transactions involving an actual or potential change of control that might be beneficial to us or our stockholders. Our bylaws provide that special meetings of our stockholders may be called only by the Chairman of the Board, the President, the Secretary, or a majority of the Board of Directors, or upon the written request of stockholders who together own of record 25% of the outstanding stock of all classes

entitled to vote at such meeting. Our bylaws also specify that the authorized number of directors may be changed only by resolution of the board of directors. Our charter does not include a provision for cumulative voting for directors, which may have enabled a minority stockholder holding a sufficient percentage of a class of shares to elect one or more directors. Under our charter, our board of directors has the authority, without further action by stockholders, to designate up to 5 shares of preferred stock in one or more series. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of the holders of any class or series of preferred stock that may be issued in the future.

Because we are a Delaware corporation, the anti-takeover provisions of Delaware law could make it more difficult for a third party to acquire control of us, even if the change in control would be beneficial to stockholders. We are subject to the provisions of Section 203 of the Delaware General Laws, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Item 2. ***UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.***

ISSUER PURCHASE OF EQUITY SECURITIES *(amounts in millions, except per share amounts)*

The following table summarizes our common stock repurchase activity during the first quarter of 2017:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Programs	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Program
January 1-31, 2017	—	$ —	—	$ 325
February 1-28, 2017	0.04	$ 130.29	0.04	$ 995
March 1-31, 2017	0.51	$ 123.18	0.51	$ 932
Total	0.55	$ 123.74	0.55	

In November 2012, our Board of Directors authorized a share repurchase program. The repurchase program does not have an expiration date, and we are not obligated to acquire a particular number of shares. The repurchase program may be discontinued at any time at the Company's discretion. In February 2017, our Board of Directors increased the authorization to acquire shares with an aggregate value of up to $1,000 for future purchases under the repurchase program, which superseded all prior repurchase programs.

Item 5. ***OTHER INFORMATION.***

None.

Item 6. ***EXHIBITS.***

(a) **Exhibits:**

10.1 Employment Agreement, dated as of March 27, 2017, by and between Ludwig N. Hantson and Alexion Pharmaceuticals, Inc.

10.2 Alexion's Nonqualified Deferred Compensation Plan Basic Plan Document

31.1 Certificate of Chief Executive Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 Sarbanes Oxley Act of 2002.

31.2 Certificate of Chief Financial Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes Oxley Act of 2002.

32.1 Certificate of Chief Executive Officer pursuant to Section 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act.

32.2 Certificate of Chief Financial Officer pursuant to Section 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act.

101 The following materials from the Alexion Pharmaceuticals, Inc. Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 formatted in eXtensible Business Reporting Language (XBRL): (i) the Condensed Consolidated Balance Sheets as of March 31, 2017 and December 31, 2016, (ii) the Condensed Consolidated Statements of Operations for the three months ended March 31, 2017 and 2016, (iii) the Condensed Consolidated Statements of Comprehensive Income for the three months ended March 31, 2017 and 2016, (iv) the Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2017 and 2016, and (v) Notes to Condensed Consolidated Financial Statements.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

ALEXION PHARMACEUTICALS, INC.

By: /s/ Ludwig N. Hantson, Ph.D.

Ludwig N. Hantson, Ph.D.
Chief Executive Officer (principal executive officer)

Date: April 27, 2017

By: /s/ David J. Anderson

David J. Anderson
Chief Financial Officer
(principal financial officer)

Date: April 27, 2017

EMPLOYMENT AGREEMENT

This EMPLOYMENT AGREEMENT (the "Agreement") dated as of March 27, 2017 by and between Alexion Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Ludwig Hantson (the "Employee").

WITNESSETH

WHEREAS, the Company agrees to employ the Employee, subject to the terms and conditions contained in this Agreement; and

WHEREAS, the Employee agrees to accept employment with the Company, subject to the terms and conditions contained in this Agreement.

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements herein contained, the parties hereto agree as follows:

1. Employment Duties and Acceptance.

(a) The Company hereby employs the Employee, for the Term (as hereinafter defined), to render full-time services to the Company as Chief Executive Officer and to perform such duties commensurate with such office or other office as the Employee shall reasonably be directed by the Company to perform. The Employee hereby accepts such employment and agrees to render the services described above. The Employee shall report to the Board of Directors of the Company (the "Board").

(b) The Employee further agrees to accept election and to serve during all or any part of the Term as a Director of the Company without any compensation therefor other than that specified in this Agreement, if elected to such position by the shareholders of the Company. During the Term, the Company shall use its best efforts to cause the Employee to be elected as a Director and shall include him in the management slate for election as a Director at every shareholders meeting at which his term as a Director would otherwise expire. The Employee hereby agrees to resign from the Board of Directors immediately upon termination of Employee's employment.

(c) During the Term, the Employee shall devote his full business time and his best efforts, business judgment, skill and knowledge exclusively to the advancement of the business and interests of the Company and its Affiliates and to the discharge of his duties and responsibilities hereunder. Notwithstanding anything to the contrary herein, although the Employee shall provide services as a full time employee, it is understood that the Employee, with consent of the Board, may (1) have non full-time academic appointments; (2) participate in professional activities; (3) publish academic articles; and (4) participate in community and/or philanthropic activities (collectively, "Permitted Activities"); provided, however, that such Permitted Activities do not interfere with the Employee's duties to the Company.

(d) Effective on and after January 1, 2018, Employee may with the consent of the Board, serve on one outside board of directors.

2. Term of Employment. The term of the Employee's employment under this Agreement shall commence as of March 27, 2017 (the "Effective Date") and shall end on the third anniversary thereof, unless sooner terminated pursuant to Section 6, 7 or 8 of this Agreement. Notwithstanding the foregoing, unless notice is given by the Employee or the Company at least sixty (60) days prior to the expiration of the Term of this Agreement (or at least sixty (60) days prior to the expiration of any extension hereof), the Term of the Agreement shall be automatically extended by one (1) year from the date it would otherwise end (whether upon expiration of the original Term or any extension(s) thereof), unless sooner terminated pursuant to Section 6, 7 or 8 hereof. The term of this Agreement as from time to time extended or renewed is hereafter referred to as "the Term of this Agreement" or "the Term".

3. Compensation and Benefits.

(a) As compensation for services to be rendered pursuant to this Agreement, the Company agrees to pay the Employee, during the Term, an annual base salary of $1,200,000, subject to taxes and withholdings and subject to increase from time to time (the "Base Salary"), payable in accordance with its regular payroll practices. The Employee's Base Salary hereunder shall be reviewed at least annually thereafter during the Term of the Agreement for increase at the discretion of the Company.

(b) The Company agrees that the Employee shall be eligible for an annual performance bonus from the Company with respect to each fiscal year of the Company that ends during the Term, pursuant to the Company's management incentive bonus program in effect from time to time (such plan, as so in effect, the "Bonus Plan"). The Employee's target bonus under the Bonus Plan will be 120% of the Base Salary. The actual amount of any such bonus payable to the Employee under the Bonus Plan shall be determined by the Board of Directors of the Company (the "Board") or the Compensation Committee thereof (the "Committee") and paid by the Company in accordance with the terms of the Bonus Plan, subject to the Employee's remaining employed on the date that bonuses are paid under the Bonus Plan, except as otherwise expressly provided herein.

(c) In addition to the previously-described stock-based awards that will be granted to the Employee on the Effective Date, the Employee shall be eligible to receive stock-based awards under the equity incentive plan or program maintained by the Company as in effect from time to time (such plan, as so in effect, the "Equity Plan") in the discretion of the Board or the Committee. Any such stock-based award will be subject to the terms of the Equity Plan, the terms of the award agreement evidencing such stock-based award, and such other restrictions and limitations as are generally applicable to shares of the Company's common stock or Company employees or otherwise imposed by law.

(d) The Company shall pay or reimburse the Employee for all reasonable, customary and necessary business expenses actually incurred or paid by the Employee during the Term in the performance of services under this Agreement, subject to travel and other policies and such reasonable substantiation and documentation as may be required by the Company from time to time, provided that (i) the amount of expenses eligible for reimbursement during any calendar year may not affect the expenses eligible for reimbursement in any other taxable year, (ii) reimbursement is made not later than December 31 of the calendar year following the calendar

year in which the expense was incurred, and (iii) the right to reimbursement is not subject to liquidation or exchange for any other benefit. In addition, the Company shall reimburse the Employee for the reasonable attorneys' fees incurred by him for the negotiation and documentation of this Agreement and related agreements, up to $20,000.

(e) During the Term, the Employee shall be eligible to participate in all employee benefit plans from time to time in effect for employees of the Company generally, except to the extent such plans are duplicative of benefits otherwise provided under this Agreement (e.g., a severance pay plan). Participation in such employee benefit plans will be subject to the terms of the applicable plan documents and generally applicable Company policies, as the same may be in effect from time to time, and any other restrictions or limitations imposed by law.

(f) During the Term, the Employee shall be eligible for paid vacation of four weeks and two personal days per calendar year taken in accordance with applicable Company policy.

(g) On the first regular payroll date following the Effective Date, the Employee will be paid a gross amount of $200,000, subject to taxes and other withholdings, in lieu of relocation benefits. The Employee shall be required to repay the full gross amount of such payment to the Company if this Agreement is terminated under Sections 6(c) or 7(a) hereof prior to the first anniversary of the Effective Date; the Employee shall be required to repay 50% of the gross amount of such payment to the Company if this Agreement is terminated under Sections 6(c) or 7(a) hereof between the first and second anniversaries of the Effective Date.

4. Confidentiality. The Employee acknowledges and agrees that he is bound by the terms and conditions of the Proprietary Information and Inventions Agreement separately entered into with the Company. Notwithstanding any other provision of this Agreement, the Employee shall continue to be bound by the terms of such Proprietary Information and Inventions Agreement which shall survive the termination of this Agreement in accordance with its terms.

5. Non-Competition, Non-Solicitation and Non-Disparagement.

(a) During the Term, the Employee shall not (1) provide any services, directly or indirectly, to any other business or commercial entity without the consent of the Company, which may be withheld in the Company's sole discretion, or (2) participate in the formation of any business or commercial entity without the consent of the Company, which may be withheld in the Company's sole discretion; provided, however, that nothing contained in this Section 5(a) shall be deemed to prohibit the Employee from acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock and provided, further, that nothing contained herein shall be deemed to limit the Employee's Permitted Activities pursuant to Section 1(c) or limit his ability to serve on an outside board of directors if first approved by the Board under Section 1(d).

(b) Upon a termination of the Employee's employment by the Company for any reason other than pursuant to Section 6(a) or Section 6(b), or upon a termination of the Employee's employment by the Employee for any reason, following such termination of employment and during the Restricted Period, the Employee shall not (1) provide any services in the Company's Field of

Interest (as defined in Section 14), directly or indirectly, to any other business or commercial entity, (2) participate in the formation of any business or commercial entity engaged primarily in the Company's Field of Interest, or (3) directly or indirectly employ, or seek to employ or secure the services in any capacity of, any person employed at that time by the Company or any of its Affiliates, or otherwise encourage or entice any such person to leave such employment, or solicit or encourage any customer, consultant, independent contractor, or vendor of the Company to terminate or diminish its relationship with the Company; provided, however, that nothing contained in this Section 5(b) shall be deemed to prohibit the Employee from acquiring, solely as an investment, shares of capital stock (or other interests) of any corporation (or other entity) in the Company's Field of Interest not exceeding 2% of such corporation's (or other entity's) then outstanding shares of capital stock and provided, further, that nothing contained herein shall be deemed to limit Employee's Permitted Activities pursuant to Section 1(c). This Section 5(b) shall be subject to written waivers that may be obtained by the Employee from the Company.

(c) At no time during the Term of this Agreement or thereafter, regardless of the reason for termination, will Employee knowingly make any written or verbal untrue statement that disparages the Company, its Affiliates, its business, its management, or its products in communications with any customer, client or the public. The employee will, furthermore, not otherwise do or say anything that could disrupt the good morale of employees of the Company or any of its Affiliates, or that harms the interests or reputation of the Company or any of its Affiliates.

(d) Nothing in this Agreement or the Proprietary Information and Inventions Agreement limits, restricts, or in any other way affects the Employee's communicating with any governmental agency or entity, or communicating with any official or staff person of a governmental agency or entity, concerning matters relevant to the governmental agency or entity.

(e) The Employee acknowledges that he has read and considered all the terms and conditions of this Agreement, including the restraints imposed upon him pursuant to Sections 5(a)-(c) above. The Employee agrees without reservation that these restraints are necessary for the reasonable and proper protection of the Company and its Affiliates, and are reasonable in respect to subject matter, length of time, and geographic area. If the Employee commits a breach, or threatens to commit a breach, of any of the provisions of this Section 5, the Company shall have the right and remedy to have the provisions of this Agreement specifically enforced by any court having equity jurisdiction, it being acknowledged and agreed that any such breach or threatened breach will cause irreparable injury to the Company and that money damages may not provide an adequate remedy to the Company. The Employee therefore agrees that the Company, in addition to any other remedies available to it, shall be entitled to preliminary and permanent injunctive relief against any breach or threatened breach by the Employee of any of the provisions of this Section 5, without having to post bond. So that the Company may enjoy the full benefit of the covenants contained above, the Employee agrees that the Restricted Period shall be tolled, and shall not run, during the period of any breach by the Employee of such covenants.

(f) If any of the covenants contained in this Section 5, or any part thereof, is hereafter construed to be invalid or unenforceable, the same shall not affect the remainder of the covenant or covenants, which shall be given full effect without regard to the invalid portions.

(g) If any of the covenants contained in this Section 5, or any part thereof, is held to be unenforceable because of the duration or scope of such provision or the area covered thereby, the parties agree that the court making such determination shall have the power to reduce the duration and/or area of such provision, and that the parties intend for the court to modify the duration and/or area of such provision to the maximum extent permitted by law. The parties agree that in its reduced form, such provision shall then be enforceable.

(h) In the event that the courts of any one or more of such states shall hold any such covenant wholly unenforceable by reason of the breadth of such scope or otherwise, it is the intention of the parties hereto that such determination not bar or in any way affect the Company's right to the relief provided above in the courts of any other states within the geographical scope of such other covenants, as to breaches of such covenants in such other respective jurisdictions, the above covenants as they relate to each state being, for this purpose, severable into diverse and independent covenants.

6. Termination by the Company. The Company may terminate the employment of the Employee as follows during the Term of this Agreement if any one or more of the following shall occur:

(a) Death. If the Employee shall die during the Term, the Employee's employment hereunder shall automatically terminate.

(b) Disability. If the Employee shall become physically or mentally disabled so that the Employee is unable substantially to perform his services hereunder for (1) a period of 120 consecutive days, or (2) for shorter periods aggregating to 180 days during any twelve-month period, the Company may terminate the Employee's employment hereunder upon written notice given by the Company to the Employee.

(c) For Cause. If the Employee acts, or fails to act, in a manner that provides Cause for termination, the Company may at any time terminate the Employee's employment hereunder upon written notice given by the Company to the Employee. For purposes of this Agreement, the term "Cause" means (1) the Employee's indictment for, or conviction of, a felony or other crime involving moral turpitude, or any crime or serious offense involving money or other property which constitutes a felony in the jurisdiction involved, (2) the Employee's willful and continual neglect or failure to discharge duties (including fiduciary duties), responsibilities and obligations with respect to the Company hereunder; provided such neglect or failure, if susceptible of cure, remains uncured for a period of thirty (30) days after written notice describing the same is given to the Employee; provided further that isolated and insubstantial neglect or failures shall not constitute Cause hereunder, (3) the Employee's material breach of this Agreement or any other material agreement with the Company, (4) the Employee's violation of Section 5 hereof or the Employee's breach of any confidentiality provisions contained in the Proprietary Information and Inventions Agreement, or (5) any act of fraud or embezzlement by the Employee involving the Company or any of its Affiliates.

(d) Without Cause. The Company may at any time terminate the Employee's employment hereunder without Cause upon written notice given by the Company to the Employee.

7. Termination by the Employee.

(a) Other than for Constructive Termination. The Employee may terminate his employment hereunder at any time, for any reason and for no reason, upon not less than sixty (60) days' prior written notice to the Company.

(b) Constructive Termination. The Employee may terminate his employment hereunder upon written notice to the Company if any one or more of the following shall occur, each of which is deemed a Constructive Termination:

(i) a material breach of the terms of this Agreement by the Company and such breach continues uncured for thirty (30) days after the Employee first gives written notice of such breach to the Company;

(ii) a relocation of the Employee's place of employment to a location beyond a 30-mile radius of New Haven, Connecticut; or

(iii) a material breach by the Company of any other material agreement with the Employee and such breach continues uncured for thirty (30) days after the Employee first gives written notice of such breach to the Company

Notwithstanding the foregoing, the Employee shall not be deemed to have a "Constructive Termination" unless the Employee gives the Company written notice of such a condition within ninety (90) days after such condition first comes into existence, the Company fails to remedy such condition within thirty (30) days after receiving the Employee's written notice and the Employee terminates this Agreement not later than thirty (30) days after the Company so fails to remedy such condition.

8. Termination by Employee for Good Reason Following a Change in Control. In addition to Section 7(b)(i) through (iii) above, during the period commencing on the Change in Control (as defined in Section 14) and ending on the eighteen (18) month anniversary of such Change in Control, the Employee may terminate this Agreement upon expiration of ninety (90) days' prior written notice if "Good Reason" exists for the Employee's termination. For this purpose, termination by the Employee for "Good Reason" shall mean a termination by the Employee of his employment hereunder following the initial occurrence, without his prior written consent, of any of the following events, unless the Company or its successor fully cures all grounds for such termination within thirty (30) days after receipt of the Employee's written notice (it being understood that a termination of employment hereunder shall only be for Good Reason if the Employee terminates his employment not later than thirty (30) days after the Company so fails to cure such grounds):

(a) any material adverse change in the Employee's authority, duties, titles or offices (including reporting responsibility), from those existing immediately prior to the Change in Control;

(b) a diminution of the Employee's Base Salary or annual bonus opportunity as provided for in Section 3; or

(c) the failure of the Company to obtain the assumption in writing of its obligation to perform this Agreement by any successor to all or substantially all of the assets of the Company upon a merger, consolidation, sale or similar transaction.

9. Severance and Benefit Continuation.

(a) Termination for Cause or Voluntary Termination. In the event of a termination of the Employee's employment by the Company for Cause pursuant to Section 6(c) hereof or by the Employee pursuant to Section 7(a) hereof, no severance or other termination pay or benefits shall be due to the Employee and the only obligation of the Company shall be to pay the Employee any accrued but unpaid Base Salary as of the date of termination and any accrued but unpaid vacation as of the date of termination (the "Accrued Obligations"), which amounts shall be paid to the Employee within thirty (30) days of the date of termination. In the event of a termination of the Employee's employment pursuant to Section 7(a), the Company may elect to waive the period of notice required by Section 7(a), or any portion thereof, and, if the Company so elects, the Company will pay the Employee his Base Salary for the period so waived. Upon a termination covered by this Section 9(a), the Employee shall have the same opportunity to continue group health benefits at the Employee's expense in accordance with the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA") as is available generally to other employees terminating employment with the Company. Any outstanding equity awards previously granted to the Employee under the Equity Plan shall be treated in accordance with the terms of the Equity Plan and any individual award agreements under which such equity awards were granted. A termination of the Employee's employment that occurs by reason of the Employee's notice to the Company of non-renewal of the Term under Section 2 hereof will be treated as a termination by the Employee under Section 7(a).

(b) Termination for Death or Disability. In the event of termination of the Employee's employment pursuant to Section 6(a) or Section 6(b) by reason of the death or disability of the Employee, the Company shall pay the Employee (or his estate in the event of a termination due to death), a pro-rata annual bonus for the year in which such termination of employment occurs, calculated by multiplying the Employee's target annual bonus by a fraction, the numerator of which is the number of days the Employee was employed during such year and the denominator of which is 365 and shall provide the Health Continuation Benefits (as defined in Section 9(c)(ii)). In the event of a termination of the Employee's employment due to death, the Company shall also pay to the Employee's estate an amount equal to three (3) months of Base Salary. The Base Salary (if applicable) and the pro-rata bonus shall be paid within thirty (30) days of the date of termination. All equity awards for which the vesting schedule is based solely on the passage of time and continuation of employment ("Time-Vesting Equity Awards") previously granted to the Employee shall become immediately vested and shall remain exercisable for such periods as provided under the terms of the Equity Plan and any individual award agreements under which such awards were granted. All other equity awards previously granted to the Employee will vest as determined in good faith by the Board of Directors based on the percentage of goals and objectives achieved by the Employee and the Company.

(c) Involuntary Termination Other Than for Cause, Voluntary Termination Following Constructive Termination, or Non-Renewal by the Company. If (1) the Company terminates the Employee's employment pursuant to Section 6(d) hereof, (2) the Employee terminates his employment pursuant to Section 7(b) hereof or (3) at the end of the Term of this Agreement the Employee shall cease to be employed by the Company by reason of the Company's decision not to renew the Term under Section 2 hereof ("Non-Renewal"), and in each case the termination of employment does not occur within eighteen (18) months following the consummation of a Change in Control of the Company, then, in addition to the Accrued Obligations:

(i) the Company shall pay the Employee two (2) times the amount equal to the sum of (A) the Employee's Base Salary at the time of his termination of employment plus (B) the greater of (I) the average bonus received by the Employee from the Company for the two years preceding the year in which his termination of employment occurs or (II) the amount equal to the Employee's bonus target under the Bonus Plan as determined by the Company for the year in which the termination of employment occurs. Subject to Section 9(g) below, such amounts will be paid to the Employee in equal installments over a twenty-four (24) month period following the Separation Date, payable in accordance with the Company's regular payroll practices, with the first payment being made on the Company's next regular payday following the expiration of sixty (60) calendar days from the Separation Date, and with the first payment being retroactive to the day following the Separation Date;

(ii) if the Employee timely elects to continue his participation and that of his eligible dependents in the Company's group medical, dental and vision plans under COBRA, the Company shall pay the Employee a lump-sum amount that, after all applicable taxes and withholdings are deducted, is the economic equivalent of the monthly health premiums paid by the Company on behalf of the Employee and his eligible dependents immediately prior to the date of his Separation from Service for a period of eighteen (18) months (the "Health Continuation Benefits"); provided that all such payments shall comply with the reimbursement rules of Treasury Regulations Sections 1.409A-1(b)(9)(v) or 1.409A-3(i)(1)(iv);

(iii) all Time-Vesting Equity Awards granted to the Employee on March 27, 2017 shall fully and immediately vest as of the Separation Date, and all other Time-Vesting Equity Awards that have both been previously granted to the Employee and are at least 50% vested as of the Separation Date shall fully and immediately vest as of the Separation Date, and any such awards that consist of options shall become exercisable immediately prior to such termination of employment, and shall remain exercisable for such periods as provided under the terms of the Equity Plan and any individual award agreements under which such equity awards were granted; and

(iv) equity awards, other than the Time-Vested Equity Awards, that have been granted to and earned by the Employee and are at least 50% vested as of the Separation Date, shall fully and immediately vest as of the Separation Date and become exercisable immediately prior to such termination of employment, and shall remain exercisable for such

periods as provided under the terms of the Equity Plan and any individual award agreements under which such equity awards were granted.

(d) Involuntary Termination Other Than for Cause, Voluntary Termination Following Constructive Termination or for Good Reason, or Non-Renewal by the Company, Upon a Change in Control. In the event that (1) the Company terminates this Agreement pursuant to Section 6(d) hereof, (2) the Employee terminates this Agreement Following Constructive Termination under Section 7(b) hereof or for Good Reason under Section 8 hereof, or (3) there is a Non-Renewal by the Company, and in each case the termination of employment or Non-Renewal occurs within eighteen (18) months following the consummation of a Change in Control, then, in addition to the Accrued Obligations:

(i) the Company shall pay the Employee three (3) times the amount equal to the sum of (A) the Employee's Base Salary at the time of his termination of employment plus (B) the greater of (I) the average bonus received by the Employee from the Company for the two years preceding the year in which his termination of employment occurs or (II) the amount equal to the Employee's bonus target under the Bonus Plan as determined by the Company for the year in which the termination of employment occurs. The Company shall also pay the Employee a pro-rata annual bonus for the year in which such termination of employment occurs, calculated by multiplying the Employee's target annual bonus by a fraction, the numerator of which is the number of days the Employee was employed during such year and the denominator of which is 365. Subject to Section 9(g), such amounts will be paid to the Employee sixty (60) days after such Separation from Service in a cash lump sum; and the Company shall provide the Employee with the Health Continuation Benefits; provided that all such payments shall comply with the reimbursement rules of Treasury Regulations Sections 1.409A-1(b)(9)(v) or 1.409A-3(i)(1)(iv);

(ii) all Time-Vesting Equity Awards previously granted to the Employee under the Equity Plan shall fully and immediately vest and become exercisable immediately prior to such termination of employment and shall remain exercisable for such periods as provided under the terms of the Equity Plan and any individual award agreements under which such equity awards were granted; and

(iii) all equity awards, other than the Time-Vesting Equity Awards, that have been granted to and earned by the Employee as of the Separation Date shall fully and immediately vest and become exercisable immediately prior to such termination of employment and shall remain exercisable for such periods as provided under the terms of the Equity Plan and any individual award agreements under which such equity awards were granted. All other non-Time Vesting awards previously granted to the Employee, but not earned as of the date of termination of employment, will vest, if at all, as determined in good faith by the Board of Directors based upon the achievement of performance conditions by the Employee and the Company.

(e) The payments provided in Section 9(c) and 9(d) are intended as enhanced severance for a termination by the Company or by the Employee in the circumstances provided and are subject to the Employee's continued compliance with the provisions of Section 5 hereof. As a

condition to receiving such payments, the Employee shall first execute and deliver a general release of all claims against the Company, its Affiliates, agents and employees (other than any claims or rights pursuant to this Agreement or pursuant to equity or employee benefit plans), in a form and substance reasonably satisfactory to the Company (the "Release"). The payments and benefits referenced in Section 9(c)(ii) and Section 9(d)(i), as applicable, shall be paid in a lump sum sixty (60) days after the Employee's Separation from Service, subject to Section 9(g) below. The Employee must execute and return the Release on or before the date specified by the Company in the prescribed form (the "Release Deadline"). The Release Deadline will in no event be later than fifty (50) days after the Employee's Separation from Service. If the Employee fails to return the Release on or before the Release Deadline, or if the Release is revoked by the Employee, then the Employee will not be entitled to the payments or benefits, including any accelerated vesting of equity, described in Section 9(c) and 9(d).

(f) Termination of Employment and Separation from Service. All references in the Agreement to termination of employment, a termination, retirement, cessation of employment, separation from service, and correlative terms, that result in the payment or vesting of any amounts or benefits that constitute "nonqualified deferred compensation" within the meaning of Section 409A shall be construed to require a Separation from Service, and the date of such termination in any such case shall be construed to mean the date of the Separation from Service.

(g) Payment to a "Specified Employee". To the extent any payment hereunder that is payable by reason of termination of the Employee's employment constitutes "nonqualified deferred compensation" subject to Section 409A and would otherwise have been required to be paid during the six (6)-month period following such termination of employment, it shall instead (unless at the relevant time the Employee is no longer a Specified Employee) be delayed and paid, without interest, in a lump sum on the date that is six (6) months and one (1) day after the Employee's termination (or, if earlier, the date of the Employee's death).

(h) Other. In the event that the Employee's employment with the Company terminates for any reason, except as otherwise expressly provided by the Company, the Employee's employment with, or other service to, all Affiliates of the Company by which he is then employed or otherwise engaged in service shall automatically and immediately terminate.

10. Cooperation. Following his termination of employment, the Employee agrees to cooperate with, and assist, the Company to ensure a smooth transition in management and, if requested by the Company, will make himself available to consult during regular business hours at mutually agreed upon times for up to a three month period thereafter. At any time following his termination of employment for any reason, the Employee will provide such information as the Company may reasonably request with respect to any Company-related transaction or other matter in which the Employee was involved in any way while employed by the Company. The Employee further agrees to assist and cooperate with the Company in connection with the defense, prosecution, government investigation, or internal investigation of any claim or matter that may be made against, concerning, or by, the Company or its Affiliates. Such assistance and cooperation shall include timely, comprehensive, and truthful disclosure of all relevant facts known to the Company, including through in-person interview(s) with the Company's internal Legal Department or outside counsel

for the Company. The Employee shall be entitled to reimbursement for all properly documented expenses incurred in connection with rendering services under this Section, including, but not limited to, reimbursement for all reasonable travel, lodging, and meal expenses.

11. Indemnification. The Company shall indemnify the Employee to the fullest extent permitted by applicable law and its then-current articles of incorporation and by-laws. The Employee agrees to promptly notify the Company of any actual or threatened claim arising out of or as a result of his employment with the Company, or consultant pursuant to Section 10 above. The Company shall provide, at its expense, Directors and Officers insurance for the Employee in amounts reasonably satisfactory to the Employee, to the extent such insurance is available at reasonable rates, which determination shall be made by the Board of Directors. The Employee shall also be party to an Indemnification Agreement with the Company in substantially the form attached as Exhibit A hereto.

12. Excise Tax. If any payment or benefit that Employee would receive following a Change in Control of the Company or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (a) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (b) the largest portion, up to and including the total amount, of the Payment, whichever of the amounts determined under (a) and (b), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Employee's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order: reduction of cash payments; cancellation of accelerated vesting of outstanding awards under the Equity Plan; and reduction of employee benefits. In the event that acceleration of vesting of outstanding awards under the Equity Plan is to be reduced, such acceleration of vesting shall be undertaken in the reverse order of the date of grant of the Employee's outstanding equity awards.

The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control of the Company shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, then the Company shall appoint another, nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder.

The accounting firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Employee and the Company within a commercially reasonable period of time after the date on which the Employee's right to a Payment is triggered (if requested at that time by the Employee or the Company). Any good faith

determinations of the accounting firm made hereunder shall be final, binding and conclusive upon the Employee and the Company.

13. No Mitigation. The Employee shall not be required to mitigate the amount of any payment provided for hereunder by seeking other employment or otherwise, nor shall the amount of any payment provided for hereunder be reduced by any compensation earned by the Employee as the result of employment by another employer after the date of termination of employment by the Company (other than as described above in Section 9(c)(ii) and Section 9(d)(ii)).

14. Definitions. As used herein, the following terms have the following meaning:

(a) "Affiliate" means and includes any person, corporation or other entity controlling, controlled by or under common control with the corporation in question.

(b) "Change in Control" means the occurrence of any of the following events:

(i) Any Person, other than the Company, its affiliates (as defined in Rule 12b-2 under the Exchange Act) or any Company employee benefit plan (including any trustee of such plan acting as trustee), is or becomes the Beneficial Owner, directly or indirectly, of securities of the Company representing more than 40% of the combined voting power of the then outstanding securities entitled to vote generally in the election of Directors ("Voting Securities") of the Company, or

(ii) Individuals who constitute the Board of Directors of the Company (the "Incumbent Directors") as of the beginning of any twenty-four month period (not including any period prior to the date of this Agreement), cease for any reason to constitute at least a majority of the Directors. Notwithstanding the foregoing, any individual becoming a Director subsequent to the beginning of such period, whose election or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds of the Directors then comprising the Incumbent Directors, shall be considered an Incumbent Director; or

(iii) Consummation by the Company of a recapitalization, reorganization, merger, consolidation or other similar transaction (a "Business Combination"), with respect to which all or substantially all of the individuals and entities who were the Beneficial Owners of the Voting Securities immediately prior to such Business Combination (the "Incumbent Shareholders") do not, following consummation of all transactions intended to constitute part of such Business Combination, beneficially own, directly or indirectly, 50% or more of the Voting Securities of the corporation, business trust or other entity resulting from or being the surviving entity in such Business Combination (the "Surviving Entity"), in substantially the same proportion as their ownership of such Voting Securities immediately prior to such Business Combination; or

(iv) Consummation of a complete liquidation or dissolution of the Company, or the sale or other disposition of all or substantially all of the assets of the Company, other than to a corporation, business trust or other entity with respect to which,

following consummation of all transactions intended to constitute part of such sale or disposition, more than 50% of the combined Voting Securities is then owned beneficially, directly or indirectly, by the Incumbent Shareholders in substantially the same proportion as their ownership of the Voting Securities immediately prior to such sale or disposition.

For purposes of this definition 14(b), the following terms shall have the meanings set forth below:

(A) "Beneficial Owner" shall have the meaning set forth in Rule 13d-3 under the Exchange Act;

(B) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended; and

(C) "Person" shall have the meaning as used in Sections 13(d) and 14(d) of the Exchange Act.

To the extent required to comply with Section 409A and to the extent necessary to establish a time or form of payment that complies with Section 409A, including under Treasury Regulation § 1.409A-3(c)(1), a Change in Control shall be deemed to occur only if such event also constitutes a "change in the ownership", "change in effective control", and/or a "change in the ownership of a substantial portion of assets" of the Company, as those terms are defined under Treasury Regulation § 1.409A-3(i)(5). If a Change in Control does not satisfy this requirement, to the extent required to comply with Section 409A, the time or form of payment hereunder shall be determined in a manner disregarding the fact that a Change in Control has occurred (e.g., any severance entitlements shall be paid in installments over the post-termination period that would have applied absent such Change in Control or such shorter period that would comply with Section 409A).

(c) "Code" means the Internal Revenue Code of 1986, as amended.

(d) "Company's Field of Interest" means products, product candidates, processes or services of the Company with which the Employee works during the time of his employment with the Company or about which the Employee acquires confidential information through his work with the Company.

(e) "Restricted Period" shall mean twenty-four (24) months.

(f) "Section 409A" shall mean Section 409A of the Code.

(g) "Separation from Service" shall mean a "separation from service" (as that term is defined at Section 1.409A-1(h) of the Treasury Regulations under Section 409A) from the Company and from all other corporations and trades or businesses, if any, that would be treated as a single "service recipient" with the Company under Section 1.409A-1(h)(3) of such Treasury Regulations. The Board of Directors or the Compensation Committee of the Board of Directors may, but need not, elect in writing, subject to the applicable limitations under Section 409A, any of the special elective rules prescribed in Section 1.409A-1(h) of the Treasury Regulations for

purposes of determining whether a "separation from service" has occurred. Any such written election shall be deemed part of the Agreement.

(h) "Specified Employee" shall mean an individual determined by the Board of Directors, Compensation Committee of the Board of Directors or their delegate to be a specified employee as defined in subsection (a)(2)(B)(i) of Section 409A. The Committee may, but need not, elect in writing, subject to the applicable limitations under Section 409A, any of the special elective rules prescribed in Section 1.409A-1(i) of the Treasury Regulations for purposes of determining "specified employee" status. Any such written election shall be deemed part of the Agreement.

15. Representations by the Parties. The Employee represents and warrants that he has full right, power and authority to execute the terms of this Agreement; this Agreement has been duly executed by the Employee and such execution and the performance of this Agreement by the Employee does not result in any conflict, breach or violation of or default under any other agreement or any judgment, order or decree to which the Employee is a party or by which he is bound. The Employee acknowledges and agrees that any material breach of the representations set forth in this Section will constitute Cause under Section 6. The Company represents and warrants that it will not attempt to induce or otherwise require the Employee to violate any such agreement, judgment, order or decree that the Executive has disclosed in writing to the Company.

16. Arbitration. Any controversy or claim arising out of or relating to this Agreement or the breach thereof, or arising out of Employee's employment and the termination of such employment, shall be settled by arbitration in Connecticut, in accordance with the employment dispute rules then existing of the American Arbitration Association, and judgment upon the award rendered may be entered in any court having jurisdiction thereof. Such claims shall include, without limitation, claims for breach of contract or breach of the covenant of good faith and fair dealing, any claims of discrimination or other claims under Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended by the Older Workers Benefits Protection Act, the Americans with Disabilities Act, the Family and Medical Leave Act, the Fair Labor Standards Act, ERISA, and/or any applicable or equivalent state or local laws, claims for wrongful termination, including employment termination in violation of public policy, and claims for personal injury including, without limitation, defamation, fraud and infliction of emotional distress. The parties shall be free to pursue any remedy before the arbitrator that they shall be otherwise permitted to pursue in a court of competent jurisdiction. As a material part of this agreement to arbitrate claims, the Employee and the Company expressly waive all rights to a jury trial in court on all statutory or other claims. The award of the arbitrator shall be final and binding. The costs of the American Arbitration Association and the arbitrator will be borne by the Company, and the parties will otherwise bear their own costs (including attorneys fees). Nothing contained herein, however, shall limit the right of the Company or any of its Affiliates to seek equitable or other relief from any court of competent jurisdiction for violation of any provision of Sections 4 and 5 above.

17. Recoupment. The Employee hereby acknowledges and agrees that the annual bonus described in Section 3(b) and all other payments of incentive-based compensation payable to the Employee by the Company or its Affiliates (whether under this Agreement or otherwise) shall be

subject to any applicable clawback or recoupment policy of the Company, as such policy may be amended and in effect from time to time, and shall be subject to recoupment as otherwise required by applicable law or applicable stock exchange listing standards, including, without limitation, Section 10D of the Securities Exchange Act of 1934, as amended.

18. Notices. All notices, requests, consents and other communications required or permitted to be given hereunder shall be in writing and shall be deemed to have been duly given if sent by private overnight mail service (delivery confirmed by such service), registered or certified mail (return receipt requested and received), telecopy (confirmed receipt by return fax from the receiving party) or delivered personally, as follows (or to such other address as either party shall designate by notice in writing to the other in accordance herewith):

If to the Company:

Alexion Pharmaceuticals, Inc.
100 College Street
New Haven, Connecticut 06510
Telephone: (203) 272-2596
Fax: (203) 271-8198
Attn: General Counsel

If to the Employee: to the Employee's Address on file with the Company.

19. General.

(a) This Agreement shall be governed by and construed and enforced in accordance with the laws of the State of Connecticut applicable to agreements made and to be performed entirely in Connecticut by Connecticut residents.

(b) This Agreement, the Proprietary Information and Inventions Agreement and the agreements attached as Exhibits hereto set forth the entire agreement and understanding of the parties relating to the subject matter hereof, and supersedes all prior agreements, arrangements and understandings, written or oral, relating to the subject matter hereof. No representation, promise or inducement has been made by either party that is not embodied in this Agreement, and neither party shall be bound by or liable for any alleged representation, promise or inducement not so set forth.

(c) This Agreement may be amended, modified, superseded, canceled, renewed or extended, and the terms or covenants hereof may be waived, only by a written instrument executed by the parties hereto, or in the case of a waiver, by the party waiving compliance. The failure of a party at any time or times to require performance of any provision hereof shall in no manner affect the right at a later time to enforce the same. No waiver by a party of the breach of any term or covenant contained in this Agreement, whether by conduct or otherwise, or any one or more or continuing waivers of any such breach, shall constitute a waiver of the breach of any other term or covenant contained in this Agreement.

(d) This Agreement shall be binding upon the legal representatives, heirs, distributees, successors and assigns of the parties hereto. The Company may not assign its rights and obligation under this Agreement without the prior written consent of the Employee, except to a successor of substantially all the Company's business which expressly assumes the Company's obligations hereunder in writing. In the event of a sale of all or substantially all of the assets of the Company, the Company shall use its best efforts to cause the purchaser to expressly assume this Agreement. The Employee may not assign, transfer, alienate or encumber any rights or obligations under this Agreement, except by will or operation of law, provided that the Employee may designate beneficiaries to receive any payments permitted under the terms of the Company's benefit plans.

(e) If any portion or provision of this Agreement shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

(f) Provisions of this Agreement shall survive any termination of employment if so provided herein or if necessary or desirable fully to accomplish the purposes of other surviving provisions, including without limitation, the obligations of the Employee under Section 5 hereof. Upon termination of the Employee's employment hereunder by either the Employee or the Company as permitted hereby, all rights, duties and obligations of the Employee and the Company to each other pursuant to this Agreement shall cease, except for the provisions hereof that contemplate performance after termination, including without limitation the obligations of the Employee under Section 5 hereof.

(g) This Agreement is intended to comply with the applicable requirements of Section 409A and shall be construed accordingly. Each payment made under this Agreement shall be treated as a separate payment and the right to a series of installment payments under this Agreement is to be treated as a right to a series of separate payments. In no event shall the Company have any liability relating to the failure or alleged failure of any payment or benefit under this Agreement to comply with, or be exempt from, the requirements of Section 409A.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

ALEXION PHARMACEUTICALS, INC.

By: /s/ Clare Carmichael
Name: Clare A. Carmichael
Title: EVP & Chief Human Resources Officer

EMPLOYEE

/s/ Ludwig Hantson
Name: Ludwig Hantson
Title: Chief Executive Officer

NONQUALIFIED DEFERRED

COMPENSATION PLAN BASIC PLAN DOCUMENT

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PREAMBLE

The Plan Sponsor, by executing the Nonqualified Deferred Compensation Plan Adoption Agreement, hereby establishes or amends an unfunded Nonqualified Deferred Compensation Plan for a select group of management or highly compensated Eligible Individuals. Under the terms of the Plan, Eligible Individuals may elect to defer receipt of their Compensation to a later Taxable Year.

Participants shall have no right, either directly or indirectly, to anticipate, sell, assign or otherwise transfer any benefit accrued under the Plan. In addition, no Participant shall have any interest in any assets set aside as a source of funds to satisfy benefit obligations under the Plan. Participants shall have the status of general unsecured creditors of the Plan Sponsor, and the Plan shall constitute an unsecured promise by the Plan Sponsor to make benefit payments in the future.

The Plan is intended to be “a plan which is unfunded and is maintained by an employer primarily for the purpose of providing deferred compensation for a select group of management or highly compensated employees” within the meaning of ERISA §§201(2) and 301(a)(3), is intended to comply with the requirements of Code §409A and the regulations and binding guidance issued thereunder to avoid adverse tax consequences and shall be interpreted and administered to the extent possible in a manner consistent with that intent.

ARTICLE I

DEFINITIONS

1.1 ***Account*** The bookkeeping account established for each Participant to record his or her benefit under the Plan. Where the context so requires, references to the Participant's Account, or to the Participant's vested Account, shall mean the applicable portion of the Account attributable to a specific Taxable Year and type of Compensation Deferral or Matching or Discretionary Contribution.

1.2 ***Adoption Agreement*** The written instrument by which the Plan Sponsor establishes or amends a Nonqualified Deferred Compensation Plan for Eligible Individuals.

1.3 ***Affiliate*** Any corporation or business entity that would be considered a single employer with the Plan Sponsor pursuant to Code §§ 414(b) or 414(c).

1.4 ***Aggregated Plan*** A nonqualified deferred compensation plan that is required to be aggregated and treated with the Plan as a single plan under Code § 409A.

1.5 ***Beneficiary*** An individual, individuals, trust or other entity designated by the Participant to receive his or her benefit in the event of the Participant's death. If more than one Beneficiary survives the Participant, the Participant's benefit shall be divided equally among all such Beneficiaries, unless otherwise provided in the Beneficiary Designation form. Nothing herein shall prevent the Participant from designating primary and contingent Beneficiaries.

1.6 ***Benefit Benchmarks*** Hypothetical investment funds or benchmarks made available to Participants by the Plan Administrator for purposes of valuing benefits under the Plan.

1.7 ***Board*** The Board of Directors of the Plan Sponsor identified in Section I of the Adoption Agreement, or similar governing body if such Plan Sponsor has no Board of Directors.

1.8 ***Change in Control Event*** A Change in Ownership, Change in Effective Control or Change in Ownership of a Substantial Portion of Assets, as elected by the Plan Sponsor in the Adoption Agreement, of a corporation identified in Section 1.8(e).

(a) ***Change in Effective Control of the Corporation***

(i) Notwithstanding that a corporation has not undergone a Change in Ownership, a Change in Effective Control occurs

on the date that either:

(1) any one person or Persons Acting as a Group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or Persons Acting as a Group) ownership of stock of the corporation possessing 30 percent or more of the total voting power of the stock of such corporation; or

(2) a majority of members of the corporation's board of directors is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the corporation's board of directors prior to the date of the appointment or election, provided that for purposes of this Section 1.8(a)(i)(2) the term corporation refers solely to the relevant corporation identified in Section 1.8(e) for which no other corporation is a majority shareholder for purposes of that section.

In the absence of an event described in Section 1.8(a)(i)(1) or Section 1.8(a)(i)(2) a Change in Effective Control will not have occurred.

(ii) A Change in Effective Control may occur in any transaction in which either of the two corporations involved in the transaction has a Change in Ownership or a Change in Ownership of a Substantial Portion of Assets.

(iii) If any one person or Persons Acting as a Group, is considered to effectively control a corporation (within the meaning of this Section 1.8(a)), the acquisition of additional control of the corporation by the same person or Persons Acting as a Group is not considered to cause a Change in Effective Control (or to cause a Change in Ownership within the meaning of Section 1.8(b)).

(b) ***Change in the Ownership of the Corporation.*** A Change in Ownership occurs on the date that any one person or Persons Acting as a Group, acquires ownership of stock of the corporation that, together with stock held by such person or Persons Acting as a Group, constitutes more than 50 percent of the total fair market value or total voting power of the stock of such corporation. However, if any one person or Persons Acting as a Group, is considered to own more than 50 percent of the total fair market value or total voting power of the stock of a corporation, the acquisition of additional stock by the same person or Persons Acting as a Group is not considered to cause a Change in Ownership (or to cause a Change in Effective Control). An increase in

the percentage of stock owned by any one person or Persons Acting as a Group, as a result of a transaction in which the corporation acquires its stock in exchange for property will be treated as an acquisition of stock for purposes of a Change in Ownership. A Change in Ownership applies only when there is a transfer of stock of a corporation (or issuance of stock of a corporation) and stock in such corporation remains outstanding after the transaction.

(c) ***Change in the Ownership of a Substantial Portion of a Corporation's Assets***

(i) A Change in Ownership of a Substantial Portion of Assets occurs on the date that any one person or Persons Acting as a Group acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or Persons Acting as a Group) assets from the corporation that have a total gross fair market value equal to or more than 40 percent of the total gross fair market value of all of the assets of the corporation immediately prior to such acquisition or acquisitions. For this purpose, gross fair market value means the value of the assets of the corporation, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

(ii) There is no Change in Ownership of a Substantial Portion of Assets when there is a transfer to an entity that is controlled by the shareholders of the transferring corporation immediately after the transfer, as provided in this Section 1.8(c)(ii). A transfer of assets by a corporation is not treated as a change in the ownership of such assets if the assets are transferred to:

(1) a shareholder of the corporation (immediately before the asset transfer) in exchange for or with respect to its stock;

(2) an entity, 50 percent or more of the total value or voting power of which is owned, directly or indirectly, by the corporation;

(3) a person or Persons Acting as a Group, that owns, directly or indirectly, 50 percent or more of the total value or voting power of all the outstanding stock of the corporation; or

(4) an entity, at least 50 percent of the total value or voting power of which is owned, directly or indirectly, by a person described in Section 1.8(c)(ii)(c.).

For purposes of this Section 1.8(c)(ii) and except as otherwise provided, a person's status is determined immediately after the transfer of the

assets.

(d) ***Persons Acting as a Group***

(i) With regards to Change in the Ownership, persons will not be considered to be acting as a group solely because they purchase or own stock of the same corporation at the same time, or as a result of the same public offering. However, persons will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock or similar business transaction with the corporation. If a person, including an entity, owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock, or similar transaction, such shareholder is considered to be acting as a group with other shareholders only with respect to the ownership in that corporation before the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

(ii) With regards to Change in Effective Control, persons will not be considered to be acting as a group solely because they purchase or own stock of the same corporation at the same time, or as a result of the same public offering. However, persons will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock or similar business transaction with the corporation. If a person, including an entity, owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock, or similar transaction, such shareholder is considered to be acting as a group with other shareholders in a corporation only with respect to the ownership in that corporation before the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

(iii) With regards to Change in Ownership of a Substantial Portion of Assets, persons will not be considered to be acting as a group solely because they purchase assets of the same corporation at the same time. However, persons

will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of assets or similar business transaction with the corporation. If a person, including an entity shareholder owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock, or similar transaction, such shareholder is considered to be acting as a group with other shareholders in a corporation only to the extent of the ownership

in that corporation before the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

(e) To constitute a Change in Control Event as to a Participant, the Change in Control Event must relate to:

(i) the corporation with respect to which the Participant is an Eligible Individual at the time of the Change in Control Event;

(ii) the corporation that is liable for the payment of the Account (or all corporations liable for the payment if more than one corporation is liable) but only if either the Participant's benefits under the Plan are attributable to the performance of services by the Participant for such corporation (or corporations) or there is a bona fide business purpose for such corporation or corporations to be liable for such payment and, in either case, no significant purpose in making such corporation or corporations liable for such payment is the avoidance of Federal income tax; or

(iii) a corporation that is a majority shareholder of a corporation identified in Sections 1.8(e)(i) or 1.8(e)(ii), or any corporation in a chain of corporations in which each corporation is a majority shareholder of another corporation in the chain, ending in a corporation identified in Section 1.8(e)(i) or Section 1.8(e)(ii). With regard to a relevant corporation, a majority shareholder is a shareholder owning more than 50% of the total fair market value and total voting power of such corporation.

(f) ***Stock Ownership.*** For the purposes of this Section 1.8, ownership of stock will be determined by the application of Code §318(a). Stock underlying a vested option is considered owned by the individual who holds the vested option (and the stock underlying an unvested option is not considered owned by the individual who holds the unvested option). For purposes of the preceding sentence, however, if a vested option is exercisable for stock that is

not substantially vested (as defined by Treasury Regulation §§ 1.83-3(b) and (j)), the stock underlying the option is not treated as owned by the individual who holds the option. In addition, mutual and cooperative corporations are treated as having stock for purposes of this Section 1.8(f).

1.9 ***Code*** The Internal Revenue Code of 1986, as amended from time to time. Reference to any section or subsection of the Code includes reference to any comparable or succeeding provisions of any legislation which amends,

supplements or replaces such section or subsection.

1.10 ***Commissions*** Shall mean both Investment Commissions and Sales Commissions.

1.11 ***Compensation*** Shall mean a Participant's Regular Salary, bonuses, Commissions, Performance-Based Compensation, and director fees, as elected by the Plan Sponsor in the Adoption Agreement.

1.12 ***Compensation Deferral Agreement*** The written agreement between an Eligible Individual and the Plan Sponsor to defer receipt by the Eligible Individual of Compensation. Such agreement shall state the deferral amount or percentage of Compensation to be withheld from the Eligible Individual's Compensation and shall state the date on which the agreement is effective, as provided at Section 2.3.

1.13 ***Compensation Deferrals*** That portion of a Participant's Compensation which is deferred under the terms of this Plan.

1.14 ***Conflict of Interest Divestiture*** Shall have the meaning set forth in Section 6.3.

1.15 ***Corporate Dissolution*** A corporate dissolution taxed pursuant to Code §331 or with the approval of a bankruptcy court pursuant to section 503(b)(1)(A) of title 11, United States Code.

1.16 **De Minimis Distribution** Shall have the meaning elected by the Plan Sponsor in the Adoption Agreement.

1.17 ***Disability*** Shall have the meaning elected by the Plan Sponsor in the Adoption Agreement.

1.18 ***Distributable Event*** The events entitling a Participant or Beneficiary to a payment of benefits under the Plan, which shall be: Separation from Service; death; Disability, if applicable; the occurrence of an Interim Distribution Date; the occurrence of an Unforeseeable Emergency; Plan Termination Following a Change of Control Event, if applicable; Plan Termination Following a Corporate Dissolution; Plan Termination in Connection with Termination of Certain Similar Arrangements; Conflict of Interest Divestiture; Domestic Relations Order; and Income Inclusion Under Code § 409A.

1.19 ***Domestic Partner*** Shall have the meaning elected by the Plan Sponsor in the Adoption Agreement. The Plan Administrator in its sole discretion shall determine whether an individual meets the requirements of a Domestic Partner and shall have the right to request documentary proof of the existence of a Domestic Partner relationship, which proof may include, but is not limited to, a joint checking account, a joint mortgage or lease, driver's licenses showing the same address, the registration of a domestic partnership or civil union in states that recognize such relationships or such other proof as the Plan Administrator may determine.

1.20 ***Domestic Relations Order*** Any judgment, decree or order (including approval of a property settlement agreement) which relates to the provision of child support, alimony payments or marital property rights to a Spouse, former Spouse, child or other dependent of a Participant and is made pursuant to a State domestic relations law (including a community property law).

1.21 ***Effective Date*** The date as of which the Plan becomes effective or is amended, as selected in the Adoption Agreement.

1.22 ***Eligible Individual*** Any common-law employee, independent contractor or non- employee director who provides services to the Plan Sponsor and is designated by the Plan Sponsor as eligible to participate in the Plan in accordance with Section 2.1. Only those individuals who are part of a select group of management or highly compensated individuals, as determined by the Plan Sponsor in its sole discretion, may be designated as Eligible Individuals under the Plan.

1.23 ***ERISA*** The Employee Retirement Income Security Act of 1974, as amended. Reference to any section or subsection of ERISA includes reference to any comparable or succeeding provisions of any legislation which amends, supplements or replaces such section or subsection.

1.24 ***Income Inclusion Under Code § 409A*** Shall have the meaning set forth in Section 6.9.

1.25 ***Interim Distribution Date*** Shall have the meaning elected by the Plan Sponsor in the Adoption Agreement.

1.26 ***Investment Commissions*** The Compensation or the portion of Compensation earned by a Participant that meets the following requirements: (a) a substantial portion of the services provided by the Participant for such Compensation consists of sales of financial products or other direct customer services to an unrelated customer with respect to customer assets or customer asset accounts; (b) the customer retains the right to terminate the customer relationship and may move or liquidate the assets or asset accounts without undue delay (which may be subject to a reasonable notice period); (c) such

Compensation consists of a portion of the value of the overall assets or asset account balance, an amount substantially all of which

is calculated by reference to the increase in the value of the overall assets or account balance during a specified period, or both; and (d) the value of the overall assets or account balance and Investment Commission is determined at least annually. For this purpose, a customer is treated as an unrelated customer only if the customer is not related (within the meaning of Code § 409A) to either the Plan Sponsor, any Affiliate or the Participant. Notwithstanding the foregoing, Compensation involving a related customer will be treated as an Investment Commission provided that (x) the Compensation otherwise meets the requirements set forth in this section, (y) substantial sales from which Investment Commissions arise are made, or substantial services from which Investment Commissions arise are provided, to unrelated customers by the Plan Sponsor or an Affiliate and (z) the sales and service arrangement and the commission arrangement with respect to the related customers are bona fide, arise from the Plan Sponsor's or Affiliate's ordinary course of business and are substantially the same, both in terms and in practice, as the terms and practices applicable to unrelated customers (within the meaning of Code § 409A) to which (individually or in the aggregate) substantial sales are made or substantial services provided by the Plan Sponsor or an Affiliate.

1.27 ***Investment Credits and Debits*** Bookkeeping adjustments to Participants' Accounts to reflect the hypothetical interest, earnings, appreciation, losses and depreciation that would be accrued or realized if assets equal to the value of such Accounts were invested in accordance with such Participants' Benefit Benchmarks.

1.28 ***Nonqualified Deferred Compensation Plan*** A pension plan, within the meaning of ERISA §201(2), the purpose of which is to permit a select group of management or highly compensated Eligible Individuals to defer receipt of a portion of their Compensation to a future date.

1.29 ***Participant*** An Eligible Individual who is currently deferring a portion of his or her Compensation under this Plan, or an Eligible Individual or former Eligible Individual who is still entitled to the payment of benefits under the Plan.

1.30 ***Performance-Based Compensation*** Compensation, the amount of which, or entitlement to which, is contingent on the satisfaction of pre-established organizational or individual performance criteria relating to a performance period of at least 12 consecutive months. Organizational or individual performance criteria are considered pre-established if established in writing by no later than 90 days after the commencement of the period of service to which the criteria relates, provided that the outcome is substantially uncertain at the time the criteria are established. Performance-Based Compensation does not include any amount, or portion of any amount, that will be paid either

regardless of performance or based upon a level of performance that is substantially certain to be met at the time the criteria is established. If payments are based upon the satisfaction of subjective criteria, the subjective performance criteria must be bona fide and relate to the performance of the Participant, a group that includes the Participant or a business unit for which the Participant provides services, and the determination that any subjective performance criteria have been met must not be made by the Participant, a family member of the Participant or a person under the effective control of the Participant or a family member of the Participant or where any amount of the compensation of the person making such determination is effectively controlled in whole or in part by the Participant or family member of the Participant. Compensation determined by reference to the value of the Plan Sponsor or an Affiliate, or the stock of the Plan Sponsor or an Affiliate, shall be Performance Based Compensation only as provided under Code § 409A and the regulations and binding guidance issued thereunder.

1.31 ***Plan*** The Nonqualified Deferred Compensation Plan established by the Plan Sponsor under the terms of this Basic Plan Document and the accompanying Adoption Agreement.

1.32 ***Plan Administrator*** The individual(s) or committee appointed by the Plan Sponsor identified in Section I of the Adoption Agreement to administer the Plan as provided herein. If no such appointment is made, the Chief Executive Officer of the Plan Sponsor identified in Section I of the Adoption Agreement (or the most senior officer of such Plan Sponsor if the Plan Sponsor does not have a Chief Executive Officer) shall serve as the Plan Administrator. In no event shall a Plan Administrator who is a Participant be permitted to make decisions regarding his or her benefits under this Plan; rather, such decisions shall be made by the other members of any committee appointed to act as the Plan Administrator or, if no such committee has been appointed, the most senior officer of the Plan Sponsor identified in Section I of the Adoption Agreement whose benefits are not at issue in the decision. If a Change in Control Event occurs with respect to the Plan Sponsor named in Section I of the Adoption Agreement, the existing Plan Administrator shall be removed, and a new Plan Administrator shall be appointed as provided in Section 8.9.

1.33 ***Plan Sponsor*** The corporation or business entity identified in Section I of the Adoption Agreement, including any successor to such corporation or business that assumes the obligations of such corporation or business. The term Plan Sponsor shall also include, where appropriate, any entity affiliated with the Plan Sponsor which adopts the Plan with the consent of the Plan Sponsor and is listed on Exhibit A attached to the Adoption Agreement. Only the Plan Sponsor identified in Section I of the Adoption Agreement shall have the power to amend this Plan, appoint the Plan Administrator, or exercise any of the powers described in Section 8.3 hereof.

1.34 ***Plan Termination Following a Change in Control Event*** Shall have the meaning set forth in Section 10.3.

1.35 ***Plan Termination Following a Corporate Dissolution*** Shall have the meaning set forth in Section 10.4.

1.36 ***Plan Termination in Connection with Termination of Certain Similar Arrangements*** Shall have the meaning set forth in Section 10.5.

1.37 ***Regular Salary*** The Participant's gross income paid by the Plan Sponsor during the Taxable Year as reportable on Internal Revenue Service Form W-2, including amounts excludible from gross income that are contributed by the Participant on a pre-tax basis to a salary reduction retirement or welfare plan (including amounts contributed to this Plan), but excluding Commissions, bonuses, Performance-Based Compensation, director fees, or any other irregular payments.

1.38 ***Sales Commissions*** Compensation earned by a Participant that meets the following requirements: (a) a substantial portion of the services provided by the Participant for the Compensation consists of the direct sale of a product or service to an unrelated customer; (b) the Compensation paid by the Plan Sponsor consists of either a portion of the purchase price for the product or service or an amount substantially all of which is calculated by reference to the volume of sales; and (c) payment of the Compensation is either contingent upon the Plan Sponsor or Affiliate receiving payment from an unrelated customer for the product or services or, if applied consistently to all similarly situated Participants, is contingent upon the closing of the sales transaction and such other requirements as may be specified by the Plan Sponsor or Affiliate before the closing of the sales transaction. For this purpose, a customer will be treated as an unrelated customer only if the customer is not related (within the meaning of Code § 409A) to either the Plan Sponsor, any Affiliate or the Participant. Notwithstanding the foregoing, Compensation involving a related customer will be treated will be treated as a Sales Commission provided that (x) the Compensation otherwise meets the requirements set forth in this section, (y) substantial sales from which Sales Commissions arise are made, or substantial services from which Sales Commissions arise are provided, to unrelated customers by the Plan Sponsor or an Affiliate and (z) the sales and service arrangement and the commission arrangement with respect to the related customers are bona fide, arise from the Plan Sponsor's or Affiliate's ordinary course of business and are substantially the same, both in terms and in practice, as the terms and practices applicable to unrelated customers (within the meaning of Code
§ 409A) to which (individually or in the aggregate) substantial sales are made or substantial services provided by the Plan Sponsor or an Affiliate.

1.39 ***Separation from Service*** A Participant shall have a Separation from Service under the circumstances described below.

(a) ***Employees*** A Participant who is a common law employee has a Separation from Service if the Participant voluntarily or involuntarily

terminates employment with the Plan Sponsor and all Affiliates, for any reason other than Disability or death. A termination of employment occurs if the facts and circumstances indicate that the Plan Sponsor and the Participant reasonably anticipate that no further services will be performed after a certain date or that the level of bona fide services the Participant will perform after such date (whether as an employee or an independent contractor) will decrease to no more than 20 percent of the average level of bona fide services performed (whether as an employee or an independent contractor) over the immediately preceding 36-month period (or the full period of services if the Participant has been providing services for less than 36 months). Notwithstanding the foregoing, the employment relationship is treated as continuing while the Participant is on military leave, sick leave or other bona fide leave of absence if the period of leave does not exceed 6 months, or if longer, so long as the Participant retains the right to reemployment with the Plan Sponsor or an Affiliate under an applicable statute or contract. When a leave of absence is due to any medically determinable physical or mental impairment that can be expected to result in death or to last for a period of at least 6 months and such impairment causes the Participant to be unable to perform the duties of his or her position or any substantially similar position, a 29-month period of absence shall be substituted for the 6-month period above.

(b) ***Independent Contractors*** A Participant who is an independent contractor shall have a Separation from Service upon the expiration of all contracts under which services are performed for the Plan Sponsor and all Affiliates if the expiration constitute a good faith and complete termination of the contractual relationship. An expiration does not constitute a good faith and complete termination of the contractual relationship if the Plan Sponsor or an Affiliate anticipates a renewal of a contractual relationship or the independent contractor becoming an employee. For this purpose, a Plan Sponsor is considered to anticipate the renewal of the contractual relationship if the Plan Sponsor or an Affiliate intends to contract again for the services provided under the expired contract and the independent contractor has not been eliminated as a possible provider of services under any such new contract. A Plan Sponsor is considered to intend to contract again for the services provided under an expired contract if doing so is conditioned only upon incurring a need for the services, the availability of funds or both.

(c) ***Directors*** Except as otherwise provided hereunder, a Participant who is a member of the Board shall be considered to be an

Independent Contractor for purposes of determining whether the Participant has had a Separation from Service.

(d) ***Dual Status*** If a Participant provides services to the Plan Sponsor and any Affiliates as an employee and as an independent contractor, the Participant must have a Separation from Service with the Plan Sponsor and all Affiliates both as an employee and an independent contractor to have a Separation from Service. Notwithstanding the foregoing, if a Participant provides services to the Plan Sponsor and any Affiliates as an employee and as a director, (1) the services provided as a director are not taken into account in determining whether the Participant has a Separation from Service as an employee under the Plan if the Participant participates in the Plan as an employee, provided the Participant does not participate in any other nonqualified deferred compensation plan as a director that is aggregated with the Plan under Code §409A, and (2) the services provided as an employee are not taken into account in determining whether the Participant has a Separation from Service as a director under the Plan if the Participant participates in the Plan as a director, provided the Participant does not participate in any other nonqualified deferred compensation plan as an employee that is aggregated with the Plan under Code §409A.

1.40 ***Specified Employee*** A key employee (as defined in Code § 416(i) without regard to paragraph (5) thereof) of a Plan Sponsor or its Affiliates, any stock of which is publicly traded on an established securities market or otherwise. A Participant is a key employee if the Participant meets the requirements of Code §416(i)(1)(A) (i), (ii) or (iii) (applied in accordance with the regulations thereunder and disregarding Code §416(i)(5)) at any time during the 12- month period ending each December 31. If a Participant is a key employee at any time during the 12-month period ending on such December 31, the Participant is treated as a Specified Employee for the 12-month period beginning on the following April 1. Whether any stock of a Plan Sponsor or its Affiliates is publicly traded on an established securities market or otherwise must be determined as of the date of the Participant's Separation from Service.

1.41 ***Spouse*** The individual to whom a Participant is married, or was married in the case of a deceased Participant who was married at the time of his or her death.

1.42 ***Taxable Year*** The 12-consecutive-month period beginning each January 1 and ending each December 31.

1.43 ***Trust*** The agreement, if any, between the Plan Sponsor and the Trustee under

which assets may be delivered by the Plan Sponsor to the Trustee to offset liabilities assumed by the Plan Sponsor under the Plan. Any assets held under the terms of the Trust shall be the exclusive property of the Plan Sponsor and shall be subject to the creditor claims of the Plan Sponsor with respect to whom such Trust has been established. Participants shall have no right, secured or unsecured, to any assets held under the terms of the Trust.

1.44 ***Trustee*** The institution named by the Plan Sponsor in the Trust agreement, if any, and any corporation which succeeds the Trustee by merger or by acquisition of assets or operation of law.

1.45 ***Unforeseeable Emergency*** A severe financial hardship to the Participant resulting from an illness or accident of the Participant or the Participant's Spouse, Beneficiary or dependent (as defined in Code §152 without regard to §§ 152(b)(1), (b)(2) and (d)(1)(B)), loss of the Participant's property due to casualty or other similar extraordinary and unforeseeable circumstances arising as a result of events beyond the control of the Participant.

1.46 ***Valuation Date*** The date on which Participant Accounts under the Plan are valued. The Valuation Date shall be each business day of the Taxable Year on which the New York Stock Exchange and, if a Trust has been established in connection with the Plan, the Trustee are open for business.

1.47 ***Without Good Cause*** A Participant's involuntary Separation from Service shall be without good cause if it occurs for reasons other than the Participant's commission of a crime involving dishonesty or moral turpitude (*e.g*., fraud, theft, embezzlement, deception, *etc.*); misconduct, including but not limited to insubordinate behavior, by the Participant in the performance of his or her job duties and responsibilities; any conduct by the Participant of a nature which reflects negatively upon the Plan Sponsor or any Affiliate or which would prevent the Participant from being able to adequately perform his or her job duties and responsibilities (*e.g.*, malicious, willful and wanton, or negligent conduct, *etc*.); the Participant's failure to adequately perform his/her duties and responsibilities as such duties and responsibilities are, from time to time in the Plan Sponsor's absolute discretion, determined; and the Participant's breach of any of the Plan Sponsor's established operating policies and procedures.

ARTICLE II

ELIGIBILITY AND PARTICIPATION

2.1 ***Eligibility*** The Plan Sponsor will designate in the Adoption Agreement those persons who shall be considered Eligible Individuals under the Plan.

2.2 ***Participation*** The Plan Administrator shall provide written notification to each

Eligible Individual of his or her eligibility to participate in the Plan.

2.3 ***Compensation Deferral Agreement*** In order to defer Compensation under the Plan for a given Taxable Year, an Eligible Individual must enter into a Compensation Deferral Agreement with the Plan Sponsor authorizing the deferral of all or part of the Participant's Compensation for such Taxable Year. The Compensation Deferral Agreement shall also specify the method of payment for benefits under the Plan and any Interim Distribution Date that shall apply with respect to amounts credited to the Participant's Account for such Taxable Year.

Upon receipt of a properly completed and executed Compensation Deferral Agreement, the Plan Administrator shall notify the Plan Sponsor to withhold that portion of the Participant's Compensation specified in the Agreement. In no event will the Participant be permitted to defer more or less than the amount(s) specified by the Plan Sponsor in the Adoption Agreement.

The Compensation Deferral Agreement shall remain in effect for the duration of the Taxable Year to which it relates.

Except as provided below, a Compensation Deferral Agreement must be completed and returned to the Plan Sponsor prior to the first day of the Taxable Year in which services are performed for the Compensation deferred and shall be irrevocable except as otherwise provided hereunder.

(a) ***Initial Eligibility*** If the Plan is established on a date other than the first day of a Taxable Year, or if an individual becomes an Eligible Individual on a date other than the first day of a Taxable Year and such individual has not at any time been eligible to participate in the Plan or any Aggregated Plan, the Compensation Deferral Agreement may be completed and returned to the Plan Sponsor within 30 days after the Effective Date or within 30 days after the Eligible Individual's initial eligibility date. In no event shall a Participant be permitted to defer Compensation with respect to services performed before the date on which the Compensation Deferral Agreement is signed by the Participant and accepted by the Plan Administrator.

(b) ***Former Participants With No Account Balance*** If an Eligible Individual who is a former Participant has been paid all amounts deferred under the Plan and any Aggregated Plan and, on and before the date of the last payment, is not eligible to continue (or elect to continue) to participate in the Plan or any Aggregated Plan for periods after the last payment (other than through an election of a different time and form of payment with respect to the amounts paid), the Eligible Individual may be treated as initially eligible to participate in the Plan pursuant to subsection (a) above as of the first date following such last payment that the Eligible Individual again becomes eligible

to participate in the Plan.

(c) ***Participants Ineligible for Two Years*** If an Eligible Individual who is a Participant or former Participant ceases being eligible to participate in the Plan and any Aggregated Plan, regardless of whether all amounts deferred under such plans have been paid, and subsequently becomes eligible to participate in the Plan again, the Eligible Individual may be treated as being initially eligible to participate in the Plan pursuant to subsection (a) above if the Eligible Individual has not been eligible to participate in the Plan or an Aggregated Plan (other than through the accrual of earnings) at any time during the twenty-four (24) month period ending on the date the Eligible Individual again becomes eligible to participate in the Plan.

(d) ***Performance-Based Compensation*** A Compensation Deferral Agreement with respect to Performance-Based Compensation may be completed and returned to the Plan Sponsor no later than the date that is six months before the end of the performance period to which the Performance-Based Compensation relates, provided the Participant performs services continuously from the later of the beginning of the performance period or the date upon which the performance criteria are established through the date upon which the Participant makes an initial deferral election, and further provided that in no event may an election to defer Performance-Based Compensation be made with respect to Compensation that has become readily ascertainable.

(e) ***Sales Commissions*** Compensation Deferral Agreements made with respect to Sales Commissions must be completed and returned to the Plan Sponsor prior to the first day of the Taxable Year in which the customer remits payment to the Plan Sponsor or Affiliate for which the Sales Commission is paid or, if applied consistently to all similarly situated Participants, the Taxable Year in which the sale occurs.

(f) ***Investment Commissions*** Compensation Deferral Agreements made with respect to Investment Commissions must be completed and returned to the Plan Sponsor prior to the first day of the Taxable Year in which falls the date that is twelve (12) months before the date as of which the overall value of the assets or asset accounts is determined for purposes of calculating the Investment Commission.

2.4 ***Subsequent Changes in Time and Form of Payment*** A Participant may elect to change the time or form of payment of amounts distributable upon a Separation from Service or elect to change the time of payment of amounts distributable upon an Interim Distribution Date, provided, however, that any such election shall be effective only if:

(a) the election does not accelerate the time or schedule of any payment

within the meaning of Code § 409A;

(b) the election does not take effect until at least twelve 12 months after the date on which the election is made;

(c) the first payment with respect to which such election is made is deferred for a period of 5 years from the date such payment would otherwise have been made; and

(d) for a change to a payment made upon an Interim Distribution Date, such election is made at least 12 months before such Interim Distribution Date.

The Plan Administrator shall have sole and absolute discretion to decide whether such a request shall be approved but may approve no more than one such request for any Participant with respect to any Compensation Deferral or Matching or Discretionary Credit.

2.5 ***Matching Credits and Discretionary Credits*** The Plan Sponsor may adjust the Account of a Participant with matching or discretionary credits. The amount of the Discretionary Credits and/or Matching Credits and the formula(s) for allocating such credits will be selected by the Plan Sponsor in the Adoption Agreement.

2.6 ***Establishing a Reserve for Plan Liabilities*** The Plan Sponsor may, but is not required to, establish one or more Trusts to which the Plan Sponsor may transfer such assets as the Plan Sponsor determines in its sole discretion to assist in meeting its obligations under the Plan. Any such assets shall be the property of the Plan Sponsor and remain subject to the claims of the Plan Sponsor's creditors, to the extent provided under any Trust established with respect to such Plan Sponsor. The Trustee shall have no duty to determine whether the amounts forwarded by the Plan Sponsor are the correct amount or that they have been transmitted in a timely manner.

ARTICLE III

PARTICIPANT ACCOUNTS AND REPORTS

3.1 ***Establishment of Accounts*** The Plan Administrator shall establish and maintain individual recordkeeping accounts and subaccounts, as applicable, on behalf of each Participant for purposes of determining each Participant's benefits under the Plan. A Participant's Account does not represent the Participant's ownership of, or any ownership interest in, any assets which may be set aside to satisfy the Plan Sponsor's obligations under the Plan.

3.2 ***Account Maintenance*** As of each Valuation Date, the Plan Administrator shall credit each Participant's Account with the following:

(a) An amount equal to any Compensation Deferrals made by the Participant since the last Valuation Date;

(b) An amount equal to any Matching Credits or Discretionary Credits, and any forfeitures, if applicable, since the last Valuation Date; and

(c) An amount equal to deemed Investment Credits under Section 3.3 below since the last Valuation Date.

As of each Valuation Date, the Plan Administrator shall debit each Participant's Account with the following:

(d) An amount equal to any distributions from the Plan to the Participant or Beneficiary since the last Valuation Date; and

(e) An amount equal to deemed Investment Debits under Section 3.3 below since the last Valuation Date; and

(f) An amount equal to any forfeitures incurred by the Participant since the last Valuation Date.

3.3 ***Investment Credits and Debits*** The Accounts of Participants shall be adjusted for Investment Credits and Debits in accordance with this Section 3.3.

Participants shall have the right to specify one or more Benefit Benchmarks in which their Compensation Deferrals, Matching Credits and Discretionary Credits shall be deemed to be invested. The Benefit Benchmarks shall be utilized solely for purposes of adjusting their Accounts in accordance with procedures adopted by the Plan Administrator. The Plan Administrator shall provide the Participant with a list of the available Benefit Benchmarks. From time to time, in the sole discretion of the Plan Administrator, the Benefit Benchmarks available within the Plan may be revised. All Benefit Benchmark selections must be denominated in whole percentages unless the Plan Administrator determines that lower increments are acceptable. A Participant may make changes in the manner in which future Compensation Deferrals, Matching Credits and/or Discretionary Credits are deemed to be invested among the various Benefit Benchmarks within the Plan in accordance with procedures established by the Plan Administrator. A Participant may re-direct the manner in which earlier Compensation Deferrals, Matching Credits and/or Discretionary Credits, as well as any appreciation (or depreciation) to-date, are deemed to be invested among the Benefit Benchmarks available in the Plan in accordance with procedures established by the Plan Administrator.

As of each Valuation Date, the Plan Administrator shall adjust the Account of each Participant for interest, earnings or appreciation (less losses and

depreciation) with respect to the then balance of the Participant's Account equal to the actual results of the Participant's deemed Benefit Benchmark elections.

All notional acquisitions and dispositions of Benefit Benchmarks which occur within a Participant's Account, pursuant to the terms of the Plan, shall be deemed to occur at such times as the Plan Administrator shall determine to be administratively feasible in its sole discretion and the Participant's Account shall be adjusted accordingly. Accordingly, if a distribution or reallocation must occur pursuant to the terms of the Plan and all or some portion of the Account must be valued in connection with such distribution or reallocation (to reflect Investment Credits and Debits), the Plan Administrator may in its sole discretion, unless otherwise provided for in the Plan, select a date or dates which shall be used for valuation purposes.

Notwithstanding anything to the contrary, any Investment Credits or Debits made to any Participant's Account following a Plan Termination or a Change in Control Event shall be made in a manner no less favorable to Participants than the practices and procedures employed under the Plan, or as otherwise in effect, as of the date of the Plan Termination or the Change in Control Event.

Notwithstanding the Participant's deemed Benefit Benchmark elections under the Plan, the Plan Sponsor shall be under no obligation to actually invest any amounts in such manner, or in any manner, and such Benefit Benchmark elections shall be used solely to determine the amounts by which the Participant's Account shall be adjusted under this Article III.

3.4 ***Participant Statements*** The Plan Administrator shall provide each Participant with a statement showing the credits and debits from his or her Account during the period from the last statement date. Such statement shall be provided to Participants as soon as administratively feasible following the end of each Taxable Year and on such other dates as agreed to by the Plan Sponsor and the party maintaining Participant records.

ARTICLE IV

WITHHOLDING OF TAXES

4.1 ***Withholding from Compensation*** For any Taxable Year in which Compensation Deferrals, Matching Credits and/or Discretionary Credits are made to or vested within the Plan (as applicable), the Plan Sponsor shall withhold the Participant's share of income, FICA and other employment taxes from the portion of the Participant's Compensation not deferred. If deemed appropriate by the Plan Sponsor, all or any portion of a benefit under the Plan may be distributed in certain instances where necessary to facilitate compliance with applicable withholding requirements to the extent such

distribution would not result in adverse tax consequences under Code § 409A. The amount of any such distribution shall not exceed the amount necessary to comply with applicable withholding requirements.

4.2 ***Withholding from Benefit Distributions*** The Plan Sponsor (or the Trustee of the Trust, as applicable) shall withhold from any payments made to a Participant under this Plan all federal, state and local income, employment and other taxes required to be withheld by the Plan Sponsor, in connection with such payments, in amounts and in a manner to be determined in the sole discretion of the Plan Sponsor.

ARTICLE V

VESTING

5.1 ***Vesting*** A Participant shall be immediately vested in (*i.e.*, shall have a non-forfeitable right to) all Compensation Deferrals credited to his or her Account, including any Investment Credits or Debits associated therewith. The Plan Sponsor shall specify in the Adoption Agreement the vesting provisions applicable to any Discretionary Credits or Matching Credits allocated to the Accounts of Participants. Upon a Distributable Event, except as otherwise provided under the Plan, any amount of the benefit payment credited to the Account of the Participant that is not vested shall be forfeited. Forfeitures incurred by a Participant shall reduce the amounts credited to a Participant's Account, but shall not be reallocated to the Accounts of other Participants unless otherwise specified in the Adoption Agreement. A distribution for a Domestic Relations Order Payment under Section 6.6 shall be made from the Account of the Participant only to the extent it is vested.

ARTICLE VI

PAYMENTS

6.1 ***Benefits*** Except as otherwise provided under the Plan, a Participant's or Beneficiary's benefit payable under the Plan shall be the value of the Participant's vested Account at the time a Distributable Event occurs with respect to such Participant or Beneficiary. In no event, will a Participant's right to a benefit under this Plan give such Participant a secured right or claim on any assets set aside by the Plan Sponsor to meet its obligations under the Plan. All payments from the Plan shall be subject to applicable tax withholding and shall commence (or be fully paid, in the event a lump sum form of distribution was selected) no later than ninety (90) days after the occurrence of the Distributable Event, except as otherwise provided herein.

6.2 ***Separation from Service Payment*** In the event of a Participant's Separation from Service, the Participant's vested Account shall be paid in the form of a

cash lump sum or, if elected by the Participant, in annual cash payments (over a period of five (5), ten (10), or fifteen (15) years). For purposes of Code § 409A, installment payments shall be treated as a single payment. If

applicable, the initial installment shall be based on the value of the Participant's vested Account, measured on the date of his or her Separation from Service, and shall be equal to 1/n (where 'n' is equal to the total number of annual benefit payments not yet distributed). Subsequent installment payments shall be computed in a consistent fashion, with the measurement date being the anniversary of the original measurement date. Election of the form of the Separation from Service Payment must be provided to the Plan Administrator at the time the Participant first enters into a Compensation Deferral Agreement.

Notwithstanding a Participant's election regarding the form of the Separation from Service Payment, the Plan Sponsor shall make a De Minimis Distribution, as elected by the Plan Sponsor in the Adoption Agreement, and pay the Participant's or Beneficiary's benefit in a single lump-sum payment.

Notwithstanding the foregoing, a distribution resulting from a Separation from Service by a Participant who is a Specified Employee on the date of Separation from Service shall be made within the ninety (90) days following the date that is 6 months after the Separation from Service or, if earlier, within the ninety (90) days following the death of the Specified Employee. The first payment made following the 6-month period described in the preceding sentence shall include all payments that otherwise would have been made after Separation from Service but for the delay required by this paragraph.

6.3 ***Conflict of Interest Divestiture*** The Plan Administrator shall pay to a Participant all or a portion of the Participant's vested Account to the extent

(a) necessary for any Participant who is Federal officer or employee in the executive branch to comply with an ethics agreement with the Federal government; or

(b) reasonably necessary to avoid the violation of an applicable Federal, state or local ethics or conflicts of interest law (including when such payment is reasonably necessary to permit the Participant to participate in activities in the normal course of his or her position in which the Participant would not otherwise be able to participate under an applicable rule).

The Plan Administrator shall have complete discretion to determine whether the Participant's circumstances meet the requirements for a Conflict of Interest Divestiture and the amount of any distribution. A distribution under this Section shall be made at such time and in such form as shall be necessary to comply with an applicable ethics agreement or to avoid the violation of an applicable ethics or conflict of interest law.

6.4 ***Death Benefit*** In the event of the Participant's death, whether before or after the Participant has otherwise incurred a Distributable Event or commenced

receiving payments from the Plan, the Participant's Beneficiary shall receive the balance of the Participant's vested Account in a single lump-sum cash payment.

6.5 ***Disability Benefit*** If the occurrence of a Disability is a Distributable Event, as elected by the Plan Sponsor in the Adoption Agreement, the Plan Administrator shall pay to a Participant the balance of the Participant's vested Account in a single lump-sum cash payment in the event the Participant suffers a Disability (whether before or after the Participant has otherwise incurred a Distributable Event or commenced receiving payments from the Plan). The Plan Administrator shall have complete discretion to determine whether the circumstances of the Participant constitute a Disability and the time at which such Disability occurs consistent with the terms of the Plan.

6.6 ***Domestic Relations Order Payment*** If it is necessary to satisfy a Domestic Relations Order, whether before or after the Participant has otherwise incurred a Distributable Event or commenced receiving payments from the Plan, the Plan Administrator shall pay to the Spouse, former Spouse, child, or other dependent of the Participant, as specified in the Domestic Relations Order, the amount from the Participant's vested Account required to fulfill the Domestic Relations Order. The Plan Administrator shall have complete discretion to determine whether the circumstances of the Participant meet the requirements for a Domestic Relations Order Payment under this Section. If the request for a payment due to a Domestic Relations Order is approved, the distribution shall be made at such time and in such form as shall be necessary to satisfy the Domestic Relations Order.

6.7 ***Unforeseeable Emergency Distribution*** If a Participant has an Unforeseeable Emergency, as defined herein, the Plan Administrator may pay to the Participant that portion of his or her vested Account which the Plan Administrator determines is reasonably necessary to satisfy the emergency. The amounts distributed to the Participant as a result of an Unforeseeable Emergency may not exceed the amounts reasonably necessary to satisfy such emergency plus amounts necessary to pay taxes reasonably anticipated as a result of the distribution, after taking into account the extent to which such hardship is or may be relieved through reimbursement or compensation by insurance or otherwise, by liquidation of the Participant's assets (to the extent the liquidation of such assets would not itself cause severe financial hardship) or by cancellation of Compensation Deferrals pursuant to Section 7.1. A Participant requesting an Unforeseeable Emergency Distribution shall apply for the payment in writing on a form approved by the Plan Administrator and shall provide such additional information as the Plan Administrator may require.

The Plan Administrator shall have complete discretion to determine whether the financial hardship of the Participant constitutes an Unforeseeable Emergency under the Plan. If, subject to the sole discretion of the Plan Administrator, the request for a

withdrawal is approved, the distribution shall be made within ninety (90) days after the date of approval by the Plan Administrator.

6.8 ***Election to Receive Interim Distributions*** A Participant may make an election, at the time he or she files a Compensation Deferral Agreement for a given Taxable Year, to have those Compensation Deferrals to which the agreement relates paid to him or her at an Interim Distribution Date designated by the Participant. Such Compensation Deferrals, adjusted to reflect Investment Credits and Debits, shall be payable in a single cash lump sum payment within ninety (90) days after an applicable Interim Distribution Date. The Participant's selection of an Interim Distribution Date is irrevocable, except as provided in Section 2.4, and must comply with the definition of Interim Distribution Date under Section 1.25. Notwithstanding a Participant's advance election to designate Interim Distribution Dates, the amounts which would otherwise be subject to such Interim Distribution Dates shall be distributable upon a Distributable Event pursuant to the Plan, if such Distributable Event occurs prior to an applicable Interim Distribution Date. Matching Credits and Discretionary Credits shall not be payable at an Interim Distribution Date.

6.9 ***Payment upon Income Inclusion Under § 409A*** If the Plan Administrator determines at any time that the Plan fails to meet the requirements of Code § 409A with respect to a Participant, the Plan Administrator shall distribute to the Participant the amount from the Participant's vested Account that is required to be included in income as a result of such failure in a single lump- sum payment.

6.10 ***Permissible Delay in Payments*** A payment may be delayed beyond the distribution date otherwise provided for under the Plan in one or more of the circumstances below, if the Plan Sponsor so elects in the Adoption Agreement.

(a) ***Payments Subject to Code § 162(m)*** A payment, including any portion thereof, will be delayed when the Plan Sponsor reasonably anticipates that its deduction with respect to such payment otherwise would be eliminated by application of Code § 162(m), provided that the payment is made either during the Participant's first Taxable Year in which the Plan Sponsor reasonably anticipates (or should reasonably anticipate) that if the payment is made during such year the deduction of such payment will not be barred by Code § 162(m) or during the period beginning with the date of the Participant's Separation from Service and ending on the later of the last day of the Plan Sponsor's taxable year in which the Participant has a Separation from Service or the 15th day of the third month following

the Participant's Separation from Service, and provided further that when any scheduled payment to a Participant in the Plan Sponsor's taxable year is delayed in accordance with this

Section, all scheduled payments to such Participant that could be delayed in accordance with this Section are also delayed. When a payment is delayed to a date on or after the Participant's Separation from Service, the payment shall be treated as a payment upon a Separation from Service and, in the case of a Specified Employee, the date that is 6 months after a Participant's Separation from Service is substituted for any reference to a Participant's Separation from Service in the foregoing provisions of this Section.

(b) ***Violation of Federal Securities Laws or Other Applicable Law*** A payment will be delayed when the Plan Sponsor reasonably anticipates that the making of the payment will violate Federal securities laws or other applicable law, provided that the payment will be made at the earliest date at which the Plan Sponsor reasonably anticipates that the making of the payment will not cause such violation. The making of a payment that would cause inclusion in gross income or the application of any penalty provision or other provision of the Code is not treated as a violation of applicable law.

6.11 ***Beneficiary Designation*** A Participant shall have the right to designate a Beneficiary and to amend or revoke such designation at any time in writing. Such designation, amendment or revocation shall be effective upon receipt by the Plan Administrator. If the Beneficiary is a minor or incompetent, benefits may be paid to a legal guardian, trustee, or other proper representative of the Beneficiary, and such payment shall completely discharge the Plan Sponsor and the Plan of all further obligations hereunder.

If no Beneficiary designation is made, or if the Beneficiary designation is held invalid, or if no Beneficiary survives the Participant and benefits are determined to be payable following the Participant's death, the Plan Administrator shall direct that payment of benefits be made to the person or persons in the first of the below categories in which there is a survivor. The categories of successor beneficiaries, in order, are as follows:

(a) Participant's Spouse;

(b) Participant's Domestic Partner, if elected by the Plan Sponsor in the Adoption Agreement:

(c) Participant's descendants, *per stirpes* (eligible descendants shall be determined by the intestacy laws of the state in which the decedent was domiciled);

(d) Participant's parents;
(e) Participant's brothers and sisters (including step brothers and step sisters); and

(f) Participant's estate.

6.12 ***Claims Procedure*** All claims for benefits under the Plan, and all questions regarding the operation of the Plan, shall be submitted to the Plan Administrator in writing. The Plan Administrator has complete discretion and authority to interpret and construe any provision of the Plan, and its decisions regarding claims for benefits hereunder are final and binding.

(a) ***Presentation of Claim***. Any Participant, Beneficiary or person claiming benefits under the Plan (such Participant, Beneficiary or other person being referred to below as a "Claimant") may deliver to the Plan Administrator a written claim for a determination with respect to benefits distributable to such Claimant from the Plan. The claim must state with particularity the determination desired by the Claimant.

Any claim by a Participant that a payment made under the Plan is less than the amount to which the Participant is entitled must be made in writing pursuant to the foregoing provisions of this Section within 180 days after the date of such payment. Notwithstanding any other provision of the Plan, including the provisions of Section 5.1, a Participant shall forfeit all rights to any amounts claimed if the Participant fails to make claim as provided in the preceding sentence.

(b) ***Notification of Decision*** The Plan Administrator shall consider a Claimant's claim within a reasonable time, and shall notify the Claimant in writing:

(i) that the Claimant's requested determination has been made, and that the claim has been allowed in full; or

(ii) that the Plan Administrator has reached a conclusion contrary, in whole or in part, to the Claimant's requested determination, and such notice must set forth in a manner calculated to be understood by the Claimant:

(1) the specific reason(s) for the denial of the claim, or any part of it;

(2) specific reference(s) to pertinent provisions of the Plan upon which such denial was based;

(3) a description of any additional material or

information necessary for the Claimant to perfect the claim, and an explanation of why such material or information is necessary;

(4) a description of the claim review procedure set forth in Section 6.12(c) below, including information regarding any applicable time limits and a statement regarding the Claimant's right to bring an action under ERISA §502(a) following an adverse determination on review; and

(5) if the decision involved the Disability of the Participant, information regarding whether an internal rule or procedure was relied upon in making its decision and that the Claimant can request a copy of such rule or procedure, free of charge, upon request.

The Plan Administrator will notify the Claimant of an adverse decision within ninety (90) days after the date the claim was received, unless the Plan Administrator determines there are special circumstances that require an extension of time in which to make a decision. If an extension of time is needed, the Plan Administrator shall notify the Claimant of the extension before the expiration of the original 90-day period. The notice will include a description of the special circumstances requiring an extension of time and an estimate of the date it expects a decision to be made. The extension shall not exceed an additional 90-day period.

If the adverse decision relates to a claim involving the Disability of the Participant, the Plan Administrator will notify the Claimant of an adverse decision within forty-five (45) days after the date the claim was received, unless the Plan Administrator determines that matters beyond its control require an extension of time in which to make a decision. If an extension of time is needed, the Plan Administrator shall notify the Claimant of the extension before the expiration of the original 45-day period. The notice will include a description of the circumstances necessitating the extension and an estimate of the date it expects a decision to be made. The extension shall not exceed an additional 30-day period unless, within the 30-day period the Plan Administrator again determines that more time is needed due to matters beyond its control, in which case notice of the need for not more than an additional thirty (30) days is provided to the Claimant before the first 30-day period expires. The notice will include a description of the circumstances requiring the extension and an estimate of the date it expects a decision to be made. Any extension notice will include information regarding the standards on which a determination of Disability will be made, the outstanding

issues which prevent a decision from

being made, and any additional information which is needed in order to reach a decision. The Claimant will have forty-five (45) days to supply any additional information.

If the Plan Administrator notifies the Claimant of the need for an extension of time to make a decision regarding his or her claim in accordance with this Section 6.12(b), and the extension is needed due to the Claimant's failure to provide information necessary to decide the claim, the period of time in which the Plan Administrator must make a decision does not include the time between the date the notice of the extension was sent to the Claimant and the date the Claimant responds to the request for additional information.

(c) ***Review of a Denied Claim*** Within sixty (60) days after receiving a notice from the Plan Administrator that a claim has been denied, in whole or in part, a Claimant (or the Claimant's duly authorized representative) may file with the Plan Administrator a written request for a review of the denial of the claim. During the 60-day review period, the Claimant (or the Claimant's duly authorized representative):

(i) may review relevant documents;

(ii) may submit written comments or other documents relating to the claim;

(iii) may request access to and copies of all relevant documents, free of charge;

(iv) may request a hearing, which the Plan Administrator, in its sole discretion, may grant.

The Plan Administrator will consider all documents and other information submitted by the Claimant in reviewing its previous decision, including documents not available to or considered by it during its initial determination.

If the appeal relates to a determination of the Plan Administrator involving the Disability of the Participant, the Claimant will have one-hundred-eighty (180) days following receipt of a denial to file a written request for review. In such event, no deference shall be given to the initial benefit determination, and the review shall be conducted by an appropriate fiduciary who is someone other than the individual who made the initial determination or a subordinate of such individual. If the initial determination was based in whole or in part on a medical judgment, the reviewer shall consult with an appropriately trained and experienced health care professional, and shall disclose the identity of

any experts who provided advice with

regard to the initial decision. The health care professional whose advice is sought during the appeal process will not be an individual who was consulted during the initial determination, nor a subordinate of such an individual.

(d) ***Decision on Review*** The Plan Administrator shall render its decision on review promptly, and not later than sixty (60) days after the filing of a ***written*** request for review of the denial, unless a hearing is held or other special circumstances require additional time, in which case the Plan Administrator's decision must be rendered within one-hundred-twenty (120) days after such date. If an extension of time is needed, the Plan Administrator shall notify the Claimant of the extension before the expiration of the original 60-day period. The notice will include a description of the circumstances requiring the extension and an estimate of the date it expects a decision to be made. Such decision must be written in a manner calculated to be understood by the Claimant, and if the decision on review is adverse it must contain:

(i) specific reasons for the decision;

(ii) specific reference(s) to the pertinent Plan provisions upon which the decision was based;

(iii) a statement that the Claimant may receive, upon request and free of charge, access to and copies of relevant documents and information;

(iv) a statement describing any voluntary appeal procedures under the Plan and the Claimant's right to bring an action under ERISA §502(a);

(v) if the decision involved the Disability of the Participant, information regarding whether an internal rule or procedure was relied upon in making its decision and that the Claimant can request a copy of such rule or procedure, free of charge, upon request;

(vi) if the decision involved the Disability of the Participant, a statement that the Claimant and the Plan may have other voluntary alternative dispute resolution options, such as mediation, and that the Claimant may find out what options are available by contacting the local U.S. Department of Labor Office and the state insurance regulatory agency; and

(vii) such other matters as the Plan Administrator deems relevant.

If the appeal involves the Disability of the Participant, the decision of the Plan Administrator will be made within forty-five (45) days after the filing of the written request for review, unless special circumstances require additional time, in which case the Plan Administrator's decision will be made within ninety (90) days after the date the request was filed. If an extension of time is needed, the Plan Administrator shall notify the Claimant of the extension before the expiration of the original 45-day period. The notice will include a description of the circumstances requiring the extension and an estimate of the date it expects a decision to be made.

If the Plan Administrator notifies the Claimant of the need for an extension of time to make a decision regarding his or her appeal in accordance with this Section 6.12(d), and the extension is needed due to the Claimant's failure to provide information necessary to decide the appeal, the period of time in which the Plan Administrator must make a decision does not include the time between the date the notice of the extension was sent to the Claimant and the date the Claimant responds to the request for additional information.

ARTICLE VII

CANCELLATION OF DEFERRALS

7.1 ***Unforeseeable Emergency*** If a Participant has an Unforeseeable Emergency, as defined herein, the Plan Administrator may cancel all future Compensation Deferrals pertaining to Compensation not yet earned and required to be made pursuant to the Participant's current Compensation Deferral Agreement if reasonably necessary to satisfy the Participant's financial hardship subject to the standards and requirements for an Unforeseeable Emergency Distribution set forth in Section 6.7. If a Participant receives a hardship distribution from a qualified plan of the Plan Sponsor pursuant to Code § 401(k)(2)(B)(IV), the Plan Administrator shall cancel all future Compensation Deferrals pertaining to Compensation not yet earned and required to be made pursuant to the Participant's current Compensation Deferral Agreement, and the Participant will be prohibited from making Compensation Deferrals under the Plan for at least six (6) months after receipt of the hardship distribution or such longer period as may be prescribed by the qualified plan. The Participant's eligibility for Employer Matching Credits and/or Employer Discretionary Credits shall be similarly canceled, and the Participant shall be eligible to defer Compensation again at a later time only as provided under Article II.

ARTICLE VIII

PLAN ADMINISTRATION

8.1 ***Appointment*** The Plan Administrator shall serve at the pleasure of the Plan Sponsor, who shall have the right to remove the Plan Administrator at any time upon thirty (30) days' written notice. The Plan Administrator shall have the right to resign upon thirty (30) days' written notice to the Plan Sponsor.

8.2 ***Duties of Plan Administrator*** The Plan Administrator shall be responsible to perform all administrative functions of the Plan. These duties include but are not limited to:

(a) Communicating with Participants in connection with their rights and benefits under the Plan;

(b) Reviewing Benefit Benchmark elections received from Participants;

(c) Arranging for the payment of taxes (including income tax withholding), expenses and benefit payments to Participants under the Plan;

(d) Filing any returns and reports due with respect to the Plan;

(e) Interpreting and construing Plan provisions and settling claims for Plan benefits; and

(f) Serving as the Plan's designated representative for the service of notices, reports, claims or legal process.

8.3 ***Plan Sponsor*** The Plan Sponsor has sole responsibility for the establishment and maintenance of the Plan. The Plan Sponsor through its Board shall have the power and authority to appoint the Plan Administrator, Trustee and any other professionals as may be required for the administration of the Plan. The Plan Sponsor shall also have the right to remove any individual or party appointed to perform administrative, investment, fiduciary or other functions under the Plan. The Plan Sponsor may delegate any of its powers to the Plan Administrator, Board member or a committee of the Board.

8.4 ***Administrative Fees and Expenses*** All reasonable costs, charges and expenses incurred by the Plan Administrator or the Trustee in connection with the administration of the Plan or the Trust shall be paid by the Plan Sponsor. If not so paid, such costs, charges and expenses shall be charged to the Trust, if any, established in connection with the Plan. The Trustee shall be specifically authorized to charge its fees and expenses directly to the Trust. If the Trust has insufficient liquid assets to cover the applicable fees, the Trustee shall have the right to liquidate assets held in the Trust to pay any fees or expenses

due. Notwithstanding the foregoing, no Compensation

other than reimbursement for expenses shall be paid to a Plan Administrator who is an employee of the Plan Sponsor.

8.5 ***Plan Administration and Interpretation*** The Plan Administrator shall have complete discretionary control and authority to determine the rights and benefits and all claims, demands and actions arising out of the provisions of the Plan or any Participant, Beneficiary, deceased Participant, or other person having or claiming to have any interest under the Plan. The Plan Administrator shall have complete discretion to interpret the Plan and to decide all matters under the Plan. Such interpretation and decision shall be final, conclusive, and binding on all Participants and any person claiming under or through any Participant. Any individual serving as Plan Administrator who is a Participant will not vote or act on any matter relating solely to himself or herself. When making a determination or calculation, the Plan Administrator shall be entitled to rely on information furnished by a Participant, a Beneficiary, the Plan Sponsor, or other party. The Plan Administrator shall have the responsibility for complying with any reporting and disclosure requirements of ERISA.

8.6 ***Powers, Duties, Procedures*** The Plan Administrator shall have such powers and duties, may adopt such rules, may act in accordance with such procedures, may appoint such officers or agents, may delegate such powers and duties, may receive such reimbursement and compensation, and shall follow such claims and appeal procedures with respect to the Plan as it may establish, each consistently with the terms of the Plan.

8.7 ***Information*** To enable the Plan Administrator to perform its functions, the Plan Sponsor shall supply full and timely information to the Plan Administrator on all matters relating to the Compensation of Participants, their employment, retirement, death, Separation from Service, and such other pertinent facts as the Plan Administrator may require.

8.8 ***Indemnification of Plan Administrator*** The Plan Sponsor agrees to indemnify and to defend to the fullest extent permitted by law any officer(s), employee(s) or Board members who serve as Plan Administrator (including any such individual who formerly served as Plan Administrator) against all liabilities, damages, costs and expenses (including reasonable attorneys' fees and amounts paid in settlement of any claims approved by the Plan Sponsor) occasioned by any act or omission to act in connection with the Plan, if such act or omission is in good faith.

8.9 ***Plan Administration Following a Change in Control Event*** Notwithstanding anything to the contrary in this Article VIII or elsewhere in the Plan or Trust, upon a Change in Control Event with respect to the Plan Sponsor identified in Section I of the Adoption Agreement the individual serving as Chief Executive Officer of such Plan Sponsor immediately prior to such Change in Control

Event who is also a Participant in the Plan, or if the Plan Sponsor has no Chief Executive Officer who is also a Participant in the Plan, the Plan Sponsor's most senior officer who is also a Participant in the Plan, shall have the right to appoint an individual, third party or committee to serve as Plan Administrator. Such appointment shall be made in writing and copies thereof shall be delivered to the Board, to the existing Plan Administrator, to the Trustee, and to all Plan Participants. The Trustee and all other service providers shall be entitled to rely fully on instructions received from the successor Plan Administrator and shall be indemnified to the fullest extent permitted by law for acting in accordance with the proper instructions of the successor Plan Administrator.

ARTICLE IX

TRUST FUND

9.1 ***Trust*** The Plan Sponsor may establish a Trust for the purpose of accumulating assets which may, but need not be used, by the Plan Sponsor to satisfy some or all of its financial obligations to provide benefits to Participants under this Plan. Any trust created under this Section 9.1 shall be domiciled in the United States of America, and no assets of the Plan shall be held or transferred outside the United States. All assets held in the Trust shall remain the exclusive property of the Plan Sponsor and shall be available to pay creditor claims of the Plan Sponsor in the event of insolvency, to the extent provided under any Trust established with respect to such Plan Sponsor. The assets held in Trust shall be administered in accordance with the terms of the separate Trust Agreement between the Trustee and the Plan Sponsor.

9.2 ***Unfunded Plan*** In no event will the assets accumulated by the Plan Sponsor in the Trust be construed as creating a funded Plan under the applicable provisions of ERISA or the Code, or under the provisions of any other applicable statute or regulation. Any funds set aside by the Plan Sponsor in Trust shall be administered in accordance with the terms of the Trust.

9.3 ***Assignment and Alienation*** No Participant or Beneficiary of a deceased Participant shall have the right to anticipate, assign, transfer, sell, mortgage, pledge or hypothecate any benefit under this Plan. The Plan Administrator shall not recognize any attempt by a third party to attach, garnish or levy upon any benefit under the Plan except as may be required by law.

ARTICLE X

AMENDMENT AND PLAN TERMINATION

10.1 ***Amendment*** The Plan Sponsor identified in Section I of the Adoption Agreement shall have the right to amend this Plan without the consent of any

Participant or Beneficiary hereunder, provided that no such amendment shall have the effect of reducing any of the vested benefits to which a Participant

or Beneficiary has accrued a right as of the effective date of the amendment. Notwithstanding the foregoing, the Plan Sponsor identified in Section I of the Adoption Agreement shall have the right to amend this Plan in any manner whatsoever without the consent of any Participant or Beneficiary to comply with the requirements of Code §409A and any binding guidance thereunder to avoid adverse tax consequences even if such amendment has the affect of reducing a vested benefit or existing right of a Participant or Beneficiary hereunder.

10.2 ***Plan Termination*** The Plan Sponsor identified in Section I of the Adoption Agreement may terminate or discontinue the Plan in whole or in part at any time. No further Discretionary Credits or Matching Credits shall be made following Plan Termination, and no further Compensation Deferrals shall be permitted after the Taxable Year in which the Plan Termination occurs, except that the Plan Sponsor shall be responsible to pay any benefit attributable to vested amounts credited to the Participant's Account as of the effective date of termination (following any adjustments to such Accounts in accordance with Article III hereof). If the Plan is terminated in accordance with this Section 10.2, the Plan Administrator shall make distribution of the Participant's vested benefit upon the occurrence of a Distributable Event with respect to a Participant. A Participant's vested benefit shall be adjusted to reflect Investment Credits and Debits for all Valuation Dates between Plan Termination and the occurrence of a Participant's Distributable Event.

10.3 ***Plan Termination Following a Change in Control Event*** If, as elected by the Plan Sponsor in the Adoption Agreement:

(a) a Change in Control Event constitutes a Plan Termination; or

(b) within the 30 days preceding or the 12 months following a Change in Control Event, the Plan Sponsor takes irrevocable action to terminate the Plan,

the Plan will be terminated and liquidated with respect to the Participants of each corporation that experienced the Change in Control Event. The Plan will be terminated under this Section 10.3 only if all other arrangements sponsored by the Plan Sponsor experiencing the Change in Control Event that would be aggregated with the Plan as a single plan under Code § 409A are also terminated, so all participants under such aggregated arrangements are required to receive all amounts of compensation deferred under the terminated arrangements within 12 months after the date the Plan Sponsor takes all necessary action to terminate the Plan and the other arrangements. For purposes of this Section 10.3, when the Change of Control Event results from an asset purchase transaction, the applicable

Plan Sponsor with the discretion to terminate the Plan and the other arrangements is the Plan Sponsor that is primarily liable immediately after the transaction for the payment of

deferred compensation. Upon a Plan Termination Following a Change in Control Event, no further Compensation Deferrals or Employer Discretionary Credits or Employer Matching Credits shall be made, and the Plan Administrator shall be responsible to pay any benefit attributable to vested amounts credited to the Participant's Account as soon as practicable following date on which the Plan Sponsor irrevocably takes all necessary action to terminate the Plan (following any final adjustments to such Accounts in accordance with Article III hereof), but not later than 12 months following such date.

10.4 ***Plan Termination Following a Corporate Dissolution*** The Plan Sponsor in its discretion may terminate and liquidate the Plan and make the payments provided below within 12 months after a Corporate Dissolution provided that the value of the Participants' vested benefits is included in the Participants' gross incomes in the latest of the following years (or, if earlier, the year in which the amount is actually or constructively received):

(a) the calendar year in which the Plan Termination occurs;

(b) the first calendar year in which the amount is no longer subject to a substantial risk of forfeiture; or

(c) the first calendar year in which the payment is administratively practicable.

Upon a Plan Termination Following a Corporate Dissolution, no further Compensation Deferrals or Employer Discretionary Credits or Employer Matching Credits shall be made, and the Plan Administrator shall be responsible to pay any benefit attributable to vested amounts credited to the Participant's Account as of the effective date of termination (following any final adjustments to such Accounts in accordance with Article III hereof).

10.5 ***Plan Termination in Connection with Termination of Certain Similar Arrangements*** The Plan Sponsor in its discretion may terminate the Plan and make the distribution provided below provided that

(a) the termination does not occur proximate to a downturn in the financial health of the Plan Sponsor and its Affiliates;

(b) the Plan Sponsor terminates all other arrangements that would be aggregated with the Plan as a single plan under Code § 409A if the same Participant had deferrals of compensation under all of the other arrangements;

(c) no payments in liquidation of the Plan are made within 12 months after the date the Plan Sponsor takes all necessary action to irrevocably terminate the Plan, other than payments that would be payable under the terms of the Plan if action to terminate the Plan had not occurred;

(d) all payments are made within 24 months after the date the Plan Sponsor takes all necessary action to irrevocably terminate the Plan; and

(e) neither the Plan Sponsor nor any Affiliate adopts a new plan that would be aggregated with any terminated plan or arrangement under the definition of what constitutes a plan for purposes of Code §409A if the same Participant participated in both arrangements, at any time within 3 years following the date the Plan Sponsor takes all necessary action to irrevocably terminate the Plan.

Upon a Plan Termination in Connection with the Termination of Certain Similar Arrangements, no further Employer Discretionary Credits or Employer Matching Credits shall be made, and no further Compensation Deferrals shall be made after the Taxable Year in which the Plan Termination in Connection with the Termination of Certain Similar Arrangements occurs. The Plan Administrator shall be responsible to pay any benefit attributable to vested amounts credited to the Participant's Account as soon as practicable after distributions are permissible under Code § 409A (following any final adjustments to such Accounts in accordance with Article III hereof).

10.6 ***Effect of Payment*** The full payment of the balance of a Participant's vested Account under the provisions of the Plan shall completely discharge all obligations to a Participant and his designated Beneficiaries under this Plan and each of the Participant's Compensation Deferral Agreements shall terminate.

ARTICLE XI

MISCELLANEOUS

11.1 ***Total Agreement*** This Plan document and the executed Adoption Agreement, Compensation Deferral Agreement, Beneficiary designation and other administration forms shall constitute the total agreement or contract between the Plan Sponsor and the Participant regarding the Plan. No oral statement regarding the Plan may be relied upon by a Participant or Beneficiary. The Plan Sponsor or Plan Administrator shall have the right to establish such procedures as are necessary for the administration or operation of the Plan or Trust, and such procedures shall also be considered a part of the Plan unless clearly contrary to the express provisions thereof.

11.2 ***Employment Rights*** Neither the establishment of this Plan nor any modification thereof, nor the creation of any Trust or Account, nor the payment of any benefits, shall be construed as giving a Participant or other person a right to

employment with the Plan Sponsor or any Affiliate or any other legal or equitable right against the Plan Sponsor of any Affiliate except as provided in the Plan. In no event shall the terms of employment of any Eligible Individual be modified or in any way be affected by the Plan.

11.3 ***Non-Assignability*** None of the benefits, payments, proceeds or claims of any Participant or Beneficiary shall be subject to attachment or garnishment or other legal process by any creditor of such Participant or Beneficiary, nor shall any Participant or Beneficiary have the right to alienate, commute, pledge, encumber or assign any of the benefits or payments or proceeds which he or she may expect to receive, contingently or otherwise under the Plan.

11.4 ***Binding Agreement*** Any action with respect to the Plan taken by the Plan Administrator or the Plan Sponsor or the Trustee or any action authorized by or taken at the direction of the Plan Administrator, the Plan Sponsor or other authorized party shall be conclusive upon all Participants and Beneficiaries entitled to benefits under the Plan.

11.5 ***Receipt and Release*** Any payment to any Participant or Beneficiary in accordance with the provisions of the Plan shall, to the extent thereof, be in full satisfaction of all claims against the Plan Sponsor, the Plan Administrator and the Trustee under the Plan, and the Plan Administrator may require such Participant or Beneficiary, as a condition precedent to such payment, to execute a receipt and release to such effect. If any Participant or Beneficiary is determined by the Plan Administrator to be incompetent by reason of physical or mental disability (including not being the age of majority) to give a valid receipt and release, the Plan Administrator may cause payment or payments becoming due to such person to be made to a legal guardian, trustee, or other proper representative of the Participant or Beneficiary without responsibility on the part of the Plan Administrator, the Plan Sponsor or the Trustee to follow the application of such funds.

11.6 ***Furnishing Information*** A Participant or Beneficiary will cooperate with the Plan Administrator or any representative thereof by furnishing any and all information requested by the Plan Administrator and take such other actions as may be requested in order to facilitate the administration of the Plan and the payments of benefits hereunder, including but not limited to taking such physical examinations as the Plan Administrator may deem necessary.

11.7 ***Compliance with Code § 409A*** Notwithstanding any provision of the Plan to the contrary, all provisions of the Plan will be interpreted and applied to comply

with the requirements of Code §409A and any regulations and applicable binding guidance so as to avoid adverse tax consequences. No provision of the Plan, however, is intended or shall be interpreted to create any right with respect to the tax treatment of the amounts paid or payable hereunder, and neither the Plan Sponsor nor any Affiliate shall under any circumstances

have any liability to a Participant or Beneficiary for any taxes, penalties or interest due on amounts paid or payable under the Plan, including taxes, penalties or interest imposed under Code § 409A.

11.8 ***Insurance*** The Plan Sponsors, on their own behalf or on behalf of the trustee of the Trust, and, in their sole discretion, may apply for and procure insurance on the life of the Participant, in such amounts and in such forms as they may choose. The Plan Sponsors or the trustee of the Trust, as the case may be, shall be the sole owner and beneficiary of any such insurance. The Participant shall have no interest whatsoever in any such policy or policies, and at the request of the Plan Sponsor shall submit to medical examinations and supply such information and execute such documents as may be required by the insurance company or companies to which the Plan Sponsor have applied for insurance.

11.9 ***Governing Law*** Construction, validity and administration of this Plan shall be governed by applicable Federal law and applicable state law in which the principal office of the Plan Sponsor is located, without regard to the conflict of law provisions of such state law. If any provision shall be held by a court of competent jurisdiction to be invalid or unenforceable, the remaining provisions hereof shall continue to be fully effective.

11.10 ***Headings and Subheadings*** Headings and subheadings in this Plan are inserted for convenience only and are not to be considered in the interpretation of the provisions hereof.

Exhibit 31.1

I, Ludwig N. Hantson, Ph.D., certify that:

1 I have reviewed this quarterly report on Form 10-Q of Alexion Pharmaceuticals, Inc.;

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

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

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

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

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

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

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

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

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

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

Dated: April 27, 2017

/s/ LUDWIG N. HANTSON, Ph.D.

Chief Executive Officer

Exhibit 31.2

I, David J. Anderson, certify that:

1 I have reviewed this quarterly report on Form 10-Q of Alexion Pharmaceuticals, Inc.;

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

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

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

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

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

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

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

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

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

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

Dated: April 27, 2017

/s/ DAVID J. ANDERSON

Chief Financial Officer

Exhibit 32.1

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

In connection with the quarterly report on Form 10-Q of Alexion Pharmaceuticals, Inc. (the "Company") for the fiscal quarter ended March 31, 2017 as filed with the Securities and Exchange Commission (the "Report"), I, Ludwig N. Hantson, Ph.D., Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 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.

Dated: April 27, 2017

/s/ LUDWIG N. HANTSON, Ph.D.

Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

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 Alexion Pharmaceuticals, Inc. (the "Company") for the fiscal quarter ended March 31, 2017 as filed with the Securities and Exchange Commission (the "Report"), I, David J. Anderson, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 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.

Dated: April 27, 2017

/s/ DAVID J. ANDERSON

Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.