

ACCELERON PHARMA INC

FORM 10-Q (Quarterly Report)

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Address	128 SIDNEY STREET CAMBRIDGE, MA, 02139
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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2017

OR

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

For the transition period from _____ to _____
Commission File Number: 001-36065

ACCELERON PHARMA INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2836
(Primary Standard Industrial
Classification Code Number)

27-0072226
(I.R.S. Employer
Identification Number)

**128 Sidney Street
Cambridge, MA 02139
(617) 649-9200**

(Address, including zip code, and telephone number, including
area code, of registrant's principal executive offices)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). **Yes** **No**

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

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

As of October 31, 2017, there were 45,235,024 shares of the registrant's Common Stock, par value \$0.001 per share, outstanding.

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PART I. FINANCIAL INFORMATION**Item 1. Financial Statements**

Acceleron Pharma Inc.
Condensed Consolidated Balance Sheets
(amounts in thousands except share and per share data)
(unaudited)

	September 30, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 238,959	\$ 20,950
Collaboration receivables (all amounts are with related party)	2,879	3,234
Prepaid expenses and other current assets	3,334	3,862
Short-term investments	98,266	118,740
Total current assets	343,438	146,786
Property and equipment, net	7,211	5,201
Restricted cash	1,132	946
Other assets	124	22
Long-term investments	29,372	94,692
Total assets	\$ 381,277	\$ 247,647
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 1,024	\$ 1,590
Accrued expenses	14,141	13,249
Deferred revenue	541	541
Deferred rent	178	769
Total current liabilities	15,884	16,149
Deferred revenue, net of current portion	3,297	3,704
Deferred rent, net of current portion	1,628	953
Warrants to purchase common stock	1,927	1,244
Total liabilities	22,736	22,050
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Undesignated preferred stock, \$0.001 par value: 25,000,000 shares authorized and no shares issued or outstanding	—	—
Common stock, \$0.001 par value: 175,000,000 shares authorized; 44,414,694 and 38,251,826 shares issued and outstanding at September 30, 2017 and December 31, 2016, respectively	45	39
Additional paid-in capital	803,907	590,474
Accumulated deficit	(445,097)	(364,491)
Accumulated other comprehensive loss	(314)	(425)
Total stockholders' equity	358,541	225,597
Total liabilities and stockholders' equity	\$ 381,277	\$ 247,647

See accompanying notes to these condensed consolidated financial statements.

Acceleron Pharma Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(amounts in thousands except per share data)
(unaudited)

	<u>Three Months Ended September 30,</u>		<u>Nine Months Ended September 30,</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Revenue:				
Collaboration revenue:				
License and milestone	\$ 135	\$ 135	\$ 406	\$ 15,415
Cost-sharing, net	2,879	2,870	9,370	8,987
Total revenue (all amounts are with related party)	<u>3,014</u>	<u>3,005</u>	<u>9,776</u>	<u>24,402</u>
Costs and expenses:				
Research and development	21,059	17,102	64,387	49,492
General and administrative	7,533	6,411	26,735	19,029
Total costs and expenses	<u>28,592</u>	<u>23,513</u>	<u>91,122</u>	<u>68,521</u>
Loss from operations	(25,578)	(20,508)	(81,346)	(44,119)
Other (expense) income, net	(410)	(794)	(683)	5,026
Interest income	496	512	1,474	1,348
Total other income (expense) net	<u>86</u>	<u>(282)</u>	<u>791</u>	<u>6,374</u>
Loss before income taxes	(25,492)	(20,790)	(80,555)	(37,745)
Income tax benefit	41	20	29	20
Net loss applicable to common stockholders	<u>\$ (25,451)</u>	<u>\$ (20,770)</u>	<u>\$ (80,526)</u>	<u>\$ (37,725)</u>
Net loss per share applicable to common stockholders-basic and diluted (Note 9)	\$ (0.65)	\$ (0.55)	\$ (2.08)	\$ (1.01)
Weighted-average number of common shares used in computing net loss per share applicable to common stockholders:				
	39,361	37,616	38,804	37,268
Other comprehensive loss:				
Net loss	\$ (25,451)	\$ (20,770)	\$ (80,526)	\$ (37,725)
Net unrealized holding gains (losses) on short-term and long-term investments during the period, net of tax of \$59 thousand, \$59 thousand, \$53 thousand and \$53 thousand for the three and nine months ended September 30, 2017 and 2016, respectively	100	(374)	170	98
Comprehensive loss	<u>\$ (25,351)</u>	<u>\$ (21,144)</u>	<u>\$ (80,356)</u>	<u>\$ (37,627)</u>

See accompanying notes to these condensed consolidated financial statements.

Acceleron Pharma Inc.
Condensed Consolidated Statements of Cash Flows
(amounts in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2017	2016
Operating Activities		
Net loss	\$ (80,526)	\$ (37,725)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	2,023	1,158
Stock-based compensation	21,877	13,387
Change in fair value of warrants	683	(5,026)
Other non-cash items	211	(262)
Changes in assets and liabilities:		
Prepaid expenses and other assets	426	(1,211)
Collaboration receivables	355	609
Accounts payable	(566)	1,196
Accrued expenses	160	389
Restricted cash	(186)	(150)
Deferred revenue	(407)	(414)
Deferred rent	22	94
Net cash used in operating activities	(55,928)	(27,955)
Investing Activities		
Purchases of investments	(245)	(132,565)
Proceeds from sales and maturities of investments	86,001	21,120
Purchases of property and equipment	(3,639)	(2,246)
Net cash provided by (used in) investing activities	82,117	(113,691)
Financing Activities		
Proceeds from issuance of common stock from public offering, net of issuance costs	187,986	140,697
Payments for withholding taxes on restricted stock units	(226)	—
Proceeds from exercise of stock options and warrants to purchase common stock	3,233	3,524
Proceeds from issuances of common stock related to employee stock purchase plan	827	658
Net cash provided by financing activities	191,820	144,879
Net increase in cash and cash equivalents	218,009	3,233
Cash and cash equivalents at beginning of period	20,950	27,783
Cash and cash equivalents at end of period	\$ 238,959	\$ 31,016
Supplemental Disclosure of Non-Cash Investing and Financing Activities:		
Purchase of property and equipment included in accounts payable and accrued expenses	\$ 395	\$ 25
Capitalized follow-on public offering costs included in accrued expenses	\$ 337	\$ —

See accompanying notes to these condensed consolidated financial statements.

Acceleron Pharma Inc.

Notes to Condensed Consolidated Financial Statements

(unaudited)

1. Nature of Business

Acceleron Pharma Inc. (Acceleron or the Company) is a Cambridge, Massachusetts-based clinical stage biopharmaceutical company dedicated to the discovery, development, and commercialization of therapeutics to treat serious and rare diseases. The Company's leadership in the understanding of TGF-beta biology and protein engineering generates innovative compounds that engage the body's ability to regulate cellular growth and repair.

The Company is subject to risks common to companies in the biotechnology industry, including, but not limited to, risk that the Company never achieves profitability, the need for substantial additional financing, risk of relying on third parties, risks of clinical trial failures, dependence on key personnel, protection of proprietary technology and compliance with government regulations.

2. Basis of Presentation

The accompanying interim condensed consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (GAAP). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification (ASC) and Accounting Standards Update (ASU) of the Financial Accounting Standards Board (FASB).

The accompanying interim condensed consolidated financial statements are unaudited. The unaudited interim financial statements have been prepared on the same basis as the audited annual financial statements as of and for the year ended December 31, 2016 except for the adoption of Accounting Standards Update (ASU) No. 2016-09, *Compensation - Stock Compensation (Topic 718)*, *Improvements to Employee Share-Based Payment Accounting*, which did not have a material impact, and, in the opinion of management, reflect all adjustments, consisting of normal recurring adjustments, necessary for the fair presentation of the Company's financial position as of September 30, 2017, the results of its operations for the three and nine months ended September 30, 2017 and 2016, and its cash flows for the nine months ended September 30, 2017 and 2016.

The results for the three and nine months ended September 30, 2017 are not necessarily indicative of the results to be expected for the year ending December 31, 2017, any other interim periods, or any future year or period. These interim financial statements should be read in conjunction with the audited financial statements as of and for the year ended December 31, 2016, and the notes thereto, together with Management's Discussion and Analysis of Financial Condition and Results of Operations, contained in the Company's Annual Report on Form 10-K for the year ended December 31, 2016.

The Company considers events or transactions that occur after the balance sheet date but prior to the issuance of the financial statements to provide additional evidence for certain estimates or to identify matters that require additional disclosure. Subsequent events have been evaluated as required. The Company has evaluated all subsequent events and determined that there are no material recognized or unrecognized events requiring disclosure, other than those disclosed in this Report on Form 10-Q.

The accompanying interim condensed consolidated financial statements reflect the application of certain significant accounting policies as described below and elsewhere in these notes to the financial statements. As of September 30, 2017, the Company's significant accounting policies and estimates, which are detailed in the Company's Annual Report on Form 10-K for the year ended December 31, 2016, have not changed, except for the adoption of Accounting Standards Update (ASU) No. 2016-09, *Compensation - Stock Compensation (Topic 718)*, *Improvements to Employee Share-Based Payment Accounting*, which is discussed further in Note 16.

3. Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts expensed during the reporting period.

Management considers many factors in selecting appropriate financial accounting policies and controls, and in developing the estimates and assumptions that are used in the preparation of these consolidated financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including: expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether

historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. This process may result in actual results differing materially from those estimated amounts used in the preparation of the consolidated financial statements if these results differ from historical experience, or other assumptions do not turn out to be substantially accurate, even if such assumptions are reasonable when made. In preparing these consolidated financial statements, management used significant estimates in the following areas, among others: revenue recognition, stock-based compensation expense, the determination of the fair value of stock-based awards, the fair value of liability-classified warrants, accrued expenses, and the recoverability of the Company's net deferred tax assets and related valuation allowance.

4. Segment Information

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker, or decision making group, in making decisions on how to allocate resources and assess performance. The Company's chief operating decision maker is the chief executive officer. The Company and the chief executive officer view the Company's operations and manage its business as one operating segment, which is the discovery, development and commercialization of highly innovative therapeutics to treat serious and rare diseases. All material long-lived assets of the Company reside in the United States. The Company does use contract research organizations (CROs) and research institutions located outside the United States. Some of these expenses are subject to collaboration reimbursement which is presented as a component of cost sharing, net in the consolidated statements of operations and comprehensive loss.

5. Cash Equivalents and Short-term and Long-term Investments

The Company considers all highly liquid investments purchased with original maturities of 90 days or less at acquisition to be cash equivalents. Cash and cash equivalents include cash held in banks and amounts held in interest-bearing money market accounts. Cash equivalents are carried at cost, which approximates their fair market value.

The Company determines the appropriate classification of marketable securities at the time of purchase and reevaluates such designation at each balance sheet date. The Company has classified all of its marketable securities at September 30, 2017 as "available-for-sale" pursuant to ASC 320, *Investments – Debt and Equity Securities*. The Company records available-for-sale securities at fair value, with the unrealized gains and losses included in accumulated other comprehensive income (loss) in stockholders' equity. There were no realized gains or losses on marketable securities for the three and nine months ended September 30, 2017 and 2016 .

Investments not classified as cash equivalents are presented as either short-term or long-term investments based on both their maturities as well as the time period the Company intends to hold such securities.

The Company adjusts the cost of available-for-sale debt securities for amortization of premiums and accretion of discounts to maturity. The Company includes such amortization and accretion in interest income. The cost of securities sold is based on the specific identification method. The Company includes in interest income interest and dividends on securities classified as available-for-sale.

The Company reviews marketable securities for other-than-temporary impairment whenever the fair value of a marketable security is less than the amortized cost and evidence indicates that a marketable security's carrying amount is not recoverable within a reasonable period of time. Other-than-temporary impairments of investments are recognized in the consolidated statements of operations if the Company has experienced a credit loss, has the intent to sell the marketable security, or if it is more likely than not that the Company will be required to sell the marketable security before recovery of the amortized cost basis. Evidence considered in this assessment includes reasons for the impairment, compliance with the Company's investment policy, the severity and the duration of the impairment and changes in value subsequent to the end of the period.

The aggregate fair value of securities held by the Company in an unrealized loss position for less than twelve months as of September 30, 2017 and December 31, 2016 was \$53.1 million and \$172.2 million , respectively. The aggregate fair value of securities held by the Company in an unrealized loss position for more than twelve months as of September 30, 2017 and December 31, 2016 was \$55.8 million and \$5.5 million , respectively. The aggregate unrealized loss for those securities in an unrealized loss position for more than twelve months is \$0.1 million and \$2 thousand , respectively. As a result, the Company determined it did not hold any investments with any other-than-temporary impairment as of September 30, 2017 and December 31, 2016 .

The following is a summary of cash, cash equivalents and available-for-sale securities as of September 30, 2017 and December 31, 2016 (in thousands):

	September 30, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash and cash equivalents due in 90 days or less	\$ 238,959	\$ —	\$ —	\$ 238,959
Available-for-sale securities:				
Corporate obligations due in one year or less	44,789	1	(47)	44,743
Corporate obligations due in more than one year	11,560	—	(47)	11,513
U.S. Treasury securities due in one year or less	10,004	—	(31)	9,973
U.S. Treasury securities due in more than one year	4,021	—	(27)	3,994
Certificates of deposit due in one year or less	9,092	—	—	9,092
Certificates of deposit due in more than one year	1,904	—	—	1,904
Mortgage and other asset backed securities due in one year or less	34,497	—	(39)	34,458
Mortgage and other asset backed securities due in more than one year	12,026	—	(65)	11,961
Total available-for-sale securities	\$ 127,893	\$ 1	\$ (256)	\$ 127,638
Total cash, cash equivalents and available-for-sale securities	\$ 366,852	\$ 1	\$ (256)	\$ 366,597

	December 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash and cash equivalents due in 90 days or less	\$ 20,950	\$ —	\$ —	\$ 20,950
Available-for-sale securities:				
Corporate obligations due in one year or less	45,839	1	(58)	45,782
Corporate obligations due in more than one year	42,895	—	(185)	42,710
U.S. Treasury securities due in one year or less	22,490	—	(10)	22,480
U.S. Treasury securities due in more than one year	11,541	—	(53)	11,488
Certificates of deposit due in one year or less	13,562	—	—	13,562
Certificates of deposit due in more than one year	9,811	—	—	9,811
Mortgage and other asset backed securities due in one year or less	36,948	—	(32)	36,916
Mortgage and other asset backed securities due in more than one year	30,771	—	(88)	30,683
Total available-for-sale securities	\$ 213,857	\$ 1	\$ (426)	\$ 213,432
Total cash, cash equivalents and available-for-sale securities	\$ 234,807	\$ 1	\$ (426)	\$ 234,382

6. Restricted Cash

As of September 30, 2017 and December 31, 2016, the Company maintained letters of credit totaling \$1.1 million and \$0.9 million, respectively, held in the form of certificates of deposit and money market funds as collateral for the Company's facility lease obligation and its credit cards.

7. Concentrations of Credit Risk and Off-Balance Sheet Risk

The Company has no off-balance sheet risk, such as foreign exchange contracts, option contracts, or other foreign hedging arrangements. Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash, cash equivalents, restricted cash, short-term and long-term investments and collaboration receivables. The Company maintains its cash and cash equivalent balances and short-term and long-term investments with financial institutions that management believes are creditworthy. Short-term and long-term investments consist of investment grade corporate obligations, treasury notes, asset backed securities, and certificates of deposit. The Company's investment policy includes

guidelines on the quality of the institutions and financial instruments and defines allowable investments that the Company believes minimizes the exposure to concentrations of credit risk.

The Company routinely assesses the creditworthiness of its customers and collaboration partners. The Company has not experienced any material losses related to receivables from individual customers and collaboration partners, or groups of customers. The Company does not require collateral. Due to these factors, no additional credit risk beyond amounts provided for collection losses is believed by management to be probable in the Company's collaboration receivables.

8. Fair Value Measurements

The following tables set forth the Company's financial instruments carried at fair value using the lowest level of input applicable to each financial instrument as of September 30, 2017 and December 31, 2016 (in thousands):

	September 30, 2017			
	Quoted Prices in Active Markets for Identical Items (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	\$ 224,053	\$ —	\$ —	\$ 224,053
Corporate obligations	—	56,256	—	56,256
U.S. Treasury securities	—	13,967	—	13,967
Certificates of deposit	—	10,997	—	10,997
Mortgage and other asset backed securities	—	46,419	—	46,419
Restricted cash	1,132	—	—	1,132
Total assets	\$ 225,185	\$ 127,639	\$ —	\$ 352,824
Liabilities:				
Warrants to purchase common stock	\$ —	\$ —	\$ 1,927	\$ 1,927
Total liabilities	\$ —	\$ —	\$ 1,927	\$ 1,927

	December 31, 2016			
	Quoted Prices in Active Markets for Identical Items (Level 1)	Significant other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	\$ 19,818	\$ —	\$ —	\$ 19,818
Corporate obligations	—	88,492	—	88,492
U.S. Treasury securities	—	33,968	—	33,968
Certificates of deposit	—	23,373	—	23,373
Mortgage and other asset backed securities	—	67,599	—	67,599
Restricted cash	946	—	—	946
Total assets	\$ 20,764	\$ 213,432	\$ —	\$ 234,196
Liabilities:				
Warrants to purchase common stock	\$ —	\$ —	\$ 1,244	\$ 1,244
Total liabilities	\$ —	\$ —	\$ 1,244	\$ 1,244

The money market funds noted above are included in cash and cash equivalents in the accompanying condensed consolidated balance sheets. The Company recognizes transfers between levels of the fair value hierarchy as of the end of the reporting period. There were no transfers within the hierarchy during the nine months ended September 30, 2017 or the year ended December 31, 2016 .

Items measured at fair value on a recurring basis include short-term and long-term investments (Note 5), and warrants to purchase common stock (Note 12). During the periods presented, the Company has not changed the manner in which it values assets and liabilities that are measured at fair value using Level 3 inputs.

The following table sets forth a summary of changes in the fair value of the Company's common stock warrant liabilities, which represent a recurring measurement that is classified within Level 3 of the fair value hierarchy, wherein fair value is estimated using significant unobservable inputs (in thousands):

	Nine Months Ended September 30,	
	2017	2016
Beginning balance	\$ 1,244	\$ 17,187
Change in fair value	683	(5,026)
Ending balance	\$ 1,927	\$ 12,161

The fair value of the warrants to purchase common stock on the date of issuance and on each re-measurement date for those warrants classified as liabilities was estimated using either the Monte Carlo simulation framework, which incorporates future financing events over the remaining life of the warrants to purchase common stock, or for certain re-measurement dates, due to the warrants being deeply in the money, the Black-Scholes option pricing model. Due to the nature of these inputs, the valuation of the warrants is considered a Level 3 measurement. At each reporting period, the Company evaluates the best valuation methodology. At September 30, 2017, the Black-Scholes option pricing model was used.

The Company measures eligible assets and liabilities at fair value, with changes in value recognized in earnings. Fair value treatment may be elected either upon initial recognition of an eligible asset or liability or, for an existing asset or liability, if an event triggers a new basis of accounting. The Company did not elect to re-measure any of its existing financial assets or liabilities, and did not elect the fair value option for any financial assets and liabilities transacted in the nine months ended September 30, 2017 or the year ended December 31, 2016.

9. Net Loss Per Share

The following common stock equivalents were excluded from the calculation of diluted net loss per share for the periods indicated because their inclusion would have had an anti-dilutive effect (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Outstanding stock options	3,459	3,193	3,459	3,193
Common stock warrants	64	397	64	397
Shares issuable under employee stock purchase plan	19	18	19	18
Outstanding restricted stock units	551	670	551	670
	4,093	4,278	4,093	4,278

10. Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions, other events, and circumstances from non-owner sources. Comprehensive loss consists of net loss and other comprehensive loss, which includes certain changes in equity that are excluded from net loss. Comprehensive loss has been disclosed in the accompanying consolidated statements of operations and comprehensive loss. Accumulated other comprehensive loss is presented separately on the consolidated balance sheets and consists entirely of unrealized holding gains and losses on investments as of September 30, 2017 and December 31, 2016.

11. Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (FASB) or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which supersedes all existing revenue recognition requirements, including most industry-specific guidance. The new standard requires a company to recognize revenue when it transfers goods or services to customers in an amount that reflects the consideration that the company expects to receive for those goods or services. The new standard will be effective for the Company on January 1, 2018. Topic 606 allows for either a full retrospective application, in which the standard is applied to all periods presented, or a modified retrospective application, in which the standard is applied to the most current period presented in the financial

statements. As of September 30, 2017, revenue is generated exclusively from the Company's collaboration agreement with Celgene. The Company is currently evaluating the potential impact that Topic 606 may have on its financial position and results of operations as it relates to this single arrangement, and expects to elect the modified retrospective application as its transition method.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842), Amendments to the FASB Accounting Standards Codification*, which replaces the existing guidance for leases. ASU 2016-02 requires the identification of arrangements that should be accounted for as leases by lessees. In general, for lease arrangements exceeding a twelve month term, these arrangements must now be recognized as assets and liabilities on the balance sheet of the lessee. Under ASU 2016-02, a right-of-use asset and lease obligation will be recorded for all leases, whether operating or financing, while the income statement will reflect lease expense for operating leases and amortization/interest expense for financing leases. The balance sheet amount recorded for existing leases at the date of adoption of ASU 2016-02 must be calculated using the applicable incremental borrowing rate at the date of adoption. In addition, ASU 2016-02 requires the use of the modified retrospective method, which will require adjustment to all comparative periods presented in the consolidated financial statements. This guidance is effective for annual and interim periods beginning after December 15, 2018 and requires retrospective application. The Company is currently assessing the impact that adopting ASU 2016-02 will have on its consolidated financial statements and related disclosures.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows - Restricted Cash (Topic 230)*. This new standard requires companies to include amounts generally described as restricted cash and restricted cash equivalents in cash and cash equivalents when reconciling beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This guidance is effective for annual and interim reporting periods beginning after December 15, 2017, and requires retrospective application. The Company is currently assessing the impact that adopting ASU 2016-18 will have on its consolidated financial statements and related disclosures.

In March 2017, the FASB issued ASU 2017-08, *Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities*. This new standard shortens the amortization period for certain callable debt securities held at a premium. Specifically, the amendment requires the premium to be amortized to the earliest call date. The amendment does not require an accounting change for securities held at a discount; the discount continues to be amortized to maturity. The guidance is effective for annual and interim periods beginning after December 15, 2018, and early adoption is permitted. The amendment should be applied on a modified retrospective basis, with the cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. The Company is currently assessing the impact that adopting ASU 2017-08 will have on its consolidated financial statements and related disclosures.

12. Warrants

Below is a summary of the number of shares issuable upon exercise of outstanding warrants and the terms and accounting treatment for the outstanding warrants (in thousands, except per share data):

	Warrants as of		Weighted-Average Exercise Price Per Share	Expiration	Balance Sheet Classification	
	September 30, 2017	December 31, 2016			September 30, 2017	December 31, 2016
Warrants to purchase common stock	61	61	\$ 5.88	June 10, 2020 - July 9, 2020	Liability	Liability
Warrants to purchase common stock	3	4	7.40	December 31, 2017	Equity(1) (2)	Equity(1) (2)
All warrants	64	65	\$ 5.94			

(1) In March 2017, warrant holders exercised warrants to purchase 1,187 shares of Common Stock on a net basis, resulting in the issuance of 1,014 shares of Common Stock.

(2) Warrants to purchase common stock were issued in connection with various debt financing transactions that were consummated in periods prior to our initial public offering.

In connection with the Series E redeemable convertible preferred stock (Series E Preferred Stock) financing transactions that took place in June 2010 and July 2010, the Company issued warrants to purchase up to 871,580 shares of common stock. Each warrant was immediately exercisable and expires ten years from the original date of issuance. The warrants to purchase shares of the Company's common stock have an exercise price equal to the estimated fair value of the underlying instrument as

of the initial date such warrants were issued. Each warrant is exercisable on either a physical settlement or net share settlement basis from the date of issuance. The warrant agreement contains a provision requiring an adjustment to the number of shares in the event the Company issues common stock, or securities convertible into or exercisable for common stock, at a price per share lower than the warrant exercise price. The Company concluded the anti-dilution feature required the warrants to be classified as liabilities under ASC Topic 815, *Derivatives and Hedging—Contracts in Entity's Own Equity* (ASC 815). The warrants are measured at fair value, with changes in fair value recognized as a gain or loss to other income (expense) in the statements of operations and comprehensive loss for each reporting period thereafter. The fair value of the common stock warrants was recorded as a discount to the preferred stock issued, and the preferred stock was accreted to the redemption value. At the end of each reporting period, the Company re-measured the fair value of the outstanding warrants, using current assumptions, resulting in an increase in fair value of \$0.4 million and \$0.8 million for the three months ended September 30, 2017 and 2016, respectively, and an increase in fair value of \$0.7 million and a decrease of \$5.0 million for the nine months ended September 30, 2017 and 2016, respectively, which was recorded in other (expense) income in the accompanying consolidated statements of operations and comprehensive loss. The Company will continue to re-measure the fair value of the liability associated with the warrants to purchase common stock at the end of each reporting period until the earlier of the exercise or the expiration of the applicable warrants. All remaining outstanding warrants were fully vested and exercisable as of September 30, 2017 and December 31, 2016.

13. Commitments and Contingencies

Legal Proceedings

The Company, from time to time, may be party to litigation arising in the ordinary course of its business. The Company was not subject to any material legal proceedings during the three months ended September 30, 2017, and, to the best of its knowledge, no material legal proceedings are currently pending or threatened.

99 Erie Street Operating Lease

On March 16, 2017, the Company entered into an approximately six and a half year lease for approximately 11,825 square feet of rentable office and lab space located at 99 Erie Street, Cambridge, Massachusetts. The lease commenced on May 1, 2017 and ends on September 30, 2023. Excluding operating costs and real estate taxes, rent for the first year is \$0.7 million with annual rent escalations thereafter. The total operating lease obligation for the term of this agreement, excluding operating costs and real estate taxes, is \$5.1 million. The Company has the option to extend the lease by an additional three years. In accordance with the lease, the Company entered into a cash-collateralized, irrevocable standby letter of credit in the amount of \$0.2 million, naming the landlord as beneficiary.

On July 27, 2017, the Company entered into a one -year sublease with Rubius Therapeutics, Inc. (the "sublessee") under which Rubius will sublease approximately 11,825 square feet of office and lab space at 99 Erie Street, Cambridge, Massachusetts (the "sublease"). The sublease commenced on August 1, 2017 and ends on July 31, 2018. The sublessee has the right to extend the sublease by an additional five months. The total operating lease obligation, excluding operating costs and real estate taxes, for the term of this agreement is approximately \$0.7 million. In connection with this sublease, we recognized a loss of \$0.1 million during the third quarter of 2017, which represents the difference between the Company's lease obligation to the landlord and the sublessee's lease obligation to the Company and other expenses associated with the sublease.

128/149 Sidney Street Operating Leases

On July 18, 2017, the Company entered into a five -year lease extension for approximately 37,700 square feet of office, manufacturing and lab space located at 128 Sidney Street, Cambridge, Massachusetts, our principal headquarters and manufacturing facility. The lease commences on October 1, 2018 and ends on September 30, 2023. The total operating lease obligation for the term of this agreement, excluding operating costs and real estate taxes, is approximately \$13.0 million. The Company has the option to extend the lease by an additional five years.

On July 18, 2017, the Company entered into a five -year lease extension for approximately 37,116 square feet of office and lab space located at 149 Sidney Street, Cambridge, Massachusetts. The lease commences on October 1, 2018 and ends on September 30, 2023. The total operating lease obligation for the term of this agreement, excluding operating costs and real estate taxes, is approximately \$12.8 million. The Company has the option to extend the lease by an additional five years.

Other

The Company is also party to various agreements, principally relating to licensed technology, that require future payments relating to milestones which had not been met at September 30, 2017 and December 31, 2016, or royalties on future sales of

specified products. No milestones or royalty payments under these agreements are expected to be payable in the immediate future. See Note 14 for discussion of these arrangements.

The Company enters into standard indemnification agreements in the ordinary course of business. Pursuant to the agreements, the Company indemnifies, holds harmless, and agrees to reimburse the indemnified party for losses suffered or incurred by the indemnified party, generally the Company's business partners or customers, in connection with any U.S. patent or any copyright or other intellectual property infringement claim by any third party with respect to the Company's products. The term of these indemnification agreements is generally perpetual any time after execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification agreements.

14. Significant Agreements

Celgene

Overview

On February 20, 2008, the Company entered into a collaboration, license, and option agreement with Celgene Corporation (Celgene) relating to sotatercept, which the Company and Celgene amended on August 2, 2011 (as amended, the Original Sotatercept Agreement), and then amended and restated in its entirety on September 18, 2017 (as amended and restated, the Restated Sotatercept Agreement). On August 2, 2011, the Company entered into a second collaboration, license and option agreement with Celgene for luspatercept (the Luspatercept Agreement). These agreements provide Celgene an exclusive license to luspatercept in all indications, an exclusive license to sotatercept outside of the pulmonary hypertension (PH) field, as well as exclusive rights to obtain a license to certain future compounds.

Since December 31, 2016, there have been no material changes to the key terms of the Luspatercept Agreement, and the material changes to the Original Sotatercept Agreement pursuant to the Restated Sotatercept Agreement are described below. For further information on the terms of the agreements as well as the historical accounting analysis, please see the notes to the consolidated financial statements included in the Company's Form 10-K for the year ended December 31, 2016.

Restated Sotatercept Agreement

Under the Restated Sotatercept Agreement, Celgene granted the Company worldwide rights to develop and commercialize sotatercept for the treatment, prevention, modulation and diagnosis of pulmonary hypertension in humans. In addition, Celgene agreed not to develop or commercialize in the field of pulmonary hypertension any compound developed under the Restated Sotatercept Agreement or the Luspatercept Agreement, and the Company agreed not to develop or commercialize any compound developed under the Restated Sotatercept Agreement or the Luspatercept Agreement in any field outside of pulmonary hypertension. The Company has the right to license, transfer or sell its rights to develop and commercialize sotatercept in pulmonary hypertension, subject to Celgene's right of first negotiation.

The Company is responsible for 100% of the costs related to the Company's development and commercialization of sotatercept in pulmonary hypertension. The Company is not required to make any upfront payments or milestone payments to Celgene in connection with the Company's development and commercialization of sotatercept in pulmonary hypertension. If sotatercept is commercialized to treat pulmonary hypertension and the Company recognizes such revenue, then Celgene will be eligible to receive a royalty in the low 20% range on global net sales. In certain circumstances Celgene may recognize revenue related to the commercialization of sotatercept in pulmonary hypertension, and in this scenario, the Company will be eligible to receive a royalty from Celgene such that the economic position of the parties is equivalent to the scenario in which the Company recognizes such revenue. With respect to the development and commercialization of sotatercept outside of pulmonary hypertension or the development and commercialization of any other compound under the Restated Sotatercept Agreement, the terms of the Original Sotatercept Agreement remain unchanged, and Celgene will continue to have responsibility to fund and conduct all such development and commercialization activities, with the Company eligible to receive tiered royalty payments in the low-to-mid 20% range on global net sales.

Pursuant to the Restated Sotatercept Agreement, Celgene will provide to the Company certain quantities of Celgene's existing clinical supply of sotatercept at no cost to the Company. For clinical or commercial supply of sotatercept in excess of that which is agreed under the Restated Sotatercept Agreement, Celgene can elect to provide the Company with such clinical and commercial supply of sotatercept at a negotiated price or provide a tech transfer to the Company to enable the Company to manufacture on its own behalf. The conduct of the collaboration is managed by a Joint Development Committee and Joint Commercialization Committee. In the event of a deadlock of a committee, the Company shall determine the resolution of issues specifically related to the development or commercialization of sotatercept in pulmonary hypertension (other than pricing which shall be determined by consensus), and Celgene shall determine the resolution of all other issues. The Joint

Commercialization Committee will oversee commercialization of sotatercept and sotatercept pricing will be determined by mutual agreement of the Company and Celgene in the Joint Commercialization Committee.

The Restated Sotatercept Agreement is terminable by either party upon a breach that is uncured and continuing or by Celgene for convenience on a country by country or product by product basis, or in its entirety. Celgene may also terminate the Restated Sotatercept Agreement, in its entirety or on a product by product basis, for failure of a product to meet a development or clinical trial endpoint. Termination for cause by us or termination by Celgene for convenience or failure to meet an endpoint will have the effect of terminating the applicable license to Celgene and the rights granted to the Company with respect to the development of sotatercept in pulmonary hypertension shall become irrevocable. Termination for cause by either party shall result in reducing the remaining royalties due to the breaching party by a certain percentage. Upon termination by Celgene for convenience or for failure to meet an endpoint, Celgene and the Company will enter into a termination agreement pursuant to which, among other things, Celgene will continue to be eligible to receive a royalty in the low 20% range on global net sales of sotatercept in pulmonary hypertension.

The Company and Celgene will continue to collaborate worldwide for the joint development and commercialization of sotatercept outside of the pulmonary hypertension field. The Company also previously granted Celgene an option to license three discovery stage compounds under the Original Sotatercept Agreement.

The Company retained responsibility for research and development of sotatercept outside of the pulmonary hypertension field through the end of Phase 2a clinical trials, as well as manufacturing the clinical supplies for these trials. These activities were substantially completed in 2011. Outside of pulmonary hypertension, Celgene will also be responsible for any Phase 3 clinical trials, as well as additional Phase 2 clinical trials, and will be responsible for overseeing the manufacture of Phase 3 and commercial supplies by third party contract manufacturing organizations.

Through September 30, 2017, the Company has received \$44.1 million in research and development funding and milestone payments for sotatercept under the original and amended and restated agreements. The next likely clinical milestone payment would be \$10.0 million and result from Celgene's start of a Phase 3 study.

Luspatercept Agreement

Under the terms of the Luspatercept Agreement, the Company and Celgene collaborate worldwide for the joint development and commercialization of luspatercept. The Company also granted Celgene an option for future products for which the Company files an Investigational New Drug application for the treatment of anemia. The Company has not yet identified additional compounds for the treatment of anemia. Accordingly, there is no assurance that the Company will generate future value from additional programs.

The Company retains responsibility for research and development through the end of Phase 1 and initial Phase 2 clinical trials, as well as manufacturing the clinical supplies for these studies. Celgene will conduct any subsequent Phase 2 and Phase 3 clinical studies. The Company will manufacture luspatercept for the Phase 1 and Phase 2 clinical trials and Celgene will be responsible for overseeing the manufacture of Phase 3 and commercial supplies by third party contract manufacturing organizations.

Through September 30, 2017, the Company has received \$96.6 million in research and development funding and milestone payments for luspatercept. The next likely milestone payment would be \$25.0 million and result from U.S. Food and Drug Administration or European Medical Association acceptance of a Biologics Licensing Application or equivalent for luspatercept in either myelodysplastic syndromes or beta-thalassemia.

Both Agreements

Under both agreements, Celgene is responsible for paying 100% of worldwide development costs and 100% of any commercialization costs worldwide for sotatercept (outside of the pulmonary hypertension field) and luspatercept. The Company has the right to co-promote sotatercept (outside of the pulmonary hypertension field), luspatercept and future products in North America. The Company will receive tiered royalties in the low-to-mid 20% range on net sales of sotatercept (outside of the pulmonary hypertension field) and luspatercept, and these royalty schedules are the same for both agreements.

Accounting Analysis

As a result of the changes to the economic terms under the Restated Sotatercept Agreement, the Company concluded the modification did not represent a material modification under ASU 2009-13. Further, the Company concluded there are no new deliverables which arise from the agreement. There have been no material changes to the accounting under the Luspatercept Agreement, or the Original Sotatercept Agreement pursuant to the Restated Sotatercept Agreement. For further information on

the historical accounting analysis, please see the notes to the consolidated financial statements included in the Company's Form 10-K for the year ended December 31, 2016 .

During the three months ended September 30, 2017 and 2016 , the Company recognized \$0.1 million and \$0.1 million , respectively, and during the nine months ended September 30, 2017 and 2016 , \$0.4 million and \$0.4 million , respectively, of the total deferred revenue as license and milestone revenue in the accompanying consolidated statements of operations and comprehensive loss.

As noted above, under the terms of the Luspatercept Agreement the Company retained responsibility for certain research and development activities. In November 2013, the Company agreed to conduct additional activities for the benefit of the luspatercept program including certain clinical and non-clinical services. These activities are reimbursed under the same terms and rates of the existing Agreements and are accounted for as the services are delivered.

Pursuant to the terms of the agreements, Celgene and the Company shared development costs incurred by either party, with Celgene responsible for substantially more than half of the costs for sotatercept and luspatercept until December 31, 2012. Beginning January 1, 2013, Celgene is responsible for 100% of the costs for luspatercept and for sotatercept outside of the pulmonary hypertension field. Payments from Celgene with respect to research and development costs incurred by the Company are recorded as cost-sharing revenue. The Company recorded net cost-sharing revenue of \$2.9 million and \$2.9 million during the three months ended September 30, 2017 and 2016 , respectively, and \$9.4 million and \$9.0 million during the nine months ended September 30, 2017 and 2016 , respectively.

Other Agreements

Other

In 2004, the Company entered into a license agreement with a non-profit institution for an exclusive, sublicensable, worldwide, royalty-bearing license to certain patents developed by the institution (Primary Licensed Products). In addition, the Company was granted a non-exclusive, non-sub-licensable license for Secondary Licensed Products. As compensation for the licenses, the Company issued 62,500 shares of its common stock to the institution, the fair value of which was \$25 thousand , and was expensed during 2004 to research and development expense. The Company also agreed to pay specified development milestone payments totaling up to \$2.0 million for sotatercept and \$0.7 million for luspatercept. In addition, the Company is obligated to pay milestone fees based on the Company's research and development progress, and U.S. sublicensing revenue ranging from 10% - 25% , as well as a royalty ranging from 1.0% - 3.5% of net sales on any products under the licenses. During the three months ended September 30, 2017 and 2016 , the Company expensed zero and zero , respectively, and during the nine months ended September 30, 2017 and 2016 , respectively, the Company expensed \$0.1 million and \$1.0 million of milestones and fees defined under the agreement.

In May 2014, the Company executed a collaboration agreement with a research technology company. The Company paid an upfront research fee of \$0.3 million upon execution of the agreement. The Company also received an option to obtain a commercial license to the molecules developed during the collaboration. During the three months ended September 30, 2017 and 2016 , the Company expensed \$0.9 million and \$0.4 million , respectively, and during the nine months ended September 30, 2017 and 2016 , the Company expensed \$1.2 million and \$0.9 million , respectively, of milestones and fees, which is recorded as research and development expense.

15. Stockholders' Equity

On September 25, 2017, the Company completed its underwritten public offering of 5,405,406 shares of common stock at a public offering price of \$37.00 per share. The aggregate net proceeds received by the Company, after underwriting discounts and other estimated offering expenses, were approximately \$187.6 million .

On October 4, 2017, in connection with the public offering of common stock on September 20, 2017, the underwriters of the Company's public offering fully exercised their over-allotment option to purchase an additional 810,810 shares of the Company's common stock at the public offering price of \$37.00 per share, less underwriting discounts and commissions, resulting in additional net proceeds of approximately \$28.2 million .

16. Stock-Based Compensation

The Company recognized stock-based compensation expense related to the 2003 Stock Option and Restricted Stock Plan (the 2003 Plan), the 2013 Equity Incentive Plan (the 2013 Plan), and the 2013 Employee Stock Purchase Plan (the 2013 ESPP) totaling \$5.7 million , \$4.6 million , \$21.9 million , and \$13.4 million during the three months ended September 30, 2017 and 2016 and the nine months ended September 30, 2017 and 2016 , respectively.

Total compensation cost recognized for all stock-based compensation awards in the consolidated statements of operations and comprehensive loss is as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Research and development	\$ 3,173	\$ 1,942	\$ 10,268	\$ 5,617
General and administrative	2,533	2,646	11,609	7,770
	<u>\$ 5,706</u>	<u>\$ 4,588</u>	<u>\$ 21,877</u>	<u>\$ 13,387</u>

On January 1, 2017, the Company adopted ASU 2016-09, which identifies areas for simplification involving several aspects of accounting for share-based payments, including income tax consequences, classification of awards as either equity or liabilities, an option to make a policy election to recognize gross share based compensation expense with actual forfeitures recognized as they occur as well as certain classification changes on the statement of cash flows. In connection with the adoption of this standard, the Company changed its accounting policy to record actual forfeitures as they occur, rather than estimating forfeitures by applying a forfeiture rate. The provisions of the standard related to the timing of when excess tax benefits are recognized, minimum statutory withholding requirements and forfeitures were adopted using a modified retrospective transition method. Accordingly, a cumulative adjustment of \$0.1 million was booked to retained earnings for the impact of the forfeitures. The Company also recorded \$21.5 million for the excess tax benefit related to equity awards, which was offset by a \$21.5 million increase to the valuation allowance. The provisions of the standard related to the recognition of the excess tax benefits in the income statement and classification in the statement of cash flows were adopted prospectively and prior periods were not retrospectively adjusted.

In December 2016, the Company entered into a consulting agreement with its former Chief Executive Officer. In accordance with the 2003 Plan and 2013 Plan, any vested shares remain exercisable and any outstanding and unvested options and restricted stock units will continue to vest in accordance with their terms so long as he continues to provide services as a non-employee consultant. During the three and nine months ended September 30, 2017, the Company recognized \$1.0 million and \$3.1 million of stock-based compensation expense within research and development expense associated with these awards.

In April 2017, the Company amended the employment agreement with its former Chief Operating Officer as a result of his diagnosis of amyotrophic lateral sclerosis (ALS). The amended agreement modified the vesting conditions of his stock options and restricted stock units in the event his termination of employment as a result of death or disability and extended the post termination exercise period of the options. These modifications resulted in zero and \$3.6 million of stock-based compensation, recognized within general and administrative expense during the three and nine months ended September 30, 2017, respectively.

Stock Options

The fair value of each stock option issued to employees was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Expected volatility	65.1%	65.4%	65.8%	64.5%
Expected term (in years)	6.0	6.0	6.0	5.9
Risk-free interest rate	1.9%	1.2%	2.1%	1.4%
Expected dividend yield	—%	—%	—%	—%

The following table summarizes the stock option activity under the Company's 2003 Plan and 2013 Plan during the nine months ended September 30, 2017 (in thousands, except per share amounts and years):

	Number of Stock Options	Weighted- Average Exercise Price Per Share	Weighted- Average Contractual Life (in years)	Aggregate Intrinsic Value(1)
Outstanding at December 31, 2016	3,316	\$ 25.96	7.03	
Granted	669	\$ 30.51		
Exercised	(442)	\$ 7.32		
Canceled or forfeited	(84)	\$ 34.16		
Outstanding at September 30, 2017	<u>3,459</u>	\$ 29.02	6.99	\$ 32,169
Exercisable at September 30, 2017	<u>1,907</u>	\$ 25.88	5.55	\$ 24,324

(1) The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying options and the estimated fair value of the common stock for the options that were in the money at September 30, 2017 .

During the nine months ended September 30, 2017 , the Company granted stock options to purchase an aggregate of 669,184 shares of its common stock, with a weighted-average grant date fair value of options granted of \$18.44 per share.

During the nine months ended September 30, 2017 , current and former employees of the Company exercised a total of 441,842 options, resulting in total proceeds of \$3.2 million .

The aggregate intrinsic value of options exercised during the nine months ended September 30, 2017 was \$9.5 million .

As of September 30, 2017 , there was \$25.4 million of unrecognized compensation expense related to unvested stock options that is expected to be recognized over a weighted-average period of 2.57 years.

Restricted Stock Units

The following table summarizes the restricted stock unit (RSU) activity under the 2013 Plan during the nine months ended September 30, 2017 (in thousands, except per share amounts):

	Number of RSUs	Weighted- Average Grant Date Fair Value Per Share
Unvested balance at December 31, 2016	732	\$ 31.55
Granted	129	\$ 29.53
Vested	(289)	\$ 31.00
Forfeited	(21)	\$ 32.27
Unvested balance at September 30, 2017	<u>551</u>	<u>\$ 31.34</u>

During the nine months ended September 30, 2017 , the Company issued 100,692 RSUs to employees which are subject to time-based vesting. As of September 30, 2017 , 214,120 of these restricted stock units remained unvested and outstanding, and there was approximately \$4.7 million of related unrecognized compensation cost, which the Company expects to recognize over a remaining weighted-average period of 1.63 years .

During the nine months ended September 30, 2017 , the Company issued 28,333 RSUs to employees which are subject to performance-based vesting conditions, and vesting accelerates upon the occurrence of certain milestone events. In September 2019, any of these unvested RSUs will vest. As a result, when a milestone becomes probable, compensation cost is recognized from the grant date through the estimated date of achievement. If achievement is not considered probable, the expense is recognized from the grant date through September 2019. As of September 30, 2017 , 337,122 of these performance-based RSUs remained outstanding, and there was approximately \$5.6 million of related unrecognized compensation cost, which the Company expects to recognize over a remaining weighted-average period of 1.66 years .

Employee Stock Purchase Plan

The Company recorded stock-based compensation expense related to the ESPP Plan during the three months ended September 30, 2017 and 2016 of \$0.1 million and \$0.1 million , respectively, and during the nine months ended September 30, 2017 and 2016 of \$0.2 million and \$0.2 million , respectively.

17. Income Taxes

For the three months and nine months ended September 30, 2017, the Company recognized an income tax benefit of \$41 thousand and \$29 thousand and tax expense in other comprehensive loss of \$59 thousand and \$59 thousand related to the unrealized gain on available-for-sale securities. At September 30, 2017, the Company recorded an accrued tax provision of \$17 thousand related to this tax benefit included within accrued expenses and other current liabilities in the condensed consolidated balance sheet, which is expected to be generated from continuing operations.

For the three and nine months ended September 30, 2016, the Company recognized an income tax benefit of \$20 thousand and \$20 thousand and tax expense in other comprehensive loss of \$53 thousand and \$53 thousand related to the unrealized gain on available-for-sale securities. At September 30, 2016, the Company recorded an accrued tax provision of \$17 thousand related to this tax benefit included within accrued expenses and other current liabilities in the condensed consolidated balance sheet, which is expected to be generated from continuing operations.

The Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets. Based on the Company's history of operating losses, the Company has concluded that it is more likely than not that the benefit of its deferred tax assets will not be realized. Accordingly, the Company has provided a full valuation allowance for deferred tax assets as of September 30, 2017 and December 31, 2016.

The Company files income tax returns in the United States, and various state jurisdictions. The federal and state income tax returns are generally subject to tax examinations for the tax years ended December 31, 2013 through December 31, 2016. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the Internal Revenue Service or state taxing authorities to the extent utilized in a future period.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. As of September 30, 2017 and December 31, 2016, the Company did not have any significant uncertain tax positions.

18. Related Party Transactions

Celgene Corporation

In connection with the Company's September 2017 public offering, Celgene purchased 745,592 shares of common stock. In connection with this and prior transactions, Celgene owned 12.7% and 12.9% of the Company's fully diluted equity as of September 30, 2017 and December 31, 2016, respectively. Refer to Note 14 for additional information regarding this collaboration arrangement.

During the three and nine months ended September 30, 2017 and 2016, all revenue recognized by the Company was recognized under the Celgene collaboration arrangement and, as of September 30, 2017, the Company had \$3.8 million of deferred revenue related to the Celgene collaboration arrangement.

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

The following information should be read in conjunction with the unaudited condensed consolidated financial statements and the notes thereto included in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2016.

Certain matters discussed in this Quarterly Report on Form 10-Q may be deemed to be forward-looking statements that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. In this Quarterly Report on Form 10-Q, words such as "anticipate," "believe," "continue," "could," "estimate," "expect," "forecast," "goal," "intend," "may," "plan," "potential," "project," "should," "strategy," "target," "vision," "will," "would," or, in each case, the negative or other variations thereon or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this Quarterly Report on Form 10-Q include, among other things, statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things:

- our ongoing and planned preclinical studies and clinical trials;
- clinical trial data and the timing of results of our ongoing clinical trials;
- our plans to develop and commercialize ACE-083 and our other preclinical therapeutic candidates, our and Celgene's plans to develop and commercialize luspatercept and sotatercept;
- the potential benefits of strategic partnership agreements and our ability to enter into selective strategic partnership arrangements;
- the timing of anticipated milestone payments under our collaboration agreements with Celgene;
- the timing of, and our and Celgene's ability to, obtain and maintain regulatory approvals for our therapeutic candidates;
- the rate and degree of market acceptance and clinical utility of any approved therapeutic candidate, particularly in specific patient populations;
- our ability to quickly and efficiently identify and develop therapeutic candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our intellectual property position; and
- our estimates regarding our operating capital requirements, results of operations, financial condition, liquidity, capital requirements, prospects, growth and strategies.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events, competitive dynamics, and industry changes and depend on the economic circumstances that may or may not occur in the future or may occur on longer or shorter timelines than anticipated. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and events in the industry in which we operate may differ materially from the forward-looking statements contained herein.

Any forward-looking statements that we make in this Quarterly Report on Form 10-Q speak only as of the date of such statements, and we undertake no obligation to update such statements to reflect events or circumstances after the date of this Quarterly Report on Form 10-Q or to reflect the occurrence of unanticipated events.

You should also read carefully the factors described in the section "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016 to better understand the risks and uncertainties inherent in our business and underlying any forward-looking statements. You are advised, however, to consult any further disclosures we make on related subjects in our subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, press releases, and our website.

You should read the following discussion and analysis of financial condition and results of operations together with Part I Item 1 "Financial Statements" and related notes included elsewhere in this Quarterly Report on Form 10-Q.

Overview

We are a leading biopharmaceutical company in the discovery and development of TGF-beta therapeutics to treat serious and rare diseases. Our research focuses on key natural regulators of cellular growth and repair, particularly the transforming growth factor-beta, or TGF-beta, protein superfamily. By combining our discovery and development expertise, including our proprietary knowledge of the TGF-beta superfamily, and our internal protein engineering and manufacturing capabilities, we have generated several innovative therapeutic candidates, all of which encompass novel potential first-in-class mechanisms of action. We have focused and prioritized our research and development activities within three key therapeutic areas: hematology, neuromuscular and pulmonary. If successful, these candidates could have the potential to significantly improve clinical outcomes for patients across these areas of high, unmet need.

Luspatercept, our lead program, and sotatercept, are partnered with Celgene Corporation, or Celgene. Luspatercept is designed to promote red blood cell production through a novel mechanism, and is being developed to treat chronic anemia and associated complications in myelodysplastic syndromes, or MDS, beta-thalassemia, and myelofibrosis. Celgene is currently conducting two Phase 3 clinical trials with luspatercept; one for the treatment of patients with lower risk MDS, known as the "MEDALIST" trial, and another for the treatment of patients with transfusion-dependent beta-thalassemia, also known as the "BELIEVE" trial. Celgene recently initiated a Phase 2 clinical trial for the treatment of patients with myelofibrosis, a rare bone marrow disorder, and we expect Celgene to enroll the first patient in this study by the end of this year. We further expect Celgene to initiate a Phase 3 clinical trial, the "COMMANDS" trial, in first-line, lower-risk MDS patients in first half of 2018. In addition, a Phase 2 trial in non-transfusion-dependent beta-thalassemia patients, referred to as the "BEYOND" trial, is in the planning stages and we expect Celgene to initiate the BEYOND trial by the end of this year.

For sotatercept, we recently announced that Celgene granted rights to us to fund, develop, and lead the global commercialization of sotatercept in pulmonary arterial hypertension, or PAH. PAH is a rare and chronic, rapidly progressing disorder characterized by the constriction of small pulmonary arteries, resulting in abnormally high blood pressure in the pulmonary arteries. We expect to initiate a Phase 2 clinical trial for the treatment of patients with PAH in the first half of 2018.

Celgene is responsible for paying 100% of the development costs for all clinical trials for luspatercept as well as clinical trials with sotatercept, outside of pulmonary hypertension. We may receive a maximum of \$545.0 million for the potential development, regulatory and commercial milestone payments. If luspatercept and, outside of pulmonary hypertension, sotatercept, are commercialized, we are eligible to receive a royalty on net sales in the low-to-mid 20% range. We have the right to co-promote luspatercept and, outside of pulmonary hypertension, sotatercept, if approved, in North America, for which our commercialization costs will be entirely funded by Celgene. With regard to sotatercept in pulmonary hypertension, we have the right to fund and conduct all development and commercialization activities. If sotatercept is commercialized to treat pulmonary hypertension and we recognize such revenue, then Celgene will be eligible to receive a royalty in the low 20% range on global net sales. In certain circumstances Celgene may recognize revenue related to the commercialization of sotatercept in pulmonary hypertension, and in this scenario we will be eligible to receive a royalty from Celgene such that the economic position of the parties is equivalent to the scenario in which we recognize such revenue.

We are independently developing our wholly-owned neuromuscular candidate, ACE-083. ACE-083 is designed for the treatment of focal muscle loss disorders, and we are currently conducting a Phase 2 clinical trial with ACE-083 in patients with facioscapulohumeral dystrophy, or FSHD, as well as a Phase 2 clinical trial with ACE-083 in patients with Charcot-Marie-Tooth disease, or CMT. We expect to report part 1 preliminary results from dose cohort 1 of our Phase 2 clinical trial in patients with FSHD in January 2018, and we expect to report preliminary results from part 1 of all dose-escalation cohorts in both of our Phase 2 clinical trials with ACE-083 in 2018. We previously reported data from the Phase 1 clinical trial of ACE-083 showing marked increases in the volume of muscles treated with ACE-083, measured using magnetic resonance imaging or MRI.

In addition to our clinical programs, we are conducting research within our three focused disease areas-hematologic, neuromuscular and pulmonary-in order to identify new therapeutic candidates to advance into clinical trials. To this end, we expanded our discovery efforts with our proprietary platform technology, IntelliTrap™. We have nominated an IntelliTrap™ molecule, ACE-2494, a systemic muscle agent, as a candidate for clinical development, and we expect to initiate a Phase 1 healthy volunteer study by the end of 2017.

As of September 30, 2017, our operations have been primarily funded by \$105.1 million in equity investments from venture investors, \$509.7 million from public investors, \$123.7 million in equity investments from our collaboration partners and \$270.8 million in upfront payments, milestones, and net research and development payments from our collaboration partners.

We expect to continue to incur significant expenses and increasing operating losses over at least the next several years. We expect our expenses will increase substantially in connection with our ongoing activities, if and as we:

- conduct clinical trials for ACE-083, sotatercept, ACE-2494 or any future therapeutic candidates;
- continue our preclinical studies and potential clinical development efforts of our existing preclinical therapeutic candidates;
- continue research activities for the discovery of new therapeutic candidates;
- manufacture therapeutic candidates for our preclinical studies and clinical trials;
- acquire or in-license other therapeutic candidates and patents;
- seek regulatory approval for our therapeutic candidates; and
- operate as a public company.

We will not generate revenue from product sales unless and until we or a partner successfully complete development and obtain regulatory approval for one or more of our therapeutic candidates. We expect that this will take a number of years and is subject to significant uncertainty. All current and future development and commercialization costs for luspatercept and, outside of pulmonary hypertension, sotatercept, are paid by Celgene. If we obtain regulatory approval for ACE-083, sotatercept, ACE-2494, or any future therapeutic candidate, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution to the extent that such costs are not paid by future partners. We will seek to fund our operations through the sale of equity, debt financings or other sources, including potential additional collaborations. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such other arrangements as, and when, needed, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our therapeutic candidates.

Our ability to generate product revenue and become profitable depends upon our and our partners' ability to successfully commercialize products. We expect to incur losses for the foreseeable future, and we expect these losses to increase as we continue our development of, and seek regulatory approvals for, our therapeutic candidates and potentially begin to commercialize any approved products. For a description of the numerous risks and uncertainties associated with product development, see "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016 .

Financial Operations Overview

Revenue

Collaboration Revenue

We have not generated any revenue from the sale of products. Our revenue to date has been predominantly derived from collaboration revenue, which includes license and milestone revenues and cost sharing revenue, generated through collaboration and license agreements with partners for the development and commercialization of our therapeutic candidates. Cost sharing revenue represents amounts reimbursed by our collaboration partners for expenses incurred by us for research and development activities and, potentially, co-promotion activities, under our collaboration agreements. Cost sharing revenue is recognized in the period that the related activities are performed.

Costs and Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs directly incurred by us for the development of our therapeutic candidates, which include:

- direct employee-related expenses, including salaries, benefits, travel and stock-based compensation expense of our research and development personnel;
- expenses incurred under agreements with clinical research organizations, or CROs, and investigative sites that will conduct our clinical trials;
- the cost of acquiring and manufacturing preclinical and clinical study materials and developing manufacturing processes;
- allocated facilities, depreciation, and other expenses, which include rent and maintenance of facilities, insurance and other supplies;
- expenses associated with obtaining and maintaining patents; and

- costs associated with preclinical activities and regulatory compliance.

Research and development costs are expensed as incurred. Costs for certain development activities are recognized based on an evaluation of the progress to completion of specific tasks using information and data provided to us by our vendors and our clinical sites.

We cannot determine with certainty the duration and completion costs of the current or future clinical trials of our therapeutic candidates or if, when, or to what extent we will generate revenues from the commercialization and sale of any of our therapeutic candidates for which we or any partner obtain regulatory approval. We or our partners may never succeed in achieving regulatory approval for any of our therapeutic candidates. The duration, costs and timing of clinical trials and development of our therapeutic candidates will depend on a variety of factors, including:

- the scope, rate of progress, and expense of our ongoing, as well as any additional, clinical trials and other research and development activities;
- future clinical trial results;
- potential changes in government regulation; and
- the timing and receipt of any regulatory approvals.

A change in the outcome of any of these variables with respect to the development of a therapeutic candidate could mean a significant change in the costs and timing associated with the development of that therapeutic candidate. For example, if the U.S. Food and Drug Administration, or another regulatory authority were to require us to conduct clinical trials beyond those that we currently anticipate will be required for the completion of the clinical development of our therapeutic candidates, or if we experience significant delays in the enrollment in any clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

From inception through September 30, 2017, we have incurred \$529.5 million in research and development expenses. We plan to increase our research and development expenses for the foreseeable future as we continue the development of our TGF-beta platform therapeutic candidates, the discovery and development of preclinical therapeutic candidates, and the development of our clinical programs. Expenses associated with luspatercept and, outside of pulmonary hypertension, sotatercept, are reimbursed 100% by Celgene. These reimbursements are recorded as revenue. We are expensing the costs of eight Phase 2 clinical trials for luspatercept, dalantercept and ACE-083, of which the four for luspatercept are reimbursed by Celgene and the two for dalantercept are being discontinued. With respect to the luspatercept Phase 3 clinical trials directly conducted by Celgene, we do not incur and are not reimbursed for expenses related to these development activities.

We manage certain activities such as clinical trial operations, manufacture of therapeutic candidates, and preclinical animal toxicology studies through third-party CROs. The only costs we track by each therapeutic candidate are external costs such as services provided to us by CROs, manufacturing of preclinical and clinical drug product, and other outsourced research and development expenses. We do not assign or allocate to individual development programs internal costs such as salaries and benefits, facilities costs, lab supplies and the costs of preclinical research and studies. Our external research and development expenses during the three and nine months ended September 30, 2017 and 2016 are as follows:

(in thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Luspatercept(1)	\$ 1,329	\$ 1,693	\$ 4,783	\$ 5,012
Dalantercept(2)	939	1,128	3,688	5,215
ACE-083	2,249	1,820	7,434	3,434
ACE-2494	1,139	—	3,586	—
Total direct research and development expenses	5,656	4,641	19,491	13,661
Other expenses(3)	15,403	12,461	44,896	35,831
Total research and development expenses	\$ 21,059	\$ 17,102	\$ 64,387	\$ 49,492

- (1) Expenses associated with luspatercept are reimbursed 100% by Celgene.
- (2) Development of dalantercept is being discontinued.
- (3) Other expenses include unallocated employee and contractor-related expenses, facility expenses, lab supplies, and miscellaneous expenses.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and related costs for personnel, including stock-based compensation and travel expenses for our employees in executive, operational, finance and human resource functions and other general and administrative expenses including directors' fees and professional fees for accounting and legal services.

We continue to incur expenses related to audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and Securities and Exchange Commission, or SEC, requirements, director and officer insurance premiums, and investor relations costs associated with being a public company. We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research and development and potential commercialization of our therapeutic candidates. Additionally, if and when we believe regulatory approval of a therapeutic candidate appears likely, to the extent that we are undertaking commercialization of such therapeutic candidate ourselves, we anticipate an increase in payroll and related expenses as a result of our preparation for commercial operations.

Other (Expense) Income, Net

Other (expense) income, net consists primarily of the re-measurement gain or loss associated with the change in the fair value of our common stock warrant liabilities and interest income earned on cash, cash equivalents and investments.

To estimate the fair value of our liability classified warrants, we use either the Monte Carlo simulation framework, which incorporates future financing events over the remaining life of the warrants to purchase common stock, or for certain re-measurement dates, due to the warrants being deeply in the money, the Black-Scholes option pricing model. We base the estimates in the pricing models, in part, on subjective assumptions, including stock price volatility, risk-free interest rate, dividend yield, and the fair value of the common stock underlying the warrants. The Black-Scholes option pricing model was used at September 30, 2017 .

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, and expenses and the disclosure of contingent assets and liabilities in our consolidated financial statements. On an ongoing basis, we evaluate our estimates and judgments, including those related to revenue recognition, accrued expenses and stock-based compensation. We also utilize significant estimates and assumptions in determining the fair value of our liability-classified warrants to purchase common stock. We base our estimates on historical experience, known trends and events, and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

There have been no material changes to our critical accounting policies since December 31, 2016 . For further information on our critical and other significant accounting policies, see the notes to the condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2016 .

Results of Operations**Comparison of the Three Months Ended September 30, 2017 and 2016**

(in thousands)	Three Months Ended September 30,		Increase (Decrease)
	2017	2016	
Revenue:			
Collaboration revenue:			
License and milestone	\$ 135	\$ 135	\$ —
Cost-sharing, net	2,879	2,870	9
Total revenue	3,014	3,005	9
Costs and expenses:			
Research and development	21,059	17,102	3,957
General and administrative	7,533	6,411	1,122
Total costs and expenses	28,592	23,513	5,079
Loss from operations	(25,578)	(20,508)	(5,070)
Other income (expense), net	86	(282)	368
Loss before income taxes	(25,492)	(20,790)	(4,702)
Income tax benefit	41	20	21
Net loss	\$ (25,451)	\$ (20,770)	\$ (4,681)

Revenue. We recognized revenue of \$3.0 million in the three months ended September 30, 2017, compared to \$3.0 million in the same period in 2016. All of the revenue in both periods was derived from the Celgene agreements.

Research and Development Expenses. Research and development expenses were \$21.1 million in the three months ended September 30, 2017, compared to \$17.1 million in the same period in 2016. This \$4.0 million increase was primarily due to an increase in personnel expenses totaling \$2.8 million, to support development of our wholly owned therapeutic candidates and preclinical programs, which includes an increase in stock-based compensation expense of \$1.2 million. Other increases include clinical trial and toxicology expenses of \$1.4 million.

General and Administrative Expenses. General and administrative expenses were \$7.5 million in the three months ended September 30, 2017, compared to \$6.4 million for the same period in 2016. This \$1.1 million increase was primarily due to an increase in personnel expense of \$1.0 million.

Other Income (Expense), Net. Other income, net was \$0.1 million in the three months ended September 30, 2017, compared to other expense, net of \$0.3 million for the same period in 2016. This \$0.4 million change was primarily due to a \$0.4 million decrease in the loss associated with marking the common warrant liability to market in each period.

Income Tax Benefit. Income tax benefit is attributable to the realization of current year losses that offset unrealized gains, recognized in other comprehensive income, from our investment portfolio.

Comparison of the Nine Months Ended September 30, 2017 and 2016

(in thousands)	Nine Months Ended September 30,		Increase (Decrease)
	2017	2016	
Revenue:			
Collaboration revenue:			
License and milestone	\$ 406	\$ 15,415	\$ (15,009)
Cost-sharing, net	9,370	8,987	383
Total revenue	9,776	24,402	(14,626)
Costs and expenses:			
Research and development	64,387	49,492	14,895
General and administrative	26,735	19,029	7,706
Total costs and expenses	91,122	68,521	22,601
Loss from operations	(81,346)	(44,119)	(37,227)
Other income, net	791	6,374	(5,583)
Loss before income taxes	(80,555)	(37,745)	(42,810)
Income tax benefit	29	20	9
Net loss	\$ (80,526)	\$ (37,725)	\$ (42,801)

Revenue. We recognized revenue of \$9.8 million in the nine months ended September 30, 2017, compared to \$24.4 million in the same period in 2016. All of the revenue in both periods was derived from the Celgene agreements. This \$14.6 million decrease was primarily due to the receipt of a \$15 million milestone payment from Celgene for the initiation of a Phase 3 clinical trial with luspatercept in 2016, offset in part by an increase in cost sharing revenue of \$0.4 million primarily related to an increase in reimbursement for personnel compared to the prior year.

Research and Development Expenses. Research and development expenses were \$64.4 million in the nine months ended September 30, 2017, compared to \$49.5 million in the same period in 2016. This \$14.9 million increase was primarily due to an increase in personnel expenses totaling \$9.3 million to support development of our wholly owned therapeutic candidates and preclinical programs, which includes an increase in stock-based compensation expense of \$4.7 million. Other increases include clinical trial and toxicology expenses of \$6.0 million. These increases were partially offset by a decrease in licensing expense related to payments that we made in connection with the achievement of a milestone in 2016 totaling \$0.9 million.

General and Administrative Expenses. General and administrative expenses were \$26.7 million in the nine months ended September 30, 2017, compared to \$19.0 million for the same period in 2016. This \$7.7 million increase was primarily due to an increase in personnel expense of \$7.9 million, which includes an increase in stock-based compensation expense of \$3.8 million, primarily due to modifications of a former executive officer's equity awards, which was announced in May 2017.

Other Income, Net. Other income, net was \$0.8 million in the nine months ended September 30, 2017, compared to \$6.4 million for the same period in 2016. This \$5.6 million decrease was primarily due to a \$5.7 million decrease in the gain associated with marking the common warrant liability to market.

Income Tax Benefit. Income tax benefit is attributable to the realization of current year losses that offset unrealized gains, recognized in other comprehensive income, from our investment portfolio.

Liquidity and Capital Resources

We have incurred losses and cumulative negative cash flows from operations since our inception in June 2003, and as of September 30, 2017, we had an accumulated deficit of \$445.1 million. We anticipate that we will continue to incur losses for at least the next several years. We expect that our research and development and general and administrative expenses will continue to increase and, as a result, we will need additional capital to fund our operations, which we may raise through a combination of the sale of equity, debt financings or other sources, including potential additional collaborations.

As of September 30, 2017, our operations have been primarily funded by \$105.1 million in equity investments from venture investors, \$509.7 million from public investors, \$123.7 million in equity investments from our collaboration partners and \$270.8 million in upfront payments, milestones, and net research and development payments from our collaboration partners.

As of September 30, 2017, we had \$366.6 million in cash, cash equivalents and investments. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation. We believe that our existing cash, cash equivalents and investments, including the net proceeds from the offering and the exercise of the underwriters' over-allotment, will be sufficient to fund our projected operating requirements into 2021.

Cash Flows

The following table sets forth the primary sources and uses of cash for each of the periods set forth below (in thousands):

(in thousands)	Nine Months Ended September 30,	
	2017	2016
Net cash (used in) provided by:		
Operating activities	\$ (55,928)	\$ (27,955)
Investing activities	82,117	(113,691)
Financing activities	191,820	144,879
Net increase in cash and cash equivalents	<u>\$ 218,009</u>	<u>\$ 3,233</u>

Operating Activities

Net cash used in operating activities was \$55.9 million for the nine months ended September 30, 2017 compared to \$28.0 million during the same period in 2016. The change was driven primarily by an increase in net loss of \$42.8 million, which includes lower revenue due to a \$15.0 million milestone recognized in 2016 and a \$5.7 million decrease in the gain associated with marking the common warrants to market. Operating expenses increased by \$22.6 million for 2017, including an \$8.5 million increase in non-cash stock-based compensation expense, in part due to modifications of the equity awards of our former Chief Operating Officer.

Investing Activities

Net cash provided by investing activities was \$82.1 million for the nine months ended September 30, 2017 compared to net cash used in investing activities of \$113.7 million for the nine months ended September 30, 2016. This increase in net cash provided by investing activities was primarily due to net maturities of our investments of \$85.8 million during the nine months ended September 30, 2017 in connection with managing the portfolio to meet our cash requirements, compared to net purchases of \$111.4 million in the nine months ended September 30, 2016, in connection with implementing our investment policy.

Financing Activities

Net cash provided by financing activities was \$191.8 million for the nine months ended September 30, 2017 compared to \$144.9 million for the same period in 2016. The increase is primarily attributable to \$187.6 million of proceeds received from our public offering in September 2017, compared to \$140.3 million of proceeds received during the comparable period in 2016 from our public offering.

Operating Capital Requirements

To date, we have not generated any revenue from product sales. We do not know when, or if, we will generate any revenue from product sales. We will not generate revenue from product sales unless and until we or our partners obtain regulatory approval of and commercialize one of our current or future therapeutic candidates. We anticipate that we will continue to generate losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek and obtain regulatory approvals for ACE-083, sotatercept, ACE-2494 and any future therapeutic candidates, and begin to commercialize any approved products. We are subject to all of the risks inherent in the development of therapeutic candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. We have incurred, and expect to continue to incur, additional costs associated with operating as a public company. We anticipate that we will need additional funding in connection with our continuing operations.

We believe that our existing cash, cash equivalents and investments, including the net proceeds from the offering and the exercise of the underwriters' over-allotment option, will be sufficient to fund our projected operating requirements into 2021. However, we will require additional capital for the further development of our existing therapeutic candidates and may also need to raise additional funds sooner to pursue other development activities related to additional therapeutic candidates.

Until we can generate a sufficient amount of revenue from our products, if ever, we expect to fund our operations through a combination of equity offerings, debt financings or other sources, including potential additional collaborations. Additional

capital may not be available on favorable terms, if at all. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our therapeutic candidates. If we raise additional funds through the issuance of additional debt or equity securities, it could result in dilution to our existing stockholders and increased fixed payment obligations, and these securities may have rights senior to those of our common stock. If we incur indebtedness, we could become subject to covenants that would restrict our operations and potentially impair our competitiveness, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. We may not be able to enter into new collaboration arrangements for any of our proprietary therapeutic candidates. Any of these events could significantly harm our business, financial condition and prospects.

Our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the achievement of milestones under our agreement with Celgene;
- the terms and timing of any other collaborative, licensing and other arrangements that we may establish;
- the initiation, progress, timing and completion of preclinical studies and clinical trials for our therapeutic candidates and potential therapeutic candidates;
- the number and characteristics of therapeutic candidates that we pursue;
- the progress, costs and results of our clinical trials;
- the outcome, timing and cost of regulatory approvals;
- delays that may be caused by changing regulatory requirements;
- the cost and timing of hiring new employees to support our continued growth;
- the costs involved in filing and prosecuting patent applications and enforcing and defending patent claims;
- the costs and timing of procuring clinical and commercial supplies of our therapeutic candidates;
- the extent to which we acquire or invest in businesses, products or technologies; and
- the costs involved in defending and prosecuting litigation regarding in-licensed intellectual property.

Net Operating Loss (NOL) Carryforwards

We had deferred tax assets of approximately \$136.5 million as of December 31, 2016, which have been fully offset by a valuation allowance due to uncertainties surrounding our ability to realize these tax benefits. The deferred tax assets are primarily composed of federal and state tax net operating loss, or NOL, carryforwards, research and development tax credit carryforwards, and deferred revenue, accruals, and other temporary differences. As of December 31, 2016, we had federal NOL carryforwards of approximately \$339.3 million and state NOL carryforwards of \$293.7 million available to reduce future taxable income, if any. These federal and state NOL carryforwards expire at various times through 2036. In general, if we experience a greater than 50 percent aggregate change in ownership of certain significant stockholders over a three-year period, or a Section 382 ownership change, utilization of our pre-change NOL carryforwards are subject to an annual limitation under Section 382 of the Internal Revenue Code of 1986, as amended, and similar state laws. Such limitations may result in expiration of a portion of the NOL carryforwards before utilization and may be substantial. If we experience a Section 382 ownership change in connection with our public offerings or as a result of future changes in our stock ownership, some of which changes are outside our control, the tax benefits related to the NOL carryforwards may be limited or lost. For additional information about our taxes, see Note 13 to the financial statements in our Annual Report on Form 10-K for the year ended December 31, 2016.

Contractual Obligations and Commitments

During the three months ended September 30, 2017, there were no material changes to our contractual obligations and commitments described under “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in our Annual Report on Form 10-K for the year ended December 31, 2016 except as described in Note 13 of the notes to the condensed consolidated financial statements appearing elsewhere in this Quarterly Report on the Form 10-Q.

Recent Accounting Pronouncements

For information on recent accounting pronouncements, see Recently Issued and Adopted Accounting Standards in the notes to the condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the Securities and Exchange Commission.

Item 3. Quantitative and Qualitative Disclosures About Market Risks

We are exposed to market risk related to changes in interest rates. As of September 30, 2017 and December 31, 2016, we had cash, cash equivalents and investments of \$366.6 million and \$234.4 million, respectively. Our cash equivalents are invested primarily in bank deposits and money market mutual funds. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Our investments are subject to interest rate risk and could fall in value if market interest rates increase. Due to the duration of our investment portfolio and the low risk profile of our investments, we do not believe an immediate 100 basis point change in interest rates would have a material effect on the fair market value of our portfolio. We have the ability to hold our investments until maturity, and therefore we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a change in market interest rates on our investments.

We contract with CROs and manufacturers internationally. Transactions with these providers are predominantly settled in U.S. dollars and, therefore, we believe that we have only minimal exposure to foreign currency exchange risks. We do not hedge against foreign currency risks.

Item 4. Controls and Procedures

Management’s Evaluation of our Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934, or the Exchange Act, is (1) recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms, and (2) accumulated and communicated to our management, including our principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure.

As of September 30, 2017, management, with the participation of our Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to our management, including the Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding required disclosures. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of September 30, 2017, the design and operation of our disclosure controls and procedures were effective.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the quarter ended September 30, 2017, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

While we are not currently a party to any material legal proceedings, we could become subject to legal proceedings in the ordinary course of business. We do not expect any such potential items to have a significant impact on our financial position.

Item 1A. Risk Factors

There have been no material changes from the risk factors previously disclosed in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 .

Item 6. Exhibits

The exhibits filed as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index, which is incorporated herein by reference.

SIGNATURES

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

ACCELERON PHARMA INC.

Date: November 7, 2017

By: /s/ HABIB J. DABLE

Habib J. Dable

Chief Executive Officer, President and Director

Date: November 7, 2017

By: /s/ KEVIN F. MCLAUGHLIN

Kevin F. McLaughlin

Senior Vice President, Chief Financial Officer and Treasurer

EXHIBIT INDEX

Exhibit Number	Description of Exhibit
10.1	First Amendment to Lease, dated as of July 18, 2017, between MIT 128 Sidney Leasehold LLC and Acceleron Pharma Inc. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (001-36065), filed on July 19, 2017)
10.2+	Amended and Restated Collaboration, License and Option Agreement between Acceleron Pharma Inc. and Celgene Corporation, dated as of September 18, 2017
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

+ Confidential treatment has been granted by, or is being requested from, the Securities and Exchange Commission as to certain portions of this Exhibit, which portions have been omitted and filed separately with the Securities and Exchange Commission as part of an application for confidential treatment pursuant to the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, as applicable.

THIS EXHIBIT HAS BEEN REDACTED AND IS THE SUBJECT OF A CONFIDENTIAL TREATMENT REQUEST. REDACTED MATERIAL IS MARKED WITH [* * *] AND HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

AMENDED AND RESTATED COLLABORATION, LICENSE AND OPTION AGREEMENT

by and between

ACCELERON PHARMA, INC.

and

CELGENE CORPORATION

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**AMENDED AND RESTATED COLLABORATION, LICENSE
AND OPTION AGREEMENT**

This Amended and Restated Collaboration, License and Option Agreement (this “**Agreement**” and, as the context requires, this “**Agreement**” shall mean this Agreement or the Amended Agreement) dated the 18th day of September, 2017 (the “**Amended and Restated Effective Date**”) is by and between Acceleron Pharma, Inc., a Delaware corporation having its principal office at 149 Sidney Street, Cambridge, MA 02139 (“**Acceleron**”) and Celgene Corporation, a Delaware corporation having its principal office at 86 Morris Avenue, Summit, NJ 07901 (“**Celgene**”). Acceleron and Celgene may each be referred to herein individually as a “**Party**” and collectively as the “**Parties** .”

INTRODUCTION

WHEREAS, the Parties entered into the Collaboration, License and Option Agreement dated as of February 20, 2008 (the “**Original Agreement**”) and amended the Original Agreement by entering into the First Amendment to the Collaboration, License and Option Agreement dated as of August 2, 2011 (the “**First Amendment**”) and the Original Agreement as amended by the First Amendment, the “**Amended Agreement**”);

WHEREAS, the Parties have been collaborating under the terms of the Amended Agreement, in the investigation and development of certain protein-based product candidates incorporating ActRIIA for the treatment, prevention, or modulation of diseases and conditions in humans;

WHEREAS, Acceleron and Celgene, pursuant to the Amended Agreement, entered into an option arrangement regarding rights to collaborate in the investigation and development of certain product candidates incorporating antibodies targeting [* * *], [* * *], and [* * *] for the treatment, prevention, or modulation of diseases and conditions in humans; and

WHEREAS, Acceleron and Celgene wish to, under this Agreement, amend the terms of the Amended Agreement to permit Acceleron to retain, subject to the terms and conditions of this Agreement, exclusive rights to Develop and Commercialize Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory under the terms and conditions set forth herein;

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth below and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree that the Amended Agreement is hereby amended and restated in its entirety as follows:

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**Article 1
DEFINITIONS**

Except as otherwise explicitly specified to the contrary, (a) references to a Section, Article, Exhibit or Schedule means a Section or Article of, or Schedule or Exhibit to this Agreement, unless another agreement is specified, (b) the word “including” will be construed as “including without limitation,” (c) references to a particular statute or regulation include all rules and regulations thereunder and any predecessor or successor statute, rules or regulations, in each case, as amended or otherwise modified from time to time, (d) words in the singular or plural form include the plural and singular form, respectively, (e) words of any gender include each other gender, (f) “or” is disjunctive but not necessarily exclusive, (g) the word “will” shall be construed to have the same meaning and effect as the word “shall,” (h) whenever this Agreement refers to a number of days, such number shall refer to calendar days unless Business Days are specified, and (i) references to a particular person include such person’s successors and assigns to the extent not prohibited by this Agreement.

When used in this Agreement, each of the following terms shall have the meanings set forth in this Article 1:

1.1 “**Acceleron Collaboration IP**” means any and all Collaboration IP created, conceived or reduced to practice, and, in the case of patentable Collaboration IP, Invented, solely by Acceleron, its Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Acceleron Collaboration IP shall not include any Collaboration IP that is Celgene Collaboration IP or Joint Collaboration IP.

1.2 “**Acceleron Development Activities**” means (a) all Development activities, including preclinical pharmacology studies, preclinical safety studies, Phase 1 Clinical Trials, initial Phase 2A Clinical Trials, and formulation development for Clinical Supply for such Clinical Trials, undertaken by Acceleron pursuant to this Agreement for the purpose of obtaining Regulatory Approval within North America and Europe and (b) and all PH Field Development Activities except for those that are Celgene Development Activities.

1.3 “**Acceleron Improvements**” means any and all Improvements to the Acceleron Technology or the Joint Technology created, conceived or reduced to practice, and, in the case of patentable Improvements, Invented, solely by Acceleron, its Affiliates, agents, or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Acceleron Improvements shall not include any Improvement that is a Celgene Improvement or Joint Improvement.

1.4 “**Acceleron Know-How**” means any Know-How (other than Acceleron Improvements and Acceleron Collaboration IP) that is either Controlled by Acceleron on the Effective Date or comes within Acceleron’s Control during the Agreement Term and is necessary or useful to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field. For avoidance of doubt, to the extent that antibodies that bind to [* * *] or receptors to which [* * *] binds are necessary or useful to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field, then, to the extent Controlled by Acceleron on the Effective Date

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or during the Agreement Term, the composition of such antibodies are included in the Acceleron Know-How.

1.5 “**Acceleron Patent Rights**” means (a) the United States and foreign patents and patent applications listed in Schedule 1.5 and, effective upon the dates and pursuant to the terms set forth in Section 7.2, the [* * *] Antibody Patent Rights, [* * *] Antibody Patent Rights and [* * *] Antibody Patent Rights, as applicable, (b) any Patent Rights arising from those patents and patent applications during the Agreement Term, (c) any Patent Rights resulting from Acceleron Improvements or Acceleron Collaboration IP, and (d) any other Patent Rights Controlled by Acceleron as of the Effective Date or during the Agreement Term (but, in the case of Third Party Intellectual Property Controlled by Acceleron during the Agreement Term, subject to Section 5.6.3(c)); all of the above (a) through (d) solely to the extent that such Patent Rights claim the manufacture or use of a Licensed Compound or a Licensed Product, claim a composition of matter of or including a Licensed Compound or a Licensed Product, or are necessary or useful to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field. For the avoidance of doubt, any Patent Rights that claim the use of a Licensed Compound or Licensed Product in combination with another product (including the use of a Licensed Compound or Licensed Product as part of a Combination Product) shall be included within “Acceleron Patent Rights” (if otherwise within this definition); provided that such inclusion shall not cause “Acceleron Patent Rights” to include any other Patent Rights that claim such other product or the use or manufacture of such other product (or the other active component of a Combination Product) that is not a Licensed Compound or Licensed Product.

1.6 “**Acceleron Technology**” means Acceleron Patent Rights, Acceleron Know-How, Acceleron Improvements, and Acceleron Collaboration IP.

1.7 “**ACE-536 Agreement**” means the Collaboration, License and Option Agreement, by and between Acceleron and Celgene, dated as of August 2, 2011, as amended.

1.8 “**ActRIIA**” means (a) any fusion protein containing at least [* * *] consecutive amino acids from the extracellular portion of human ActRIIA or a mammalian ortholog thereof, linked to an Fc region of an immunoglobulin, (b) any dimers or multimers of (a), and (c) any nucleic acid encoding a protein of (a) or (b). For clarity, and without limiting the foregoing, the term “ActRIIA” specifically includes the fusion protein identified as ACE-011 and the protein having the sequence of [* * *].

1.9 “**ActRIIB**” means (a) any fusion protein containing at least [* * *] consecutive amino acids from the extracellular portion of human ActRIIB or a mammalian ortholog thereof, linked to an Fc region of an immunoglobulin, (b) any dimers or multimers of (a), and (c) any nucleic acid encoding a protein of (a) or (b). For clarity, and without limiting the foregoing, the term “ActRIIB” specifically includes the fusion protein identified as ACE-031 and the protein having the sequence of [* * *].

1.10 “[* * *]” means (i) the protein having the sequence set forth in GenBank Entry [* * *] and dimers, multimers and fragments thereof and (ii) mammalian orthologs of (i), and dimers, multimers and fragments thereof.

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- 1.11 “[* * *] **Antibody**” means any antibody that binds to [* * *] with a dissociation constant (K_D) of 500 picomolar or less. The terms “[* * *] **Antibody**” and “[* * *] **Antibody**” may each include antibodies that bind to both [* * *] and [* * *].
- 1.12 “[* * *] **Antibody Patent Rights**” means the United States and foreign patents and patent applications listed in Schedule 1.12.
- 1.13 “[* * *]” means (i) the protein having the sequence set forth in GenBank Entry [* * *] and dimers, multimers and fragments thereof and (ii) mammalian orthologs of (i), and dimers, multimers and fragments thereof.
- 1.14 “[* * *] **Antibody**” means any antibody that binds to [* * *] with a dissociation constant (K_D) of 500 picomolar or less. The terms “[* * *] **Antibody**” and “[* * *] **Antibody**” may each include antibodies that bind to both [* * *] and [* * *].
- 1.15 “[* * *] **Antibody Patent Rights**” means the United States and foreign patents and patent applications listed in Schedule 1.15.
- 1.16 “**Adverse Event**” means any side effect, injury, toxicity or sensitivity reaction, or any unexpected incident, whether or not determined to be attributable to any Licensed Product.
- 1.17 “**Affiliate**” means, with respect to a subject entity, another entity that, directly or indirectly, controls, is controlled by, or is under common control with such subject entity, for so long as such control exists. For purposes of this definition only, “control” means ownership, directly or indirectly through one or more Affiliates, of at least fifty percent (50%) of the equity securities of the entity entitled to vote in the election of directors (or, in the case of an entity that is not a corporation, in the election of the corresponding managing authority, or in the case of a partnership, the status as a general partner) or any other arrangement whereby an entity controls or has the right to control the board of directors or equivalent governing body or management of a corporation or other entity.
- 1.18 “**Agreement Term**” means the period commencing on the Effective Date and ending upon the termination of this Agreement with respect to both North America and the Territory outside North America, in accordance with Section 10.1.
- 1.19 “**Applicable Law**” means the applicable laws, rules and regulations, including any rules, regulations, guidelines or other requirements of the Regulatory Authorities, that may be in effect from time to time in the Territory.
- 1.20 “**Bankruptcy Code**” means Title 11, United States Code, as amended, or analogous provisions of Applicable Law outside the United States.
- 1.21 “[* * *]” means (i) the protein having the sequence set forth in GenBank Entry [* * *] and dimers, multimers and fragments thereof and (ii) mammalian orthologs of (i), and dimers, multimers and fragments thereof.
- 1.22 “[* * *] **Antibody**” means any antibody that binds to [* * *] with a dissociation constant (K_D) of 500 picomolar or less.

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1.23 “[* * *] **Antibody Patent Rights** ” means the United States and foreign patents and patent applications listed in Schedule 1.23.

1.24 “ **Business Day** ” means a day on which banking institutions in Boston, Massachusetts and Trenton, New Jersey are open for business.

1.25 “ **Celgene Collaboration IP** ” means any and all Collaboration IP created, conceived or reduced to practice, and, in the case of patentable Collaboration IP, Invented, solely by Celgene, its Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Celgene Collaboration IP shall not include any Collaboration IP that is Acceleron Collaboration IP or Joint Collaboration IP.

1.26 “ **Celgene Development Activities** ” means (i) all Development activities, including Phase 2B Clinical Trials, Phase 3 Clinical Trials, any formulation development for Licensed Compounds or Licensed Products taking place after the end of Phase 2A Clinical Trials, and any other Development activities taking place after the end of Phase 2A Clinical Trials, undertaken by Celgene pursuant to this Agreement for the purpose of obtaining Regulatory Approval in North America and Europe, (ii) all Development activities, including all Clinical Trials and other Development activities undertaken by Celgene pursuant to this Agreement for the purpose of obtaining Regulatory Approvals outside North America and Europe and (iii) all Development activities to be conducted by or on behalf of Celgene or its Affiliates in the PH Field in the Territory solely to the extent expressly provided in this Agreement or otherwise agreed to in writing by Celgene; provided that, for clarity, Celgene Development Activities shall not include any PH Field Development Activities other than those set forth in this clause (iii) of this Section 1.26.

1.27 “ **Celgene Development Plan/Budget** ” means (a) the comprehensive plan for the Development of any Licensed Compound or Licensed Product for the purpose of obtaining Regulatory Approval in the Celgene Field in the Territory, including activities designed to generate the preclinical, process development/manufacturing scale-up, clinical and regulatory information required for filing NDAs for Licensed Products in the Celgene Field in the Territory, and (b) a budget setting forth the internal and external resources and expenses for such Development activities.

1.28 “ **Celgene Field** ” means (i) the treatment, prevention, modulation, or diagnosis of any disease, disorder, or condition in humans outside the PH Field, and (ii) any and all research uses and applications related to the Development, Manufacture and Commercialization of Licensed Compounds or Licensed Products outside the PH Field.

1.29 “ **Celgene Field Net Sales** ” means the aggregate gross invoice prices of all Licensed Products in the Celgene Field sold by or on behalf of a Party or its Affiliates and Sublicensees (including by the Distributing Party or its designee for a Licensed Product in the Celgene Field pursuant to this Agreement), to Third Parties anywhere within the Territory, including wholesale distributors, less deductions from such amounts calculated in accordance with U.S. GAAP so as to arrive at “net product sales” under U.S. GAAP, and further reduced by write-offs of accounts receivables or increased for collection of accounts that were previously written off.

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The transfer of Licensed Products between or among Celgene, Acceleron and their Affiliates and Sublicensees shall be excluded from the computation of Celgene Field Net Sales.

Notwithstanding the foregoing, in the event a Licensed Compound or Licensed Product is sold as a Combination Product, Celgene Field Net Sales shall be calculated by multiplying the Celgene Field Net Sales of the Combination Product by the fraction $A/(A+B)$, where A is the gross invoice price of the Licensed Compound or Licensed Product if sold separately in a country and B is the gross invoice price of the other product(s) included in the Combination Product if sold separately in such country. In the event no such separate sales are made by or on behalf of Celgene or its Affiliates or Sublicensees in a country, Celgene Field Net Sales of the Combination Product shall be calculated in a manner to be negotiated and agreed upon by the Parties, reasonably and in good faith, prior to any sale of such Combination Product, which shall be based upon the respective cost of goods sold of the active components of such Combination Product.

1.30 “**Celgene Field Royalty Rate**” means, with respect to a Licensed Product for which Celgene is the Distributing Party in the Celgene Field, the royalty rate payable by Celgene to Acceleron on Celgene Field Net Sales of such Licensed Product pursuant to Section 5.6.1(a), taking into account any adjustments of such rate under this Agreement, including under Section 5.6.3.

1.31 “**Celgene Improvements**” means (a) any and all Improvements to the Joint Technology created, conceived or reduced to practice, and, in the case of patentable Improvements, Invented, solely by Celgene, its Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; and (b) any and all Improvements to the Celgene Technology created, conceived or reduced to practice, and, in the case of patentable Improvements, Invented, solely by either Party, its Affiliates, agents or by Third Parties acting on their behalf or jointly by the Parties, their respective Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Celgene Improvements shall not include any Improvement that is an Acceleron Improvement or Joint Improvement.

1.32 “**Celgene Know-How**” means any Know-How (other than Celgene Improvements and Celgene Collaboration IP) that is either Controlled by Celgene on the Effective Date or comes within Celgene’s Control during the Agreement Term that Celgene, in its sole discretion, actually uses and is necessary to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field.

1.33 “**Celgene Patent Rights**” means (a) any Patent Rights resulting from Celgene Improvements or Celgene Collaboration IP and (b) any other Patent Rights Controlled by Celgene as of the Effective Date or during the Agreement Term, other than the Acceleron Patent Rights, that Celgene, in its sole discretion, actually uses and are necessary to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field; for each of (a) and (b) above, solely to the extent that such Patent Rights claim the manufacture or use of a Licensed Compound or a composition of matter of or including a Licensed Compound. For the avoidance of doubt, any Patent Rights that claim the use of a Licensed Compound or Licensed Product in combination with another product (including the use of a Licensed Compound or Licensed Product as part of a Combination Product) shall be included within “Celgene Patent Rights” (if otherwise within this definition); provided that such inclusion shall not cause “Celgene Patent Rights” to include any

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other Patent Rights that claim such other product or the use or manufacture of such other product (or the other active component of a Combination Product) that is not a Licensed Compound or Licensed Product.

1.34 “ **Celgene Technology** ” means Celgene Know-How, Celgene Patent Rights, Celgene Improvements, and Celgene Collaboration IP.

1.35 “ **Change of Control** ” means, with respect to a Party, (i) a merger or consolidation of such Party with a Third Party which results in the voting securities of such Party outstanding immediately prior thereto ceasing to represent at least fifty percent (50%) of the combined voting power of the surviving entity immediately after such merger or consolidation, or (ii) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of such Party, or (iii) the sale or other transfer to a Third Party of all or substantially all of such Party’s business to which the subject matter of this Agreement relates.

1.36 “ **Clinical Supplies** ” means supplies of Licensed Compound and Licensed Product Manufactured by or on behalf of Celgene or Acceleron in compliance with GLP and GMP and meeting the FDA Guidance for Biologics License Applications, Product License Applications/Establishment License Applications, New Drug Applications, and supplements and amendments to those applications to Center for Biologics Evaluation and Research (CBER) and EMA guidances, in each case, if required given the intended use, and ready to be used for the conduct of pre-clinical or human clinical trials of such Licensed Product in the Field.

1.37 “ **Clinical Trial** ” means a study in humans that is conducted in accordance with GCP and is designed to generate data in support of an NDA.

1.38 “ **Collaboration IP** ” means (a) any and all ideas, information, Know-How, data research results, writings, inventions, discoveries, modifications, enhancements, derivatives, new uses, developments, techniques, materials, compounds, products, designs, processes or other technology or intellectual property, whether or not patentable or copyrightable, in each case, that is not an improvement to then-existing Acceleron Technology, Celgene Technology, or Joint Technology and is developed by either Party, its Affiliates or Third Parties acting on their behalf while performing activities under this Agreement, and (b) all Patent Rights and other intellectual property rights in any of the foregoing.

1.39 “ **Combination Product** ” means any product that comprises a Licensed Compound or Licensed Product sold in conjunction with another active component so as to be a combination product (whether packaged together or in the same therapeutic formulation).

1.40 “ **Commercial Supplies** ” means supplies of Licensed Product in final packaged form Manufactured by or on behalf of Celgene or Acceleron in compliance with GMP and meeting FDA Guidance for Biologics License Applications, Product License Applications/Establishment License Applications, New Drug Applications, and supplements and amendments to those applications to Center for Biologics Evaluation and Research (CBER) and EMA guidances, in each case, if required

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given the intended use, and ready to be Commercialized by Acceleron or by Celgene, or their respective Affiliates or Sublicensees, as applicable, for use in the Field, in the Territory.

1.41 “ **Commercialization** ” means any and all activities using, constituting, importing, marketing, distributing, offering for sale and selling Licensed Products in the Field in the Territory following or in expectation of receipt of Regulatory Approval (but excluding Development) and shall include Promotion as well as activities required to fulfill ongoing regulatory obligations, including adverse event reporting but excluding any Post-Approval Clinical Trials. When used as a verb, “ **Commercialize** ” means to engage in Commercialization.

1.42 “ **Commercially Reasonable Efforts** ” means, for each Party, the carrying out of obligations in a diligent and sustained manner using such effort and employing such resources as would normally be exerted or employed by a similarly-situated biopharmaceutical company for a product of similar market potential, and at a similar stage of its Development or product life, taking into consideration safety and efficacy, Development Costs, Operating Costs, the anticipated prescription label, the nature of the Licensed Product, the clinical setting in which it is expected to be used, competitiveness of the marketplace, regulatory environment, the patent or other proprietary position of the Licensed Product, and other conditions then prevailing. Commercially Reasonable Efforts shall be determined on a country-by-country basis; provided that, with respect to the co-Promotion obligations hereunder, such standard shall be based on an established biopharmaceutical company rather than a similarly-situated biopharmaceutical company.

1.43 “ **Confidential Information** ” means, with respect to each Party, proprietary data or information that belongs in whole or in part to such Party, its Affiliates or Sublicensees, and is disclosed to the other Party. Confidential Information of Celgene includes all Celgene Technology, the reports delivered by Celgene to Acceleron hereunder, all proprietary data and information of Celgene disclosed by Celgene at the Joint Development Committee or Joint Commercialization Committee meetings, and any information designated as Confidential Information of Celgene hereunder. Confidential Information of Acceleron includes Acceleron Technology, the reports delivered by Acceleron to Celgene hereunder, all proprietary data and information of Acceleron disclosed by Acceleron at the Joint Development Committee or Joint Commercialization Committee meetings, and any information designated as Confidential Information of Acceleron hereunder. For clarity, information that is not otherwise Confidential Information of a Party hereunder shall not become Confidential Information by inclusion in a report delivered by such Party to the other Party. Confidential Information of both Parties includes Joint Technology and the terms and conditions of this Agreement. Confidential Information shall not include (as determined by competent documentation) information that:

- (a) was known by the receiving Party or its Affiliates prior to its date of disclosure to the receiving Party; or
- (b) either before or after the date of the disclosure to the receiving Party is lawfully disclosed to the receiving Party or its Affiliates by sources (other than the disclosing Party) rightfully in possession of the Confidential Information; or

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- (c) either before or after the date of the disclosure to the receiving Party or its Affiliates becomes published or generally known to the public (including information known to the public through the sale of products in the ordinary course of business) through no fault or omission on the part of the receiving Party, its Affiliates or its Sublicensees; or
- (d) is independently developed by or for the receiving Party or its Affiliates without reference to or reliance upon the Confidential Information.

1.44 “**Contract Year**” means each calendar year during the Agreement Term; provided, however, that the first Contract Year began on the Effective Date and ended on December 31, 2008. Each Contract Year shall be divided into four (4) “**Contract Quarters**” ending respectively on March 31, June 30, September 30 and December 31.

1.45 “**Control**” or “**Controlled**” means with respect to any (a) material, item of information, method, data or other Know-How or (b) Patent Rights or other intellectual property right, the possession (whether by ownership or license, other than pursuant to this Agreement) by a Party or its Affiliates of the ability to grant to the other Party access or a license as provided herein under such item or right without, in the case of such rights that are licensed from a Third Party, violating the terms of any agreement or other arrangement with any Third Party existing before or after the Effective Date.

1.46 “**Designated Countries**” means the United States, member countries of the European Patent Convention, member countries of the Eurasian Patent Convention, Canada, Australia, Japan, South Korea, China, India and Brazil.

1.47 “**Development**” means all pre-clinical and clinical activities performed by or on behalf of either Party with respect to Licensed Compounds or Licensed Products in the Field in the Territory in an indication, or for the purpose of obtaining Regulatory Approval with respect to such indication, from the Effective Date until Regulatory Approval of such Licensed Compounds or Licensed Products is obtained for the indication being studied, including: (a) identification and early pre-clinical testing of Licensed Compounds; (b) toxicology, regulatory affairs, pre-clinical studies and clinical trials in accordance with the GLPs, GCPs and GMPs or other designated quality standards and Applicable Laws; and (c) all Manufacturing activities (until such time as Manufacturing of Commercial Supplies commences) relating to developing the ability to Manufacture Licensed Product, including process and formulation development, process validation, manufacturing scale-up, manufacturing and analytical development, and quality assurance and quality control. When used as a verb, “**Develop**” means to engage in Development.

1.48 “**Development Costs**” means FTE Costs and other costs specifically identifiable or allocable to Development or regulatory activities for each Licensed Compound and Licensed Product and development of the Manufacturing process, as well as Manufacturing of Clinical Supplies, in each case, actually incurred by Celgene or Acceleron, or their respective Affiliates. Development Costs shall include:

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- (a) the costs associated with the production of Clinical Supplies (including \$[* * *] of Acceleron costs for the 960 vials of Clinical Supplies produced by Acceleron prior to the Effective Date, which vials will be used in connection with Development pursuant hereto) for all Clinical Trials (including the costs associated with the transfer of Clinical Supplies to the site of use and including pre-Commercialization and post-Commercialization Clinical Trials), which costs of Clinical Supplies shall include such costs that would ordinarily be included as a “Cost of Goods Sold” under U.S. GAAP for a similar product, made on the basis of theoretical full capacity operation of the relevant facility, and is set forth in the Development Plan/Budget under the Amended Agreement;
- (b) the costs of studies on the toxicological, pharmacological, metabolic or clinical aspects of a Licensed Compound or Licensed Product necessary for the purpose of obtaining Regulatory Approval of a Licensed Compound or a Licensed Product;
- (c) the costs of process and formulation development, process improvement and scale-up costs, validation costs, including qualification lots and costs for preparing, submitting, and reviewing or developing data or information for the purpose of submission to a governmental authority to obtain manufacturing or marketing approval of a Licensed Compound or a Licensed Product, in each case, to the extent that such costs and expenses are associated with Development activities;
- (d) the costs associated with the transfer to a Third Party of, and implementation by a Third Party of, manufacturing technology necessary for the Development of a Licensed Product or Licensed Compound;
- (e) costs of data management, statistical designs and studies, document preparation and other administration expenses associated with all Clinical Trials;
- (f) Third Party Intellectual Property Costs associated with Development activities and the Manufacture of Clinical Supplies that are deemed Development Costs pursuant to Section 5.6.3(c);
- (g) Patent Procurement Costs to the extent provided in Section 8.2.4(b); and
- (h) capital expenditures incurred by Acceleron and approved pursuant to Section 2.4.1.

In determining Development Costs chargeable under this Agreement, the Parties shall use their respective project accounting systems (which must be consistent with the terms of this Agreement). The Parties shall consistently apply methodologies for calculating and allocating Development Costs based on their internal accounting systems (which must be consistent with the terms of this Agreement). Notwithstanding anything in this definition to the contrary, only those Development Costs that are contemplated by the Development Plan/Budget shall be chargeable by either Party as Development Costs with any cost overruns treated in the manner set forth in Section 5.5.4. Except

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to the extent included in cost of Clinical Supplies described in clause (a) above, expenses incurred by either Party for equipment, materials and supplies utilized in performing its activities under the Development Plan/Budget shall not be separately charged as Development Costs, except for those expenses incurred by either Party, as set forth in the Development Plan/Budget, in the purchase or making of equipment, materials or supplies (other than common laboratory supplies, *e.g.* , pipettes, test tubes, petri dishes, reagents, and the like) that are to be used exclusively in connection with the performance of either Party's activities under the Development Plan/Budget (*e.g.* , laboratory animals, placebo supplies, etc.), which expenses shall be charged as Development Costs at either Party's actual out-of-pocket expense incurred in purchasing or making such equipment, materials or supplies.

1.49 “ **Development Plan/Budget** ” means either or both of the Celgene Development Plan/Budget or the PH Field Development Plan/Budget.

1.50 “ **Effective Date** ” means the date defined as the “Effective Date” in the Original Agreement.

1.51 “ **EMA** ” means the Regulatory Agency known as either the European Medicines Agency or the European Agency for the Evaluation of Medicinal Products, or a successor agency with responsibilities comparable to those of the European Medicines Agency or the European Agency for the Evaluation of Medicinal Products.

1.52 “ **Europe** ” means Switzerland and all countries in which the Development or Commercialization of a Licensed Compound or Licensed Product is regulated by the EMA.

1.53 “ **Executive Officers** ” means the Chief Executive Officer of Celgene (or a designee of such Chief Executive Officer) and the Chief Executive Officer of Acceleron (or a designee of such Chief Executive Officer).

1.54 “ **FDA** ” means the United States Food and Drug Administration, or a successor agency in the United States with responsibilities comparable to those of the United States Food and Drug Administration.

1.55 “ **Field** ” means (i) the treatment, prevention, modulation, or diagnosis of any disease, disorder, or condition in humans, and (ii) any and all research uses and applications related to the Development, Manufacture and Commercialization of Licensed Compounds or Licensed Products.

1.56 “ **First Amendment Effective Date** ” means August 2, 2011.

1.57 “ **First Commercial Sale** ” means, with respect to a given Licensed Product in a country in the Territory, the first commercial sale in an arms' length transaction of such Licensed Product to a Third Party by or on behalf of a Party, its Affiliate or its Sublicensee in such country following receipt of applicable Regulatory Approval of such Licensed Product in such country.

1.58 “ **FTE Costs** ” means, for any Contract Quarter, the FTE Rate multiplied by the number of hours of service spent in that quarter by employees of Celgene or Acceleron, or their respective Affiliates, working directly on the Development or Commercialization of a Licensed Product.

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1.59 “ **FTE Rate** ” means [* * *] (as of Contract Year 2017) for employees of each of Acceleron and its Affiliates and Celgene and its Affiliates, which rate may be adjusted annually by each Party based on changes in the Consumer Price Index (as quoted by the U.S. Department of Labor, Bureau of Labor Statistics).

1.60 “ **Fully Loaded Cost** ” means all costs actually incurred by Celgene or its Affiliates in the Manufacture of applicable therapeutic ingredients, finished products, related inputs, and services (a) supplied by a Third Party or (b) Manufactured directly by Celgene or its Affiliates; it being understood and agreed that (i) in the case of costs referred to in clause (a) of this sentence where a Third Party is the Manufacturer, Fully Loaded Cost will equal [* * *] of the amounts invoiced by (1) such Third Party or (2) any other Third Party engaged by Celgene to provide product quality assurance/control services (e.g., release testing, stability testing) with respect to the applicable product, and (ii) in the case of costs referred to in clause (b) of this sentence where Celgene or its Affiliate is the Manufacturer, Fully Loaded Cost will equal [* * *], which Manufacturing costs: (x) will include the cost of [* * *], and other direct and identifiable variable costs and appropriate direct and identifiable costs (or appropriate allocation thereof) for [* * *] (to the extent consistent with industry practice), and [* * *], including any reasonable overhead allocated thereto, and will include costs associated with the filing and maintaining of regulatory submissions for the Licensed Product [* * *] and (y) will be calculated in accordance with the accounting standards and Celgene’s policies and procedures for its other products, in each case, consistently applied (and such [* * *] costs will be allocated consistent with the accounting standards and the other Celgene products in that facility).

1.61 “ **GCP** ” means the international ethical and scientific quality standards for designing, conducting, recording, and reporting trials that involve the participation of human subjects. In the United States, GCP shall be based on Good Clinical Practices established through FDA guidances (including ICH E6).

1.62 “ **Generic Product** ” means a product on the market commercialized by a Third Party (excluding Sublicensees) that (a) is approved, under any then existing laws and regulations in the applicable country pertaining to approval of “generic” biologic products, as a “generic” version of a Licensed Product labeled for substantially similar indications as such Licensed Product; or (b) otherwise is recognized as a biosimilar or interchangeable biological product to the Licensed Product by the applicable Regulatory Authority.

1.63 “ **GLP** ” means the current Good Laboratory Practice (or similar standards) for the performance of laboratory activities for pharmaceutical products as are required by applicable Regulatory Authorities. In the United States, Good Laboratory Practices are established through FDA regulations (including 21 CFR Part 58), FDA guidances, FDA current review and inspection standards and current industry standards.

1.64 “ **GMP** ” means current Good Manufacturing Practices. In the United States, GMP shall be as defined under the rules and regulations of the FDA, as the same may be amended from time to time.

1.65 “ **HSR Act** ” means the Hart-Scott-Rodino Act of 1976, as amended.

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- 1.66 “ **Improvements** ” means (a) any and all ideas, information, Know-How, data research results, writings, inventions, discoveries, modifications, enhancements, derivatives, new uses, developments, techniques, materials, compounds, products, designs, processes or other technology or intellectual property, whether or not patentable or copyrightable, in each case, that is an improvement to then-existing Acceleron Technology, Celgene Technology, or Joint Technology and is developed by either Party, its Affiliates or Third Parties acting on their behalf while performing activities under this Agreement, and (b) all Patent Rights and other intellectual property rights in any of the foregoing.
- 1.67 “ **IND** ” means an Investigational New Drug Application, as defined in the Food Drug & Cosmetics Act, or similar application or submission that is required to be filed with any Regulatory Authority before beginning clinical testing of a Licensed Product in human subjects.
- 1.68 “ **Invented** ” means the act of invention by inventors, as determined in accordance with U.S. patent laws.
- 1.69 “ **Joint Collaboration IP** ” means any and all Collaboration IP created, conceived or reduced to practice, and, in the case of patentable Collaboration IP, Invented, jointly by Acceleron and Celgene, their respective Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Joint Collaboration IP shall not include any Collaboration IP that is Acceleron Collaboration IP or Celgene Collaboration IP.
- 1.70 “ **Joint Improvements** ” means (a) any and all Improvements to the Acceleron Technology created, conceived or reduced to practice, and, in the case of patentable Improvements, Invented, solely by Celgene, its Affiliates, agents or by Third Parties acting on their behalf, while performing activities under this Agreement; and (b) any and all Improvements to the Acceleron Technology or Joint Technology created, conceived or reduced to practice, and, in the case of patentable Improvements, Invented, jointly by Acceleron and Celgene, their respective Affiliates, agents or Sublicensees or by Third Parties acting on their behalf, while performing activities under this Agreement; provided, however, that Joint Improvements shall not include any Improvement that is a Celgene Improvement or Acceleron Improvement.
- 1.71 “ **Joint Patent Rights** ” means any Patent Rights resulting from any Joint Improvements or Joint Collaboration IP.
- 1.72 “ **Joint Technology** ” means Joint Improvements, Joint Patent Rights, and Joint Collaboration IP.
- 1.73 “ **Know-How** ” means any non-public, proprietary invention, discovery, process, method, composition, formula, procedure, protocol, technique, result of experimentation or testing, information, data, material, technology or other know-how, whether or not patentable or copyrightable. Know-How shall not include any Patent Rights with respect thereto.
- 1.74 “ **Licensed Compound** ” means ActRIIA, and, effective upon the dates and pursuant to the terms set forth in Section 7.2, any applicable Option Compound.

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1.75 “**Licensed Product**” means any preparation in final form that contains a Licensed Compound.

1.76 “**Major Market Countries**” means the United States, the European Union, and Japan.

1.77 “**Manufacturing**” means, as applicable, all activities associated with the production, manufacture, processing, filling, finishing, packaging, labeling, shipping, and storage of Licensed Compounds or Licensed Products, including process and formulation development, process validation, stability testing, manufacturing scale-up, pre-clinical, clinical and commercial manufacture and analytical development, product characterization, quality assurance and quality control, whether such activities are conducted by a Party, its Affiliates or a Third Party contractor of such Party. When used as a verb, “**Manufacture**” means to engage in Manufacturing.

1.78 “**Net Sales**” means the aggregate gross invoice prices of all Licensed Products in the Field sold by or on behalf of a Party, or their respective Affiliates and Sublicensees (including by the Distributing Party or its designee for a Licensed Product in the PH Field or Celgene Field, as applicable, pursuant to this Agreement), to Third Parties anywhere within the Territory, including wholesale distributors, less deductions from such amounts calculated in accordance with U.S. GAAP so as to arrive at “net product sales” under U.S. GAAP, and further reduced by write-offs of accounts receivables or increased for collection of accounts that were previously written off.

The transfer of Licensed Products between or among Celgene, Acceleron and their Affiliates and Sublicensees shall be excluded from the computation of Net Sales.

Notwithstanding the foregoing, in the event a Licensed Compound or Licensed Product is sold as a Combination Product, Net Sales shall be calculated by multiplying the Net Sales of the Combination Product by the fraction $A/(A+B)$, where A is the gross invoice price of the Licensed Compound or Licensed Product if sold separately in a country and B is the gross invoice price of the other product(s) included in the Combination Product if sold separately in such country. In the event no such separate sales are made by or on behalf of Celgene, Acceleron or their respective Affiliates or Sublicensees in a country, Net Sales of the Combination Product shall be calculated in a manner to be negotiated and agreed upon by the Parties, reasonably and in good faith, prior to any sale of such Combination Product, which shall be based upon the respective cost of goods sold of the active components of such Combination Product.

1.79 “**New Drug Application**” or “NDA” means a New Drug Application filed with the FDA as described in 21 C.F.R. § 314, a Biological License Application (BLA) pursuant to 21 C.F.R. § 601.2, or any equivalent or any corresponding application for Regulatory Approval (not including pricing and reimbursement approval) in any country or regulatory jurisdiction other than the United States.

1.80 “**Non-Prosecuting Party**” means, with respect to a particular Patent Right, the Party which is not the Prosecuting Party.

1.81 “**North America**” means the United States, including its territories and possessions, Canada and Mexico.

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1.82 “ **Operating Costs** ” means, costs of goods sold, all Sales Force Costs, all Third Party Intellectual Property Costs associated with the sale of Licensed Product that are deemed Operating Costs pursuant to Section 5.6.3(c), all costs associated with the distribution, marketing and sale of Licensed Product (including costs for preparing and reproducing detailing aids, promotional materials, professional education, and product related public relations). Notwithstanding anything in this definition to the contrary, only those Operating Costs that are contemplated by the Commercialization Plan/Budget shall be chargeable by either Party as Operating Costs, with any cost overruns treated in the manner set forth in Section 5.5.4.

1.83 “ **Option Compounds** ” means [* * *] Antibodies, [* * *] Antibodies, and [* * *] Antibodies.

1.84 “ **Option Patent Rights** ” means the [* * *] Antibody Patent Rights, [* * *] Antibody Patent Rights, and [* * *] Antibody Patent Rights.

1.85 “ **Patent Procurement Costs** ” means the fees and expenses paid by the Parties or their Affiliates to outside legal counsel and experts, and Prosecuting expenses, incurred after the Effective Date, in connection with the Prosecution of Acceleron Patent Rights, Joint Patent Rights and Celgene Patent Rights, including the costs of patent interference, reexamination, reissue, opposition and revocation proceedings.

1.86 “ **Patent Rights** ” means all patents (including all reissues, extensions, substitutions, confirmations, re-registrations, re-examinations, invalidations, supplementary protection certificates, and patents of addition) and patent applications (including all provisional applications, continuations, continuations-in-part, and divisions), in each case, anywhere in the world.

1.87 “ **PH Field** ” means (i) the treatment, prevention, modulation, or diagnosis of pulmonary hypertension in humans, and (ii) any and all research uses and applications related to the Development, Manufacture and Commercialization of Sotatercept Licensed Compounds or Sotatercept Licensed Products for the treatment, prevention, modulation, or diagnosis of pulmonary hypertension in humans.

1.88 “ **PH Field Celgene Patent Right** ” means any Celgene Patent Right that contains a claim specifically directed at the Development, Manufacture or Commercialization of a Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field in the Territory.

1.89 “ **PH Field Development Activities** ” means Development activities performed with respect to a Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field in the Territory.

1.90 “ **PH Field Development Plan/Budget** ” means (a) the comprehensive plan for the Development of any Sotatercept Licensed Compound or Sotatercept Licensed Product for the purpose of obtaining Regulatory Approval in the PH Field in the Territory, including activities designed to generate the preclinical, process development/manufacturing scale-up, clinical and regulatory information required for filing NDAs in the Territory, and (b) a budget setting forth the internal and external resources and expenses for such Development activities. Solely if and to the extent that Celgene agrees in writing to perform any Development activities in the PH Field which constitute Celgene Development Activities, the PH Field Development Plan/Budget shall be

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amended by the Parties to provide for such Development activities and a budget setting forth the internal and external resources and expenses therefor.

1.91 “ **PH Field Net Sales** ” means the aggregate gross invoice prices of all Sotatercept Licensed Products in the PH Field sold by or on behalf of a Party or its Affiliates and Sublicensees (including by the Distributing Party or its designee for a Licensed Product in the PH Field pursuant to this Agreement) to Third Parties anywhere within the Territory, including wholesale distributors, less deductions from such amounts calculated in accordance with U.S. GAAP so as to arrive at “net product sales” under U.S. GAAP, and further reduced by write-offs of accounts receivables or increased for collection of accounts that were previously written off.

The transfer of Sotatercept Licensed Products between or among Acceleron, Celgene and their respective Affiliates and Sublicensees shall be excluded from the computation of PH Field Net Sales.

Notwithstanding the foregoing, in the event a Sotatercept Licensed Compound or Sotatercept Licensed Product is sold as a Combination Product, PH Field Net Sales shall be calculated by multiplying the PH Field Net Sales of the Combination Product by the fraction $A/(A+B)$, where A is the gross invoice price of the Sotatercept Licensed Compound or Sotatercept Licensed Product if sold separately in a country and B is the gross invoice price of the other product(s) included in the Combination Product if sold separately in such country. In the event no such separate sales are made by or on behalf of Acceleron or its Affiliates or Sublicensees in a country, PH Field Net Sales of the Combination Product shall be calculated in a manner to be negotiated and agreed upon by the Parties, reasonably and in good faith, prior to any sale of such Combination Product, which shall be based upon the respective cost of goods sold of the active components of such Combination Product.

1.92 “ **PH Field Royalty Rate** ” means, with respect to a Sotatercept Licensed Product for which Acceleron is the Distributing Party in the PH Field, the royalty rate payable by Acceleron to Celgene on PH Field Net Sales of such Licensed Product pursuant to Section 5.7.1(a), taking into account any adjustments of such rate under this Agreement, including under Section 5.7.3.

1.93 “ **PH Field Royalty Term** ” means the period of time beginning on the date of First Commercial Sale of a Sotatercept Licensed Product in the PH Field in a particular country and ending, on a Sotatercept Licensed Product-by-Sotatercept Licensed Product and country-by-country basis, on the later of (i) the date on which the offering for sale, selling, making, having made, using or importing such Sotatercept Licensed Product in the PH Field is no longer covered by a Valid Claim of an Celgene Patent Right in such country and (ii) the eleventh (11th) anniversary of the First Commercial Sale of such Sotatercept Licensed Product in the PH Field in such country.

1.94 “ **Phase 1 Clinical Trial** ” means, as to a specific pharmaceutical product, a Clinical Trial in humans of the safety of such product in healthy volunteers or a limited patient population, or human clinical studies directed toward understanding the mechanisms or metabolism of the product. A Phase 1 Clinical Trial shall be deemed initiated upon the dosing of the first subject or patient.

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1.95 “ **Phase 2A Clinical Trial** ” means, as to a specific pharmaceutical product, the first Clinical Trial in humans that is intended to study the safety, dosage and initial efficacy in a limited patient population and is prospectively designed to support the continued testing of the product in one or more further Phase 2A Clinical Trials or Phase 2B Clinical Trials. A Phase 2A Clinical Trial shall be deemed initiated upon the dosing of the first patient.

1.96 “ **Phase 2B Clinical Trial** ” means, as to a specific pharmaceutical product, a Clinical Trial of the feasibility, safety, dose ranging and efficacy of such product, that is prospectively designed to generate sufficient data (if successful) to commence a Phase 3 Clinical Trial (or foreign equivalent) of such product, as further defined in 21 C.F.R. 312.21(b) or the corresponding regulation in jurisdictions other than the United States. A Phase 2B Clinical Trial shall be deemed initiated upon the dosing of the first patient.

1.97 “ **Phase 3 Clinical Trial** ” means, as to a specific pharmaceutical product, a pivotal Clinical Trial in humans performed to gain evidence with statistical significance of the efficacy of such product in a target population, and to obtain expanded evidence of safety for such product that is needed to evaluate the overall benefit-risk relationship of such product, to form the basis for approval of an NDA by a Regulatory Authority and to provide an adequate basis for physician labeling, as described in 21 C.F.R. 312.21 (c), as amended from time to time, or the corresponding regulation in jurisdictions other than the United States. A Phase 3 Clinical Trial shall be deemed initiated upon the dosing of the first patient.

1.98 “ **Post-Approval Clinical Trial** ” means (i) any Clinical Trial conducted to satisfy a requirement of a Regulatory Authority in order to maintain a Regulatory Approval and (ii) any Clinical Trial conducted after the first Regulatory Approval in the same disease state for which the Licensed Compound or Licensed Product received Regulatory Approval in the Territory.

1.99 “ **Product Trademarks** ” means the trademarks, service marks, accompanying logos, trade dress and indicia of origin used in connection with the distribution, marketing, Promotion and sale of each Licensed Product in the Territory. For purposes of clarity, the term Product Trademarks shall not include the corporate names and logos of either Party and shall include any internet domain names incorporating such Product Trademarks.

1.100 “ **Promotion** ” means those activities, including detailing normally undertaken by a Party’s sales force to implement marketing plans and strategies, aimed at encouraging the appropriate use of a particular Licensed Product in a specific indication. When used as a verb, “ **Promote** ” means to engage in Promotion.

1.101 “ **Prosecuting Party** ” means, with respect to a particular Patent Right, the Party having primary responsibility for and control over Prosecuting such Patent Right, pursuant to Section 8.2.1(a)(i) or Section 8.2.2(b)(i).

1.102 “ **Regulatory Approval** ” means the approval necessary for the commercial manufacture, distribution, marketing, Promotion, offer for sale, use, import, export, and sale of a Licensed Product in a regulatory jurisdiction, excluding, where required, separate pricing and reimbursement approvals.

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1.103 “ **Regulatory Authority** ” means any applicable supranational, national, regional, state or local regulatory agency, department, bureau, commission, counsel, or other government entity involved in granting of Regulatory Approval for a Licensed Product in a regulatory jurisdiction within the Territory, including the FDA and the EMA.

1.104 “ **Royalty Term** ” means (a) for all countries in the Territory outside North America, the period of time beginning on the date of First Commercial Sale of a Licensed Product in the Celgene Field in a particular country and ending, on a Licensed Product-by-Licensed Product and country-by-country basis, on the later of (i) the date on which the offering for sale, selling, making, having made, using or importing such Licensed Product in the Celgene Field is no longer covered by a Valid Claim of an Acceleron Patent Right in such country and (ii) the eleventh (11th) anniversary of the First Commercial Sale of such Licensed Product in the Celgene Field in such country; and (b) for all countries in North America, to reflect Acceleron’s contribution in connection with the Development Costs and co-Promotion of the Licensed Product, the period of time beginning on the date of First Commercial Sale of a Licensed Product in the Celgene Field in North America and ending, on a Licensed Product-by-Licensed Product and country-by-country basis, on the date on which the Commercialization of such Licensed Product in the Celgene Field in North America has ceased.

1.105 “ **Sales Force Costs** ” means all costs associated with sales representatives and training of the sales representatives, sales meetings, details, sales call reporting, work on managed care accounts, costs related to customer service and other sales and customer service related expenses. If either Party’s sales force sells products other than Licensed Products, only that portion of sales force efforts that are related to the sale of Licensed Products shall be included as Sales Force Costs hereunder.

1.106 “ **Salk** ” means the Salk Institute for Biological Studies.

1.107 “ **Salk License** ” means the Exclusive License Agreement dated May 10, 2004 between Acceleron and Salk, as amended by that certain letter agreement dated February 12, 2008, a true and correct copy of which is attached hereto as Exhibit A.

1.108 “ **Sotatercept Drug Product** ” means unlabeled, unpackaged vials of Sotatercept Licensed Product.

1.109 “ **Sotatercept Licensed Compound** ” means the compound defined in Schedule 1.109.

1.110 “ **Sotatercept Licensed Product** ” means any preparation in final form that contains a Sotatercept Licensed Compound.

1.111 “ **Subfield** ” means either of the PH Field and the Celgene Field. Without limiting the foregoing, the Celgene Field shall be referred to as Celgene’s “Subfield” herein and the PH Field shall be referred to as Acceleron’s “Subfield” herein.

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1.112 “ **Sublicensee** ” means a sublicensee or licensee of all or part of the rights licensed to or expressly retained by, as applicable, a Party under this Agreement, in compliance with the terms of Section 4.4.

1.113 “ **Territory** ” means all the countries of the world.

1.114 “ **Third Party** ” means any person or entity other than a Party or any of its Affiliates.

1.115 “ **Third Party Intellectual Property** ” means Patent Rights, trademarks and trademark applications and registrations, copyrights and trade secrets owned by a Third Party that would be necessary or useful to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field, the rights to which are obtained by a Party through a license or other means after the Effective Date.

1.116 “ **Third Party Intellectual Property Costs** ” means direct costs associated with the licensing or other acquisition of Third Party Intellectual Property, including upfront payments, development milestone payments, sales milestone payments, royalties, and intellectual property acquisition fees. For the avoidance of doubt, “Third Party Intellectual Property Costs” shall not include any payments owed by Acceleron to Salk or any other third party licensor pursuant to an agreement executed by Acceleron prior to the Effective Date (or, with respect to any Option Compound, prior to the date that such Option Compound is deemed a Licensed Compound in accordance with Article 7).

1.117 “ **U.S. GAAP** ” means generally accepted accounting principles in the United States.

1.118 “ **Valid Claim** ” means a claim or pending claim of a Patent Right, which claim or pending claim has not been revoked or held unenforceable, unpatentable or invalid by a decision of a court or other governmental agency of competent jurisdiction, which is not appealable or has not been appealed within the time allowed for appeal, and which has not been abandoned, disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer or other final, irrevocable action; provided, however, that if the holding of such court or agency is later reversed by a court or agency with overriding authority, the claim shall be reinstated as a Valid Claim with respect to Net Sales made after the date of such reversal; provided further, on a country-by-country basis, a patent application pending for more than five (5) years shall not be considered to have any Valid Claim for purposes of this Agreement unless and until a patent with respect to such application issues with such claim.

1.119 **Additional Definitions** . The following terms have the meanings set forth in the corresponding Sections of this Agreement:

<u>Term</u>	<u>Section</u>
“ Acceleron Indemnitees ”	11.7.1
“ Acceleron NA Operating Costs ”	5.5.3(b)
“ Acquired Party Activity ”	6.3
“ Amended and Restated Effective Date ”	Introduction
“ Audited Party ”	5.8.4(b)

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“ Auditing Party ”	5.8.4(b)
“ Breaching Party ”	10.2.1(a)
“ Celgene Indemnites ”	11.7.2
“ Clinical Supply Agreement ”	2.4.2
“ Commercial Supply Agreement ”	2.4.3
“ Commercialization Plan/Budget ”	2.5
“ Defending Party ”	8.4.3
“ Delivery Location ”	2.4.1
“ Distributing Party ”	2.6.2
“ Existing Drug Product ”	2.4.1
“ Forfeited Option Compound ”	6.1.1
“ Indemnitee ”	11.7.3
“ Infringement Claim ”	8.4.1
“ IP ”	10.8
“ JCC Chairperson ”	3.2.3
“ JDC Chairperson ”	3.1.3
“ Joint Development Committee ”	3.1.1
“ Joint Commercialization Committee ”	3.2.1
“ Losses ”	11.7.1
“ Option Program Payment ”	7.2
“ Paying Party ”	5.8.1
“ PH Field Royalty Report ”	5.7.4
“ PH Field Third Party Intellectual Property Notice ”	5.7.3(c)
“ Prosecuting ” or “ Prosecution ”	8.2.1(a)(i)
“ Publishing Party ”	9.2
“ Receiving Party ”	5.8.1
“ Reconciliation Statement ”	5.5.5
“ Restricted Activities ”	4.8.2
“ Restricted Product ”	6.1.7(d)
“ Royalty Report ”	5.6.4
“ Safety Concern ”	2.3.5(a)
“ Salk Patent Rights ”	8.1.1
“ SPC ”	8.8
“ Third Party Activity ”	6.2.1
“ Third Party Intellectual Property Notice ”	5.6.3(c)

**Article 2
COLLABORATION**

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2.1 Development.

2.1.1. Acceleron Responsibilities. Subject to the oversight of the Joint Development Committee, Acceleron shall be solely responsible for managing all Acceleron Development Activities relating to Licensed Compounds or Licensed Products. Acceleron shall use Commercially Reasonable Efforts to carry out the Acceleron Development Activities in the Celgene Field as set forth in the Celgene Development Plan/Budget to Develop Licensed Compounds and Licensed Products in the Celgene Field.

2.1.2. Celgene Responsibilities. Subject to the oversight of the Joint Development Committee, Celgene shall be solely responsible for managing all Celgene Development Activities relating to Licensed Compounds or Licensed Products. Celgene shall use Commercially Reasonable Efforts to carry out (a) the Celgene Development Activities as set forth in the Celgene Development Plan/Budget to Develop Licensed Compounds and Licensed Products in the Celgene Field and (b) any Celgene Development Activities in the PH Field as set forth in the PH Field Development Plan/Budget. Celgene shall use Commercially Reasonable Efforts to Develop and seek Regulatory Approval for Licensed Products in the Celgene Field in the Major Market Countries.

2.1.3. Development Plan/Budget.

(a) Each Celgene Development Plan/Budget shall contain the specific Development and Manufacturing objectives in the Celgene Field to be achieved by Celgene during the applicable Contract Year, the specific Development and Manufacturing objectives in the Celgene Field to be achieved by Acceleron during the applicable Contract Year, and the timeline for performing such Development objectives.

(b) Each PH Field Development Plan/Budget shall contain the specific Development and Manufacturing objectives in the PH Field to be achieved by each Party during the applicable Contract Year, and the timeline for performing such Development objectives.

(c) Acceleron shall prepare the first draft of the initial PH Field Development Plan/Budget and present it to Celgene at the first Joint Development Committee meeting in Contract Year 2018, and the Parties agree that (a) Acceleron may conduct all PH Field Development Activities that are Acceleron Development Activities prior to such meeting and (b) Celgene will conduct all PH Field Development Activities that have been designated in writing previously as Celgene Development Activities prior to such meeting.

(d) With the exception of the PH Field Development Plan/Budget for Contract Year 2018, the Joint Development Committee shall prepare a draft of a revised Development Plan/Budget for each Development Plan/Budget at least one hundred twenty (120) days prior to the commencement of any Contract Year. During the Agreement Term, the Joint Development Committee shall, at least ninety (90) days

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prior to the commencement of any Contract Year during the Agreement Term, approve and submit to the Parties each revised Development Plan/Budget. At any time during the Agreement Term, the Joint Development Committee may approve amendments to a Development Plan/Budget.

2.14. Payment of Development Costs. Development Costs and other costs associated with Development shall be allocated as between the Parties in accordance with Section 5.5.

2.1.5. Consultation. The Parties agree to consult with each other with respect to the Development of Licensed Products and Licensed Compounds in accordance with the provisions of Section 2.9.3.

2.2 Records.

2.2.1. Generally. Each Party shall, and shall require the Third Parties performing services for such Party (including Third Party contract research organizations and service providers) to, maintain scientific records in sufficient detail and in good scientific manner appropriate for patent and regulatory purposes, which shall fully and properly reflect all work done and results achieved in the performance of this Agreement by such Party. Each Party shall have the right, during normal business hours and upon reasonable notice, to inspect and copy (or request the other Party to copy) all records of the other Party maintained in connection with the work done and results achieved in the performance of this Agreement, but solely to the extent access to such records is necessary for a Party to exercise its rights under this Agreement; provided that Acceleron's access to Celgene records shall be limited to records of (a) Celgene's Development Activities for the purpose of supporting Regulatory Approval in North America and Europe and (b) Celgene's Development Activities for the purpose of supporting Regulatory Approval of Sotatercept Licensed Products in the PH Field in the Territory. All such records and the information disclosed therein shall be deemed Confidential Information pursuant to Article 9.

2.2.2. Electronic Records.

(a) Upon Celgene's request, Acceleron will provide Celgene reasonable assistance for Celgene to convert records provided by Acceleron to Celgene into electronic form. In addition, upon Celgene's request, Acceleron will use templates for recordkeeping provided by Celgene reasonably necessary to assist Celgene in making electronic filings with Regulatory Authorities.

(b) Upon Acceleron's request, Celgene will provide Acceleron reasonable assistance for Acceleron to convert records provided by Celgene to Acceleron into electronic form. In addition, upon Acceleron's request, Celgene will use templates for recordkeeping provided by Acceleron reasonably necessary to assist Acceleron in making electronic filings with Regulatory Authorities.

2.2.3. Security. With regard to Confidential Information of the other Party, each Party shall institute reasonable security precautions and shall use reasonable efforts to (a) keep physical

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copies of such Confidential Information in locked locations; (b) maintain electronic copies of such Confidential Information in digitally secured locations with access permitted on a “need to know” basis; and (c) ensure that local computers are password protected and programmed to require password entry after reasonable periods of disuse.

2.3 Regulatory Matters.

2.3.1. General. Celgene shall be responsible to develop a regulatory strategy and prepare all submissions, documents or other correspondence to be submitted to the applicable Regulatory Authorities for Licensed Compounds and Licensed Products in the Field (other than Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field) in consultation with the Joint Development Committee. Acceleron shall be responsible to develop a regulatory strategy and prepare all submissions, documents or other correspondence to be submitted to the applicable Regulatory Authorities for Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in consultation with the Joint Development Committee.

2.3.2. Regulatory Activities in Celgene Field. With respect to all Licensed Products and Licensed Compounds in the Field (other than Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field) in the Territory:

(a) Regulatory Responsibility. Celgene shall oversee, monitor, coordinate, file, and hold in its name all NDAs, all communications with and submissions to Regulatory Authorities and all Regulatory Approvals with respect to Licensed Compounds and Licensed Products. All costs associated with such activities will be allocated between the Parties in accordance with Article 5, including Section 5.5. If any INDs are filed in Acceleron’s name in connection with any Option Compound, such IND will be assigned to Celgene at such time, if any, as the Option Compound is deemed a “Licensed Compound” pursuant to Section 7.2.

(b) Regulatory Meetings and Correspondence. (i) Celgene shall have primary responsibility for interfacing, corresponding and meeting with the applicable Regulatory Authorities and (ii) to the extent practicable, Acceleron shall be entitled to participate in all meetings and telephonic discussions between representatives of Celgene and the applicable Regulatory Authorities. For purposes of clarification of clause (ii) of this Section 2.3.2(b), Celgene agrees to use Commercially Reasonable Efforts to notify Acceleron of such planned meetings and telephonic discussions with Regulatory Authorities and to use Commercially Reasonable Efforts to accommodate the schedule of Acceleron’s attendees at such meetings or discussions. Celgene shall be entitled to limit, but not entirely exclude, the number of representatives of Acceleron that attend such meetings and telephonic discussions with applicable Regulatory Authorities.

2.3.3. Regulatory Activities in PH Field. Solely with respect to Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory:

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(a) Regulatory Responsibility. Acceleron shall oversee, monitor, coordinate and submit all communications with and submissions to Regulatory Authorities and all Regulatory Approvals, and all INDs shall be filed in Acceleron or its designee's name; provided that in the event that Celgene is required to hold an NDA for a Sotatercept Licensed Product in the PH Field under Applicable Law, it will hold in its name such NDA and make, at Acceleron's reasonable direction, filings related to such NDAs that have been reviewed and approved by Acceleron solely to the extent such filings relate to Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field. To the extent consistent with Applicable Law, the Parties shall cooperate and take all reasonable action required to permit Acceleron to hold the NDA for each Sotatercept Licensed Product in the PH Field.

(b) Regulatory Meetings and Correspondence. To the extent permitted by Applicable Law, Acceleron shall have primary responsibility for interfacing, corresponding and meeting with such Regulatory Authorities. In the event that Celgene is required by a Regulatory Authority or under Applicable Law to interface, correspond or meet with a Regulatory Authority with respect to a Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field, it shall participate in such interaction as reasonably directed by Acceleron (to the extent such direction is consistent with Applicable Law) and Celgene shall take all reasonable effort to ensure, including via notice and scheduling accommodations, that Acceleron is able to participate in all meetings and telephonic discussions between representatives of Celgene and the applicable Regulatory Authorities with respect to a Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field.

2.3.4. Review of Correspondence. Subject to the terms of this Agreement (including Sections 2.3.2 and 2.3.3), to the extent practicable and to the extent a Party has the right under this Agreement to submit such documents or other correspondence, the submitting Party shall provide the other Party with drafts of any documents or other correspondence to be submitted to the applicable Regulatory Authorities pertaining to a Licensed Compound or Licensed Product in the Field in the Territory, sufficiently in advance of submission for the other Party to review any such submission, and such other Party may comment on such documents, in which case the submitting Party shall consider in good faith all such comments. The submitting Party shall provide to the other Party, as soon as reasonably practicable, copies of any documents or other correspondence received from Regulatory Authorities pertaining to each Licensed Compound or Licensed Product (including any meeting minutes).

2.3.5. Adverse Event Reporting; Safety Concerns; Pharmacovigilance.

(a) Each Party shall be responsible for complying with all Applicable Laws governing Adverse Events in any Territory and Celgene shall maintain the global safety database for Licensed Compounds and Licensed Products in the Field in the Territory and Acceleron shall provide reasonable assistance to Celgene in its

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maintenance of such global safety database, at each Party's own expense. Each Party shall notify the other Party as promptly as reasonably possible (i) after receiving any notice from a Regulatory Authority, independent review committee, data safety monitoring board or another similar clinical trial or post-marketing monitoring body alleging concern regarding a patient safety issue or containing other material information relevant to the safety or efficacy of a Licensed Compound or Licensed Product in the Field in the Territory, or (ii) if such Party determines in good faith that there is a concern regarding a patient safety issue with respect to a Licensed Compound or Licensed Product in the Field in the Territory (such notice or determination, a " **Safety Concern** ").

(b) Notwithstanding any other provision of this Agreement, with respect to any Safety Concern, in the event that [* * *] the Safety Concern is [* * *] in connection with the on-going Development, Manufacture or Commercialization of Licensed Compounds or Licensed Products in the Field, it may send notice thereof to [* * *], in which case the Parties shall, to the extent permitted by Applicable Law and consistent with patient ethical considerations, [* * *] until such Safety Concern is addressed to [* * *], acting in good faith taking into account patient safety and the best interests of activities hereunder with respect to both the Celgene Field and the PH Field.

(c) The Parties shall in good faith negotiate and agree upon a pharmacovigilance agreement on customary terms and conditions to be entered into prior to the use by Acceleron of any Existing Drug Product in any Clinical Trials.

2.4 Manufacture and Supply.

2.4.1. Clinical Supply. Subject to Section 2.4.2, Celgene shall Manufacture and supply all Clinical Supplies. At Celgene's request, Acceleron shall assist Celgene in obtaining a second source for supply of Clinical Supplies in order to supply Celgene with Clinical Supplies for the Phase 2B Clinical Trials.

2.4.2. Supply of Sotatercept Licensed Products for Clinical Trials in the PH Field. As of the Amended and Restated Effective Date, Celgene or its Affiliates have, in their possession, certain quantities of Sotatercept Drug Product (" **Existing Drug Product** "). Existing Drug Product shall (i) be used by the Parties for any Clinical Trials for Licensed Products in the Field and (ii) be allocated, by mutual agreement, for use between the Parties based on each Party's reasonably anticipated need for Licensed Product for Clinical Trials in the Field; provided that in no event shall Acceleron receive fewer than [* * *] of Existing Drug Product at [* * *] (or an equivalent amount if provided in a different vial strength). With respect to any Clinical Trials to be initiated by Acceleron, its Affiliate or Sublicensee, subject to the foregoing allocation, Celgene shall deliver Existing Drug Product for such Clinical Trials to Acceleron or its designee at no cost to Acceleron (except as otherwise provided in this Section 2.4.2) at a location selected by Acceleron and notified in writing to Celgene (the " **Delivery Location** ") within [* * *] days of Acceleron's request(s) for such Existing Drug Product, such requests to be made at Acceleron's reasonable discretion; provided that

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Acceleron shall be responsible for shipping and insurance costs reasonably incurred by Celgene in the shipment and delivery of Existing Drug Product to the Delivery Location pursuant to this Agreement. With respect to Existing Drug Product provided by Celgene to Acceleron hereunder, title and risk of loss shall transfer from Celgene to Acceleron upon transfer by Celgene to a shipping agent selected by Acceleron at the location(s) at which Existing Drug Product is stored by or on behalf of Celgene. Celgene hereby warrants to Acceleron that Existing Drug Product supplied under this Section 2.4.2 shall be Manufactured in accordance with the applicable specifications for such Existing Drug Product submitted to the FDA by Celgene (and not rejected by the FDA thereafter) and cGMP. The Parties shall meet no later than [* * *] to discuss the Parties' future Clinical Supply needs in addition to the Existing Drug Product, including a CMC analysis with respect thereto. If Celgene elects to Manufacture Sotatercept Drug Product after exhaustion of the Existing Drug Product, the Parties shall negotiate in good faith the terms of a supply agreement (the "**Clinical Supply Agreement**") for the supply by Celgene to Acceleron of Sotatercept Drug Product for Development of Sotatercept Licensed Products in the PH Field. The Clinical Supply Agreement shall provide: (i) that Celgene shall use Commercially Reasonable Efforts to Manufacture and supply to Acceleron or its designee Sotatercept Drug Product for Development of Sotatercept Licensed Products in the PH Field at a price equal to [* * *] of Celgene's Fully Loaded Cost to Manufacture such Sotatercept Drug Product (such price constituting Development Costs to be allocated in accordance with Section 5.5) and (ii) for such other terms and conditions as are reasonable and customary for similar clinical supply agreements in the pharmaceutical industry. In the event that (a) despite having used good faith commercially reasonable efforts, the Parties are unable to reach agreement on the terms of a Clinical Supply Agreement by [* * *], or (b) Celgene elects not to Manufacture Sotatercept Drug Product after the Existing Drug Product has been exhausted, then Acceleron shall have the right to Manufacture Clinical Supplies of Sotatercept Licensed Compounds and Sotatercept Licensed Products for the Development of Sotatercept Licensed Products in the PH Field, in which case Celgene shall use good faith efforts to assist Acceleron in securing a source of supply for such Clinical Supplies and shall use Commercially Reasonable Efforts to cause those CMOs engaged by Celgene in the Manufacture of Sotatercept Licensed Compounds and Sotatercept Licensed Products to provide a technology transfer in accordance with Applicable Laws and industry standards to Acceleron or its designee of manufacturing processes and Know-How to the extent necessary to Manufacture Sotatercept Licensed Compounds and Sotatercept Licensed Products for use in Clinical Trials in the PH Field; provided that, with respect to any CMO, to the extent not permitted or provided for in the agreement(s) with such CMO, such transfer shall be subject to such CMO's consent. The cost of any technology transfer pursuant to this Section 2.4.2 shall be borne equally by the Parties.

2.4.3. Commercial Supply. Subject to the other provisions of this Section 2.4.3, Celgene shall Manufacture and supply all Commercial Supplies. Within [* * *] after initiation of a Phase 3 Clinical Trial of a Sotatercept Licensed Product in the PH Field by Acceleron, its Affiliate or Sublicensee, if Celgene elects to Manufacture Sotatercept Drug Product for Commercialization of Sotatercept Licensed Products in the PH Field, the Parties shall negotiate in good faith the terms of a supply agreement (the "**Commercial Supply**")

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Agreement”) for the supply by Celgene to Acceleron of Sotatercept Drug Product for Commercialization of Sotatercept Licensed Products in the PH Field. The Commercial Supply Agreement shall provide: (i) that Celgene shall use Commercially Reasonable Efforts to Manufacture and supply to Acceleron or its designee Sotatercept Drug Product for Commercialization of Sotatercept Licensed Products in the PH Field at a price equal to [* * *] of Celgene’s Fully Loaded Cost to Manufacture such Sotatercept Drug Product, and (ii) for such other terms and conditions as are reasonable and customary for similar commercial supply agreements in the pharmaceutical industry. In the event that, (a) despite having used good faith commercially reasonable efforts, the Parties are unable to reach agreement on the terms of a Commercial Supply Agreement within [* * *] following initiation of a Phase 3 Clinical Trial of a Sotatercept Licensed Product in the PH Field by Acceleron, its Affiliate or Sublicensee or (b) Celgene elects not to Manufacture Sotatercept Drug Product for Commercialization of Licensed Products in the PH Field, Acceleron shall have the right to Manufacture Commercial Supplies of Sotatercept Licensed Compounds and Sotatercept Licensed Products for Commercialization in the PH Field, in which case Celgene shall use good faith efforts to assist Acceleron in securing a source of supply for such Commercial Supplies and shall, and shall use Commercially Reasonable Efforts to cause those CMOs engaged by Celgene in the Manufacture of Sotatercept Licensed Compounds and Sotatercept Licensed Products to, provide a technology transfer in accordance with Applicable Laws and industry standards to Acceleron or its designee of manufacturing processes and Know-How to the extent necessary to Manufacture Sotatercept Licensed Compounds and Sotatercept Licensed Products for Commercialization in the PH Field; provided that, with respect to any CMO, to the extent not permitted or provided for in the agreement(s) with such CMO, such transfer shall be subject to such CMO’s consent. The cost of any technology transfer pursuant to this Section 2.4.3 shall be borne equally by the Parties.

2.4.4. U.S. Manufacture. To comply with United States government regulations for the licensing of federally funded inventions, Celgene, its Affiliates and any Sublicensees will commit that Licensed Products covered by the Salk Patent Rights sold in the United States will be Manufactured substantially in the United States to the extent required by Applicable Law. Notwithstanding the foregoing, during the Agreement Term, upon Celgene’s request, Acceleron agrees to seek a waiver from the United States government with respect to the requirement that Licensed Products for sale in the United States be manufactured substantially in the United States. Celgene understands that Acceleron cannot guarantee that such waiver can be obtained.

2.4.5. Manufacturing Generally. All Clinical Supplies and Commercial Supplies will be Manufactured in accordance with GLP and GMP, as applicable, and Applicable Law. In addition, the Manufacturing process used for Clinical Supplies and Commercial Supplies shall be in accordance with the IND, NDA, or other Regulatory Approval, as applicable, for the Licensed Product or Licensed Compound. In addition, at no cost to Celgene, Acceleron shall make its personnel reasonably available for meetings or teleconferences to support and assist Celgene in the Manufacture of the Licensed Product or Licensed Compound.

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2.5 **Commercialization Plan/Budget** . The Joint Commercialization Committee, no later than [* * *] months prior to the anticipated commercial launch of the first Licensed Product and thereafter no later than [* * *] of each Contract Year, shall approve a strategic commercialization plan for the Licensed Products in the Field in the Territory (the “**Commercialization Plan/Budget**”) which sets forth the matters agreed upon by the Joint Commercialization Committee. The Joint Commercialization Committee shall prepare the initial Commercialization Plan/Budget no later than [* * *] months prior to the anticipated commercial launch of the first Licensed Product in the Field in the Territory. Thereafter, the Joint Commercialization Committee shall prepare a draft of such Commercialization Plan/Budget no later than [* * *] of each Contract Year. The Joint Commercialization Committee will consider including (but is not required to include) (a) a multi-year marketing strategy that includes plans for market research, health economics, pricing and reimbursement, medical affairs and value added initiatives, (b) a multi-year communications strategy that includes plans for public relations, conferences and exhibitions, and other external meetings, internal meetings and communications, publications and symposia, internet activities, and core brand package, (c) a multi-year strategy for Post-Approval Clinical Trials and lifecycle management activities, (d) a high level operating plan for the implementation of such strategies on an annual basis, including information related to product positioning, core messages to be communicated, share of voice requirements and pricing strategies, (e) a commercially reasonable level of detailing activity, (f) a commercialization budget, and (g) all other activities to be conducted in connection with the Commercialization of the Licensed Products in the Field in the Territory.

2.6 **Commercialization** .

2.6.1. Subject to Sections 2.6.2 and 2.7.2, (a) Acceleron shall be responsible for Commercialization activities relating to Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory in accordance with the Commercialization Plan/Budget approved by the JCC and (b) Celgene shall be solely responsible for all other Commercialization activities relating to Licensed Compounds and Licensed Products in the Field in the Territory.

2.6.2. [* * *] shall be the “Distributing Party” for all Licensed Products in the Field in the Territory except where, at the time of the first BLA meeting with the applicable Regulatory Authority with respect to a Sotatercept Licensed Product, the Parties have mutually determined that [* * *] in the Celgene Field and PH Field, respectively, in which case, then [* * *] shall be the “Distributing Party” for such Sotatercept Licensed Product in the [* * *] Field and [* * *] shall be the “Distributing Party” for such Sotatercept Licensed Product in the [* * *] Field. Acceleron and Celgene shall coordinate efforts to facilitate the creation of [* * *] for the Sotatercept Licensed Products in the PH Field and the Licensed Products in the Celgene Field.

2.6.3. The Distributing Party or its designee for a Subfield will book all sales, and manage the sale, invoicing and distribution system, of Licensed Products in such Subfield in the Territory in accordance with the Commercialization Plan/Budget; provided that a Distributing Party can only designate an Affiliate or Sublicensee as a designee for such activities and, in the event a Party is a Distributing Party for the other Party’s Subfield under

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this Agreement, any such designee must also perform similar services for Licensed Products in the Distributing Party's Subfield.

2.7 Commercialization Activities in the Celgene Field .

2.7.1. Commercialization Outside North America . Celgene shall use Commercially Reasonable Efforts to Commercialize the Licensed Products in the Celgene Field in each country outside North America in which Regulatory Approval for a Licensed Product is obtained.

2.7.2. Co-Promotion of Licensed Products in the Celgene Field Within North America . Celgene and Acceleron shall Commercialize Licensed Products in the Field (other than Sotatercept Licensed Products in the PH Field) in North America in accordance with the Commercialization Plan/Budget as follows:

(a) Commercialization Activities . Within North America, the Parties will use Commercially Reasonable Efforts to Commercialize such Licensed Products in the Celgene Field. In addition, within North America, the Parties will use Commercially Reasonable Efforts to conduct the Commercialization activities assigned to them pursuant to the Commercialization Plan/Budget, including the performance of detailing in accordance therewith. In conducting the Commercialization activities, the Parties will comply with all Applicable Laws, applicable industry professional standards and compliance policies of Celgene which have been previously furnished to Acceleron, as the same may be updated from time to time and provided to Acceleron. Celgene will reasonably assist Acceleron in training sales representatives in such standards. Neither Party shall make any claims or statements with respect to such Licensed Products in the Celgene Field that are not strictly consistent with the product labeling and the sales and marketing materials approved for use pursuant to the Commercialization Plan/Budget.

(b) Sales Representatives . The Commercialization Plan/Budget will set forth the number of physicians to be called on, call frequency and other matters necessary to determine the detailing effort to be utilized for Promotion in the Celgene Field in North America pursuant to the Agreement. The Commercialization Plan/Budget will allocate to each Party its portion of the total detailing effort for the aggregate of all such Licensed Products across all indications in the Celgene Field in North America; provided that, unless otherwise agreed to by the Parties, (i) Acceleron will be allocated at least [* * *] sales representatives in the United States for the Promotion of such Licensed Products directed to [* * *] and (ii) Acceleron will be allocated approximately [* * *] of the detailing effort in each country in North America directed to [* * *] and any other prescribing physicians that are not [* * *]. The Joint Commercialization Committee will attempt to provide that Acceleron's assigned detailing efforts are distributed geographically within North America in a manner reasonably consistent with the distribution of the U.S. population, the Canadian population, and the Mexican population and that each Party's detailing effort will be directed to physicians of similar prescribing potential. The Sales Force Costs of

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Acceleron will be reimbursed pursuant to a rate set forth in the Commercialization Plan/Budget.

(c) Sales Force. The Joint Commercialization Committee shall determine the number of sales representatives needed to carry out the required detailing effort in the Celgene Field. Each Party, in its sole discretion, shall create a field management structure for its sales effort. Each sales representative shall have a sales territory that allows such sales representative to perform a reasonable number of details within a reasonable geographic area (*i.e.* , without overly-burdensome travel requirements). The effort of the Acceleron and Celgene sales forces in Promoting Licensed Products in the Celgene Field will be organized under the supervision of the Joint Commercialization Committee as to qualifications of sales representatives and field-based sales managerial personnel and the timing of hiring in light of the then-current Commercialization Plan/Budget; provided that the Commercialization Plan/Budget shall identify the portion of the detailing effort to be undertaken by Acceleron no later than [* * *] months before the planned date of the NDA submission. At least [* * *] of Acceleron's sales force planned to be available upon launch of such Licensed Product in the Celgene Field shall be hired no later than [* * *] before the PDUFA date, and Acceleron's sales force shall be trained within [* * *] of hiring.

(d) Training Materials and Sessions. The Joint Commercialization Committee will develop Licensed Product-specific training materials for the Celgene Field and arrange for provision of such materials to each Party's sales forces. The Joint Commercialization Committee will develop a sales training program directed towards such Licensed Products in the Celgene Field. Unless otherwise mutually agreed by the Parties, Celgene and Acceleron sales representatives will participate jointly in a launch meeting for each Licensed Product in the Celgene Field, which shall include training sessions of Licensed Product-specific sales skills with respect to the approved indications for the Licensed Products in the Celgene Field. Subsequent to launch, Celgene and Acceleron shall periodically hold meetings with Acceleron and Celgene field management (down to and including district managers or their equivalents who are directly supervising territory sales representatives) to coordinate Promotion of the Licensed Products in the Celgene Field. As requested by Acceleron, Celgene shall make its management, marketing, training and other personnel reasonably available to participate in Acceleron's national and regional sales meetings and Licensed Product-training events.

(e) Promotional Materials. Celgene, at its sole cost and expense, shall provide Acceleron with sales and promotional materials sufficient to permit Acceleron to perform detailing calls in the Celgene Field in a manner consistent with the detailing calls performed by the Celgene sales force. With respect to such Licensed Products in the Celgene Field, Acceleron's sales representatives will utilize only those sales and promotional materials provided to them by Celgene and will not utilize any other materials relating to or referring to the Licensed Product.

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(f) Termination of Acceleron Sales Force Cost Reimbursement. On a Licensed Product-by-Licensed Product and country-by-country basis in North America, on the date on which in such country there is at least one Generic Product with respect to such Licensed Product in the Celgene Field, then Celgene shall no longer be responsible for Acceleron's Sales Force Costs under Section 5.5.1(a) (or Section 2.7.2(b)) with respect to such Licensed Product in such country in North America, and such Sales Force Costs will no longer be deemed Operating Costs hereunder, and Acceleron shall have no further obligation to Promote such Licensed Product in the Celgene Field or maintain a sales force for the purpose of Promoting such Licensed Product in the Celgene Field.

2.8 Third Parties .

2.8.1. The Parties shall be entitled to utilize the services of Third Parties, including Third Party contract research organizations and service providers to perform their respective Development, Manufacturing and Commercialization activities; provided that any such utilization in the Celgene Field in North America of a Third Party (except as provided in Section 2.8.2) shall be subject to the advance notice and approval of the Joint Development Committee or Joint Commercialization Committee; provided further that Acceleron shall not be permitted to utilize Third Parties for Acceleron's Commercialization activities except with respect to Commercialization activities for a Sotatercept Licensed Product in the PH Field; provided further, that in no event will Acceleron use a contract sales organization in connection with its Commercialization activities for a Sotatercept Licensed Product in the PH Field without the prior written consent of Celgene, such consent not to be unreasonably withheld or delayed; provided further that each Party shall remain at all times fully liable for its respective responsibilities under each Development Plan/Budget, Commercialization Plan/Budget and this Agreement; provided further that any Third Party that Manufactures on behalf of either Party must comply with GMP and be approved or qualified by the applicable Regulatory Authority.

2.8.2. Notwithstanding Section 2.8.1, the advance notice and approval of the Joint Development Committee shall not be required in respect of the use of the Third Parties previously engaged by Acceleron under an agreement entered into prior to the Effective Date and set forth on Schedule 2.8; provided that such exception shall only apply to any services that are currently being provided under such agreements (whether pursuant to the agreements themselves or any work orders entered into in connection therewith), and Acceleron shall not be entitled to enter into new work orders or request additional services under such agreements without complying with the advance notice and approval of the Joint Development Committee.

2.8.3. Any agreement with a Third Party to perform a Party's responsibilities under this Agreement shall include confidentiality and non-use provisions which are no less stringent than those set forth in Article 9 of this Agreement.

2.9 Information Sharing .

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2.9.1. Tech Transfer. Within 30 days of Celgene's request, Acceleron, at no cost to Celgene, shall commence the transfer to Celgene of relevant Acceleron Technology necessary for Celgene to perform its obligations or exercise its rights hereunder and will use Commercially Reasonable Efforts to complete such transfer in a timely fashion. In addition, at no cost to Celgene, Acceleron shall make its personnel reasonably available for meetings or teleconferences to support and assist Celgene in the Development, Manufacture, and Commercialization of the Licensed Product or Licensed Compound. Within thirty (30) days of Acceleron's request, Celgene, at no cost to Acceleron, shall permit Acceleron to access relevant Celgene Technology licensed to Acceleron pursuant to Section 4.2.

2.9.2. Reports By Both Parties. Each Party shall keep the Joint Development Committee or the Joint Commercialization Committee fully informed about the status of the activities performed pursuant to each Development Plan/Budget, including providing the Joint Development Committee with copies of the final form of all written reports that relate to such activities, or pursuant to the Commercialization Plan/Budget, as applicable. From time to time during the Agreement Term, Acceleron shall provide Celgene with access to any Acceleron Technology in order to permit Celgene to perform its obligations or exercise its rights hereunder. From time to time during the Agreement Term, Celgene shall provide Acceleron with access to any Celgene Technology in order to permit Acceleron to exercise its rights hereunder with respect to Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory.

2.9.3. Meetings. [* * *] on dates and times mutually agreed by the Parties, Acceleron may, at its option, send at least one Acceleron representative to meet with the Celgene product team(s) responsible for the Development and regulatory activities for each Licensed Product and to discuss the conduct and progress of, and plans for, the Development and regulatory affairs with respect to such Licensed Product.

2.10 **ACE-536 Agreement**. Subject to the next sentence, Celgene, in its sole discretion, may decide (a) to develop and commercialize a "Licensed Compound" or "Licensed Product" under the ACE-536 Agreement (as defined below) instead of Developing and Commercializing a Licensed Compound or Licensed Product under this Agreement or (b) following the Completion of the Acceleron Phase 2 Clinical Trials (as each such term is defined in the ACE-536 Agreement), to Develop a Licensed Compound or Licensed Product hereunder instead of a "Licensed Compound" or "Licensed Product" under the ACE-536 Agreement, and, thereafter, if Celgene is undertaking "Development" or "Commercialization" (each as defined in the ACE-536 Agreement) activities in accordance with the ACE-536 Agreement with respect to a "Licensed Compound" or "Licensed Product" thereunder, Celgene will be deemed to be in compliance with any Development or Commercialization obligations under this Agreement. Celgene acknowledges that a decision to pursue the scenario described in subsection (b) will not be made based primarily on Celgene's payment obligations to Acceleron under this Agreement or the ACE-536 Agreement, but rather will take into consideration such things as the resources as would normally be exerted or employed by a similarly-situated biopharmaceutical company, product life, stage of development, safety and efficacy, development costs, operating costs, the anticipated prescription label, the nature of the product, the clinical setting in which the product is expected to be used, competitiveness of the

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marketplace, regulatory environment, the patent or other proprietary position of the product, and other clinical, commercial, regulatory or manufacturing conditions then prevailing.

**Article 3
COLLABORATION MANAGEMENT**

3.1 Joint Development Committee .

3.1.1. Establishment. Under the Amended Agreement, the Parties have established a joint development committee to facilitate Development of Licensed Compounds and Licensed Products during the Agreement Term (the “ **Joint Development Committee** ”).

3.1.2. Membership. Unless otherwise agreed by the Parties, the Joint Development Committee shall be comprised of three (3) representatives from each Party with one (1) representative with relevant decision-making authority from each Party such that the Joint Development Committee is able to effectuate all of its decisions within the scope of its responsibilities as set forth in Section 3.1.5 below. Either Party may replace or substitute its respective representatives to the Joint Development Committee at any time with prior notice to the other Party, provided that such replacement or substitute is of comparable authority within that Party. Upon mutual agreement of the Parties, additional representatives or consultants may be invited to attend a Joint Development Committee meeting, subject to such representatives’ and consultants’ written agreement to comply with the requirements of Article 9. Each Party shall bear its own expenses relating to attendance at such meetings by its representatives.

3.1.3. Chairperson. The Chairperson of the Joint Development Committee (the “ **JDC Chairperson** ”) shall alternate between Acceleron’s representative and Celgene’s representative on a Contract Year basis. The JDC Chairperson’s responsibilities shall include (a) scheduling meetings; (b) setting agendas for meetings with solicited input from the representatives of the Party who does not have a sitting JDC Chairperson; (c) preparing and confirming minutes of the meetings, which shall provide a description in reasonable detail of the discussions held at the meeting and a list of any actions, decisions or determinations made by the Joint Development Committee and delivering minutes to each Party’s senior management for review and final approval; and (d) conducting meetings.

3.1.4. Meetings. The Joint Development Committee shall meet in accordance with a schedule established by mutual written agreement of the Parties, at least once per [* * *] (and more frequently as the Joint Development Committee determines is necessary to fulfill its responsibilities), with the location for such meetings alternating between Acceleron’s facilities and Celgene’s facilities (or such other locations as are determined by the Joint Development Committee). Alternatively, if the Parties agree, the Joint Development Committee may meet by means of teleconference, videoconference or other similar communications equipment. In connection with any transition of responsibilities from Acceleron to Celgene (including the transition of Manufacturing responsibility), the Joint Development Committee shall meet and discuss how best to transition such responsibilities to Celgene and, in connection with Manufacturing responsibility, shall establish a supply

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transition plan with respect to the applicable Licensed Product. Acceleron shall cooperate fully to assist in transitioning to Celgene all applicable responsibilities.

3.1.5. Responsibilities. The Joint Development Committee shall have the following responsibilities:

- (a) reviewing and approving (i) each annual Development Plan/Budget in accordance with the time frames set forth in Section 2.1.3 and (ii) any proposed modifications to such Development Plan/Budget;
- (b) developing a publication strategy for Development activities and results arising out of this Agreement;
- (c) facilitating the transfer of Know-How and Confidential Information between the Parties for purposes of conducting each Development Plan/Budget;
- (d) reviewing the progress of the Parties in their conduct of each Development Plan/Budget against the timelines and budgets contained therein, as applicable, reviewing relevant data and considering issues of priority;
- (e) approving the licensing of Third Party technology, as described in Section 5.6.3(c);
- (f) performing such other activities as are contemplated under this Agreement and that the Parties mutually agree shall be the responsibility of the Joint Development Committee; and
- (g) defining a target Licensed Product profile after consultation with the Parties' respective commercial managers.

3.2 Joint Commercialization Committee .

3.2.1. Establishment. Under the Amended Agreement, the Parties have established a joint commercialization committee to facilitate Commercialization of Licensed Compounds and Licensed Products during the Agreement Term (the “ **Joint Commercialization Committee** ”).

3.2.2. Membership. Unless otherwise agreed by the Parties, the Joint Commercialization Committee shall be comprised of three (3) representatives from each Party with one (1) representative with relevant decision-making authority from each Party such that the Joint Commercialization Committee is able to effectuate all of its decisions within the scope of its responsibilities as set forth in Section 3.2.5 below. Either Party may replace or substitute its respective representatives to the Joint Commercialization Committee at any time with prior notice to the other Party, provided that such replacement or substitute is of comparable authority within that Party. Upon mutual agreement of the Parties, additional representatives or consultants may be invited to attend a Joint Commercialization Committee meeting, subject to such representatives' and consultants' written agreement to comply with the

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requirements of Article 9. Each Party shall bear its own expenses relating to attendance at such meetings by its representatives. In the event that that Acceleron ceases to continue to appoint members of the Joint Commercialization Committee, Celgene shall deliver all notices of activities of the Joint Commercialization Committee and materials relating to Commercialization of Licensed Products to the Vice President of Sales & Marketing of Acceleron; and, notwithstanding Acceleron's lack of membership on the Joint Commercialization Committee, Acceleron shall remain obligated to perform its obligations hereunder with respect to the Commercialization of Licensed Products and comply with the instructions of Celgene on behalf of the Joint Commercialization Committee, as provided herein.

3.2.3. Chairperson. The Chairperson of the Joint Commercialization Committee (the “ **JCC Chairperson** ”) shall alternate between Acceleron’s representative and Celgene’s representative on a Contract Year basis, with the first JCC Chairperson being the representative of the Party that has, or whose Affiliate or Sublicensee has, been the first Party or Affiliate or Sublicensee of a Party to initiate a Phase 3 Clinical Trial for a Licensed Compound or Licensed Product in the Field in the Territory. The JCC Chairperson’s responsibilities shall include (a) scheduling meetings; (b) setting agendas for meetings with solicited input from the representatives of the Party that does not then have a representative as JCC Chairperson; (c) preparing and confirming minutes of the meetings, which shall provide a description in reasonable detail of the discussions held at the meeting and a list of any actions, decisions or determinations made by the Joint Commercialization Committee and delivering minutes to each Party’s senior management for review and final approval; and (d) conducting meetings.

3.2.4. Meetings. The Joint Commercialization Committee shall meet in accordance with a schedule established by mutual written agreement of the Parties, at least once per [* * *] (and more frequently as the Joint Commercialization Committee determines is necessary to fulfill its responsibilities), with the location for such meetings alternating between Acceleron’s facilities and Celgene’s facilities (or such other locations as are determined by the Joint Commercialization Committee); provided that, unless otherwise agreed to by the Parties, the Joint Commercialization Committee shall not be required to meet earlier than the time necessary to complete the activities contemplated by Section 2.5. Alternatively, if the Parties agree, the Joint Commercialization Committee may meet by means of teleconference, videoconference or other similar communications equipment.

3.2.5. Responsibilities. The Joint Commercialization Committee shall have the following responsibilities:

- (a) establishing the strategy for the Commercialization of Licensed Products in the Celgene Field and PH Field;
- (b) developing and approving the Commercialization Plan/Budget in accordance with Section 2.5, as well as updating the Commercialization Plan/Budget and amending the Commercialization Plan/Budget from time to time as appropriate;

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- (c) subject to the specific terms and conditions hereof, allocating responsibilities under the Commercialization Plan/Budget to the Parties in accordance with the Parties' abilities to perform such activities in the most efficient and cost effective manner;
- (d) overseeing the implementation of the strategy for Commercializing the Licensed Products in the Field (including strategies related to regulatory approvals, reimbursement, advertising and promotion, brand integrity, sales, and launch sequence as set forth in the Commercialization Plan/Budget);
- (e) providing input to the Joint Development Committee regarding the target product profile for the Licensed Products and making recommendations regarding changes to the same;
- (f) approving the licensing of Third Party technology, as described in Section 5.6.3(c);
- (g) reviewing the Parties' marketing and promotional activities in the Territory to ensure that such activities are consistent with the Commercialization Plan/Budget;
- (h) determining a [* * *] strategy for Licensed Products in the Field in Territory with the objective of [* * *], subject to Applicable Law, the [* * *] for Licensed Products in the Field in the Territory;
- (i) at any time, if any, that each Party is, pursuant to the terms of this Agreement, Commercializing a Sotatercept Licensed Product in its Subfield [* * *], determining, on at least an annual basis, the [* * *] of such Sotatercept Licensed Product between the PH Field and the Celgene Field in the Territory, including on a country-by-country or region-by-region basis as decided by the JCC, for the purpose for determining [* * *] under this Agreement; and
- (j) performing such other activities as are contemplated under this Agreement and that the Parties mutually agree shall be the responsibility of the Joint Commercialization Committee.

3.3 Joint Responsibilities of the Joint Development Committee and Joint Commercialization Committee . In addition to the independent Joint Development Committee and Joint Commercialization Committee meetings, the Joint Development Committee and the Joint Commercialization Committee shall coordinate to hold joint meetings as appropriate to discuss issues which are relevant to both Development and Commercialization, including in order to: (i) establish the target product profile for the Licensed Products (including indications for which the Licensed Products will be Developed and Commercialized, key labeling claims required for commercial success of the Licensed Products given the competitive environment, and any other key product features and benefits which will be used to Develop or support a promotional message or reimbursement status for the Licensed Products), (ii) discuss development of the Licensed Product for additional indications and alternative delivery forms, (iii) discuss development of improvements

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in formulation, presentation and other features of Licensed Products considered desirable for life cycle management and maximizing sales of the Licensed Products, and (iv) set the end point criteria to determine whether a Clinical Trial or other Development activity is deemed successful. Such joint meetings may be held by videoconference, teleconference or in person and any decisions required to be taken shall be submitted to the Joint Development Committee or Joint Commercialization Committee for resolution in accordance with the terms hereof.

3.4 Appointment of Subcommittees and Project Teams . The Joint Development Committee and Joint Commercialization Committee may each create such subcommittees or project teams as such committee deems necessary to carry out its responsibilities, including subcommittees focused on certain regions in the Territory that, with respect to a particular region, have the same attributes and scope of responsibilities as the relevant parent committee has with respect to the Territory. Each such subcommittee and project team shall report recommendations and proposed actions to the Joint Development Committee or Joint Commercialization Committee, as applicable, which shall approve or reject such recommendations or actions proposed in accordance with the terms of this Agreement.

3.5 Decision-Making .

3.5.1. The Joint Development Committee and Joint Commercialization Committee shall each act by unanimous agreement of its members, with each Party having one vote. If the Joint Development Committee or Joint Commercialization Committee, after [* * *] (or such other period as the Parties may otherwise agree) of good faith efforts to reach a unanimous decision on an issue, fails to reach such a unanimous decision, then either Party may submit such dispute to the senior management of Celgene and Acceleron for review.

3.5.2. Notwithstanding the foregoing, none of Celgene, Acceleron, the Joint Development Committee and the Joint Commercialization Committee may make any decision inconsistent with the express terms of this Agreement without the prior written consent of each Party.

3.6 Dispute Resolution . With respect to any disputes between the Parties that are subject to the oversight of the Joint Development Committee or the Joint Commercialization Committee, if the dispute cannot be resolved within [* * *] following escalation to senior management pursuant to Section 3.5.1, then either Party may refer the matter to the Executive Officers to be resolved by negotiation in good faith as soon as is practicable, but in no event later than [* * *] after such referral. Such resolution, if any, by the Executive Officers shall be final and binding on the Parties. If the Executive Officers are unable to resolve such dispute within such [* * *] period, then Celgene shall have the final tie-breaking vote, except that (i) Acceleron shall have the final tie-breaking vote with respect to any disputes pertaining to matters relating solely to the PH Field (other than Celgene Development Activities and matters relating to pricing of a Licensed Product) and (ii) in the event of a dispute relating to the determination of the ratio split of Net Sales pursuant to Section 3.2.5(i) or pricing of a Licensed Product, such dispute shall be resolved by consensus of the Parties and the status quo with respect to such matter shall remain until the Parties mutually agree otherwise.

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3.7 **Dissolution** . The Joint Development Committee and Joint Commercialization Committee shall each be dissolved upon expiration of the Agreement Term, or earlier upon mutual written agreement of the Parties.

3.8 **Appointment of Joint Development Committee and Joint Commercialization Committee Members** . Notwithstanding the above, at all times after [* * *] years from the Effective Date, Acceleron's membership and participation on the Joint Development Committee, the Joint Commercialization Committee, and any related subcommittees shall be at Acceleron's sole option. If, after [* * *] years from the Effective Date, Acceleron does not appoint members of the Joint Development Committee or the Joint Commercialization Committee, it shall not be a breach of this Agreement, and, thereafter, Celgene shall, in its own sole discretion, make all decisions for, and take all actions for, the Joint Development Committee or Joint Commercialization Committee, as applicable, pursuant to the terms and conditions of this Agreement, and Acceleron shall comply with all such decisions of Celgene.

Article 4

LICENSES, GRANTS OF RIGHTS AND INTELLECTUAL PROPERTY OWNERSHIP

4.1 **License Grants to Celgene** . Subject to the terms and conditions of this Agreement, Acceleron hereby grants to Celgene and its Affiliates during the Agreement Term an exclusive, royalty-bearing license (which shall, however, be (a) subject to Acceleron's retained rights set forth in Section 4.3 and (b) co-exclusive with Acceleron solely to permit Acceleron to perform the Acceleron Development Activities, Manufacturing responsibilities, and co-Promotion activities to the extent provided herein) under the Acceleron Technology and Acceleron's interest in the Joint Technology to offer for sale, sell, make, have made, use and import (including to Develop, Manufacture and Commercialize) Licensed Compounds and Licensed Products in the Field in the Territory.

4.2 **License Grant to Acceleron** . Subject to the terms and conditions of this Agreement, Celgene hereby grants Acceleron during the Agreement Term (a) an exclusive, royalty-bearing (pursuant to Section 5.7) license under the Celgene Technology and Celgene's interest in the Joint Technology to offer for sale, sell, make and have made (subject to Section 2.4.2 and Section 2.4.3), use and import Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory, and (b) a non-exclusive royalty-free license under the Celgene Technology solely to perform its Development and co-Promotion obligations pursuant to the Development Plan/Budget and Commercialization Plan/Budget, as applicable, and to Manufacture Sotatercept Licensed Compounds and Sotatercept Licensed Products in accordance with Section 2.4.2 and Section 2.4.3.

4.3 **Retained Rights of Acceleron**. Notwithstanding anything to the contrary in Section 4.1 or this Agreement, Acceleron shall retain the exclusive (even as to Celgene, except to the extent required for Celgene to perform activities for the benefit of Acceleron as set forth in this Agreement) right

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on behalf of itself, its Affiliates and its Sublicensees and licensees to Develop, and Commercialize, and to the extent set forth in Section 2.4.2 and Section 2.4.3, Manufacture, Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory.

4.4 Sublicensees .

4.4.1. Celgene's Right to Sublicense . Celgene may sublicense the rights granted to it under Section 4.1, in whole or in part, through one or more tiers to one or more of its Affiliates or Third Parties at any time; provided, however, that the sublicense, to the extent it involves the sublicense of any Salk Patent Rights, will be subject to the terms and conditions of Section 2.2 of the Salk License. In the event that Celgene enters into any sublicense (other than a sublicense to an Affiliate) that includes North America as a territory, in whole or in part, then, such sublicense shall not modify Acceleron's right to participate in Collaboration matters as provided in Article 2.(Collaboration) and Article 3.(Collaboration Management) or under the cost sharing provisions of Section 5.5. Celgene shall remain responsible for the performance of its Sublicensees under this Agreement, including for all payments due hereunder, whether or not such payments are made by Celgene, its Affiliates or its Sublicensees. Celgene shall provide Acceleron with notice and a copy of each sublicense, and any modification or termination thereof, promptly (and in any event within [* * *] days after such agreement has been fully executed) after execution of such sublicense, modification or termination; provided that any such copy may be redacted to remove any confidential, proprietary or competitive information of Celgene or its Sublicensee, but such copy shall not be redacted to the extent that it impairs Acceleron's or Salk's ability to ensure compliance with this Agreement or the Salk License, as applicable. All such notices and copies of sublicenses provided by Celgene under this Section 4.4.1 shall be deemed to be Confidential Information of Celgene subject to the provisions of Article 9 hereof whether or not so marked.

4.4.2. Acceleron's Right to Sublicense/License . Subject to Section 4.8, Acceleron may sublicense the rights granted to it under clause (a) of Section 4.2 and license the rights retained by it under Section 4.3, in whole or in part, through one or more tiers to one or more of its Affiliates or Third Parties at any time. Acceleron shall remain responsible for the performance of its Sublicensees under this Agreement, including for all payments due hereunder, whether or not such payments are made by Acceleron, its Affiliates or its Sublicensees. Acceleron shall provide Celgene with notice and a copy of each sublicense or license, as applicable, and any modification or termination thereof, promptly (and in any event within [* * *] days after such agreement has been fully executed) after execution of such sublicense, license, modification or termination; provided that any such copy may be redacted to remove any confidential, proprietary or competitive information of Acceleron or its Sublicensee, but such copy shall not be redacted to the extent that it impairs Celgene's ability to ensure compliance with this Agreement. All such notices and copies of sublicenses or licenses provided by Acceleron under this Section 4.4.2 shall be deemed to be Confidential Information of Acceleron subject to the provisions of Article 9 hereof whether or not so marked.

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4.4.3. Terms. Each sublicense granted by a Party pursuant to Sections 4.4.1 or 4.4.2 shall be subject and subordinate to the terms and conditions of this Agreement and shall contain terms and conditions consistent with those in this Agreement. Agreements with any Commercializing Sublicensee shall contain the following provisions: (a) a requirement that such Sublicensee submit applicable sales or other reports consistent with those required hereunder; (b) an audit requirement similar to the requirement set forth in Section 5.8.4; and (c) a requirement that such Sublicensee comply with the confidentiality and non-use provisions of Article 9 with respect to both Parties' Confidential Information.

4.4.4. Effect of Termination. Except as otherwise provided in the sublicense agreement, if this Agreement terminates for any reason with respect to rights that a Party has sublicensed pursuant to this Section 4.4, any Sublicensee of a Party shall, from the effective date of such termination, automatically become a direct licensee of the other Party with respect to the rights originally sublicensed to the Sublicensee by the sublicensing Party; provided, however, that such Sublicensee is not in breach of its sublicense agreement and continues to perform thereunder. Notwithstanding the foregoing, the licensor Party under this Section 4.4.4 shall not be liable to such Sublicensee with respect to any obligations of the sublicensing Party to the Sublicensee.

4.5 Right of Reference.

4.5.1. Acceleron hereby grants Celgene, its Affiliates and its Sublicensees a right of reference with respect to clinical, regulatory and other data (including CMC data) and information that is Controlled by Acceleron as of the Amended and Restated Effective Date or Controlled by Acceleron following the Amended and Restated Effective Date during the Agreement Term that is necessary or useful for the submission, approval or maintenance of Regulatory Approvals to Develop, Manufacture or Commercialize Licensed Compounds or Licensed Products in the Celgene Field in the Territory (except for Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field).

4.5.2. Celgene hereby grants Acceleron, its Affiliates and its licensees and Sublicensees a right of reference with respect to clinical, regulatory and other data (including CMC data) and information that is Controlled by Celgene as of the Amended and Restated Effective Date or Controlled by Celgene following the Amended and Restated Effective Date during the Agreement Term that is necessary or useful for the submission, approval or maintenance of Regulatory Approvals to Develop, Manufacture or Commercialize Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory.

4.5.3. Each Party shall require its Sublicensees to grant to it a transferable right of reference to all data and information (including Regulatory Submissions for Products) that, if Controlled by such Party, would be granted by such Party as part of the right of reference granted under Section 4.5.1 or 4.5.2, as applicable, so that such Party can grant the other Party, its Affiliates and its Sublicensees the right of reference set forth in Section 4.5.1 or 4.5.2, as applicable, with respect to such data and information.

4.6 Ownership of and Rights to Intellectual Property .

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4.6.1. Ownership of Improvements/Collaboration IP. Each Party agrees promptly to disclose to the other Party all Improvements and all Collaboration IP made by or under authority of such Party under this Agreement. As between the Parties, (a) title to all Celgene Improvements and Celgene Collaboration IP shall be owned by Celgene, (b) title to all Acceleron Improvements and Acceleron Collaboration IP shall be owned by Acceleron, and (c) title to all Joint Improvements and Joint Collaboration IP shall be jointly owned by Celgene and Acceleron. Acceleron hereby assigns, and Acceleron shall cause its employees, consultants, and agents to assign, its right, title, and interest in and to all Celgene Improvements to Celgene.

4.6.2. Joint Improvements/Collaboration IP. Subject to the rights herein, each Party shall have the right to practice and exploit Joint Improvements and Joint Collaboration IP, without any obligation to account to the other for profits, or to obtain any approval of the other Party to license, assign or otherwise exploit Joint Improvements and Joint Collaboration IP, by reason of joint ownership thereof, and each Party hereby waives any right it may have under the laws of any jurisdiction to require any such approval or accounting; and to the extent there are any Applicable Laws that prohibit such a waiver, each Party will be deemed to so consent. Each Party agrees to be named as a party, if necessary, to bring or maintain a lawsuit involving a Joint Improvement or Joint Collaboration IP.

4.6.3. Data. All data generated in the course of Clinical Trials hereunder shall be owned by Celgene and deemed “Celgene Know-How” and Acceleron hereby assigns, and Acceleron shall cause its employees, consultants, and agents to assign, its right, title, and interest in and to such data and information to Celgene; provided that data generated in the course of Clinical Trials following the Amended and Restated Effective Date during the Agreement Term for Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field shall be owned by Acceleron.

4.6.4. Celgene IP. Celgene is and shall remain the sole owner of the Celgene Technology.

4.6.5. Acceleron IP. Acceleron is and shall remain the sole owner of the Acceleron Technology.

4.6.6. Disputes as to Inventorship and Ownership of Improvements and Collaboration IP. Should the Parties fail to agree regarding inventorship of any invention made in the conduct of activities under this Agreement or the ownership of Improvements and Collaboration IP arising out of this Agreement, the Parties shall refer the matter to a mutually agreed-upon outside counsel for resolution. All determinations of inventive contribution for inventions arising hereunder shall be determined under United States patent law. The Parties agree that each of the individuals listed on Schedule 4.6.6 are acceptable outside counsel for such resolution, and neither Party will use such individuals (or the law firms for whom such individuals work) for any legal services without the prior written consent of the other Party. The costs of such outside counsel shall be borne equally by the Parties.

4.7 Salk License .

THIS EXHIBIT HAS BEEN REDACTED AND IS THE SUBJECT OF A CONFIDENTIAL TREATMENT REQUEST. REDACTED MATERIAL IS MARKED WITH [* * *] AND HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

4.7.1. Acknowledgement. Except as provided in Section 4.7.2, Acceleron acknowledges that it is responsible for the fulfillment of its obligations under the Salk License and agrees to fulfill the same, including any provisions necessary to maintain in effect any rights sublicensed to Celgene hereunder and the exclusive nature of such rights, subject to Celgene's compliance with its obligations hereunder. In the event of any conflict between the terms of this Agreement and the Salk License, the Parties will discuss in good faith how to address the conflict; provided that, if the Parties are unable to agree on how to address the conflict, the terms of this Agreement shall govern. Notwithstanding the foregoing, Celgene acknowledges that (i) the Salk License limits Acceleron from sublicensing under the Salk Patent Rights of any right with regard to Secondary Licensed Products (as defined in the Salk License), other than a sublicense of a Primary Licensed Product (including a Primary Licensed Product that subsequently becomes a Secondary Licensed Product) or in connection with a sublicense of a Secondary Licensed Product that is first discovered or identified by Acceleron, and (ii) the licenses under the Salk License are limited to therapeutic products, and diagnostic products are only permitted with respect to Secondary Licensed Products. Celgene further acknowledges that the Salk License provides for the right of Salk to (a) Prosecute the Salk Patent Rights and (b) make and use, and to permit others at academic, government and non-profit institutions to make and use, the Salk Patent Rights. Celgene additionally acknowledges that the Salk Patent Rights supported by federal funding are subject to certain obligations to the United States government as provided in the Salk License.

4.7.2. Incorporation of Certain Provisions. Celgene acknowledges and agrees that it shall be bound by the following provisions of the Salk License, as if Celgene was a "Licensee" thereunder: [* * *]; provided that, with respect to Section [* * *], the Parties acknowledge that, as provided in Exhibit A to the Salk License, no "Biological Materials" have been provided to Acceleron, and Acceleron will not request or accept any "Biological Materials" from Salk without Celgene's prior written consent (which consent may be conditioned on, among other things, confirmation that the "Biological Materials" license under the Salk License is sublicensable to Celgene); provided further that, notwithstanding Celgene's agreement to be bound by Section [* * *] of the Salk License, as between Acceleron and Celgene, the obligation to indemnify Salk pursuant to such section will be allocated between Acceleron and Celgene in accordance with Section 11.7 hereof. The Parties acknowledge that [* * *] has been provided to Celgene, except [* * *].

4.7.3. Covenants Regarding the Salk License. Acceleron agrees that during the Agreement Term:

- (a) Acceleron shall not modify or amend the Salk License in any way that could adversely affect Celgene's rights or economic interest under this Agreement without Celgene's prior written consent;
- (b) Acceleron shall not terminate the Salk License in whole or in part, without Celgene's prior written consent, if such termination would affect Celgene's license granted hereunder;

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- (c) Acceleron shall be solely responsible for, and shall make, all royalty, milestone, and other payments owed to Salk pursuant to the Salk License;
- (d) Acceleron shall not exercise or fail to exercise any of Acceleron's rights or obligations under the Salk License that relate to the Licensed Compounds, Licensed Products, or Celgene's rights hereunder (including the right to negotiate with Salk with respect to "Inventions" under Section 2.4 of the Salk License), in each case, without the prior written consent of Celgene, not to be unreasonably withheld; and, at the reasonable request of Celgene, Acceleron shall exercise such rights and make such requests as are permitted under the Salk License;
- (e) Acceleron shall promptly furnish Celgene with copies of all reports and other communications that Acceleron furnishes to Salk that relate to the subject of this Agreement;
- (f) Acceleron shall promptly furnish Celgene with copies of all reports and other communications that Acceleron receives from Salk that relate to the subject of this Agreement;
- (g) Acceleron shall furnish Celgene with copies of all notices received by Acceleron relating to any alleged breach or default by Acceleron under the Salk License within [* * *] after Acceleron's receipt thereof; in addition, if Acceleron should at any time breach the Salk License or become unable to timely perform its obligations thereunder, Acceleron shall immediately notify Celgene;
- (h) If Acceleron cannot or chooses not to cure or otherwise resolve any alleged breach or default under the Salk License, Acceleron shall so notify Celgene within [* * *] of such decision, which shall not be less than [* * *] prior to the expiration of the cure period under the Salk License; provided that Acceleron shall use Commercially Reasonable Efforts to cure any such breach or default; and
- (i) Celgene, in its sole discretion, shall be permitted [* * *] in accordance with the terms and conditions of the Salk License or otherwise [* * *]; and, if Celgene [* * *].

4.7.4. Survival of Celgene's Rights. As provided in Section 2.2 and 10.3(a)(iv) of the Salk License, in the event of termination of the Salk License, Celgene's rights hereunder will survive in accordance with the terms of such sections. The Parties agree that [* * *], without Celgene's prior written consent, shall be deemed a material breach of this Agreement by Acceleron; provided that (a) if [* * *], Celgene agrees to use Commercially Reasonable Efforts to assist Acceleron in [* * *], and (b) if [* * *], such [* * *] shall not be deemed a material breach by Acceleron of this Agreement.

4.8 Right of First Negotiation.

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4.8.1. Acceleron hereby grants to Celgene the exclusive right of first negotiation as set forth in this Section 4.8, with respect to the grant of exclusive rights to Develop, Commercialize and, subject to Section 2.4.2 and Section 2.4.3, Manufacture Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field in the Territory.

4.8.2. During the time period following the Amended and Restated Effective Date and during the Agreement Term, Acceleron will not directly or indirectly, license, transfer, sell or otherwise grant to any Third Party any right to [* * *] (the “**Restricted Activities**”) unless permitted pursuant to Section 4.8.3 or unless such Third Party is a distributor or other Third Party acting on behalf of Acceleron or any of its Affiliates. In the event Acceleron wishes to conduct any Restricted Activities not permitted pursuant to this Section 4.8, Acceleron shall notify Celgene in writing, such notice to be accompanied by (a) a written report of any [* * *] undertaken by Acceleron or its Affiliates with respect to the [* * *] and a summary in reasonable detail of the [* * *], aggregated or otherwise resulting from such [* * *] and (b) the proposed scope of the Restricted Activities it wishes to conduct (such notice and accompanying information, the “**ROFN Notice**” and such Restricted Activities set forth in the ROFN Notice, the “**ROFN Activities**”). Celgene shall have [* * *] from receipt of such written notice to notify Acceleron in writing if Celgene would like to exercise its right of first negotiation with respect to the ROFN Activities. Upon any exercise by Celgene of such right, the Parties shall enter into exclusive good faith negotiations for a period no longer than [* * *] (unless extended upon mutual agreement of the Parties) regarding the terms and conditions of an agreement granting Celgene rights to conduct the ROFN Activities.

4.8.3. If, with respect to any ROFN Activities, (a) the Parties fail to execute a definitive agreement that grants Celgene rights to conduct such ROFN Activities within the [* * *] period set forth in Section 4.8.2 or any longer period agreed to by the Parties, (b) the Parties otherwise mutually agree in writing to terminate such negotiations, or (c) Celgene fails to exercise its right of first negotiation within the [* * *] period set forth in Section 4.8.2 (or Celgene indicates in writing that it elects not to exercise such right), then Acceleron shall be permitted to engage in the ROFN Activities [* * *]; provided that, in the event the Parties do not reach agreement with respect to the ROFN Activities as a result of (a), (b) or (c) above, then, for [* * *] thereafter, Acceleron shall be permitted to undertake the proposed ROFN Activities without again complying with this Section 4.8, provided, that Acceleron shall not, during such [* * *] period, offer, agree to grant or grant a Third Party more favorable terms in the aggregate than those last offered to Celgene (from the licensee’s perspective) for comparable rights to conduct such ROFN Activities [* * *] unless it has offered such terms to Celgene and Celgene has not agreed in writing, within [* * *] of Acceleron’s offer to Celgene, to negotiate in good faith a definitive agreement with Acceleron on such terms for such rights. In the event Celgene does agree to such terms within such [* * *] period, the Parties shall enter into good faith negotiations regarding the additional terms and conditions of an agreement granting Celgene rights to conduct the ROFN Activities on such agreed-upon terms for the shorter of (x) [* * *], (y) until the Parties either mutually agree to terminate such negotiations or execute the definitive agreement or (z) until Celgene notifies Acceleron in writing that it elects to not enter into such definitive agreement. For purposes hereof “more favorable terms” with respect to financial terms for such ROFN

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Activities means that the value of the aggregate terms offered to the Third Party exceed the value of the aggregate terms last offered to Celgene by more than [* * *] percent [* * *], with such value determined based on the risk-adjusted net present value of the applicable terms.

4.8 **No Other Rights** . Except as otherwise provided in this Agreement, neither Party shall obtain any ownership interest or other right in any Know-How or Patent Rights owned or Controlled by the other Party.

**Article 5
FINANCIAL PROVISIONS**

5.1 **Upfront Payments** . Acceleron hereby acknowledges and agrees that Celgene made the following payments to Acceleron within ten (10) days of the Effective Date: (i) thirty-five million dollars (\$35,000,000) as an upfront, non-creditable, non-refundable fee, relating to the license grants set forth in Article 4, and (ii) ten million dollars (\$10,000,000) as an upfront, non-creditable, non-refundable fee, relating to the option program set forth in Article 7.

5.2 **ActRIIA Development Milestones** . For any Licensed Compound or Licensed Product containing ActRIIA, Celgene shall pay to Acceleron the amounts set forth below no later than [* * *] days after the earliest date on which the corresponding milestone event has first been achieved with respect to a Licensed Compound or Licensed Product in each indication in the Celgene Field described below:

<i>Milestone Event</i>	<i>Payment for Each Indication in the Celgene Field</i>	
	Oncology	Non-Oncology
Dosing the first patient in the first Phase 2B Clinical Trial for the purposes of obtaining Regulatory Approval in the United States	N/A	\$7,000,000 ¹
Dosing the first patient in the first Phase 3 Clinical Trial for the purposes of obtaining Regulatory Approval in the United States	\$10,000,000	\$10,000,000
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]

¹ As of the Amended and Restated Effective Date, this milestone payment has been paid by Celgene to Acceleron.

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A Clinical Trial or NDA will fall within the oncology indication if the Licensed Compound or Licensed Product is used (a) to treat a patient for cancer or (b) to treat a patient for a disease, disorder, or condition that results from the patient having, or being treated for, cancer. All other Clinical Trials or NDAs will fall within the non-oncology indication. For example, use of a Licensed Compound or Licensed Product to treat [* * *] will be deemed to fall within the oncology indication, and, for purposes of this Agreement, the treatment of anemia in a patient with [* * *] will be considered oncology and will be deemed to fall within the oncology indication; on the other hand, [* * *] not caused by any oncologic condition or treatment thereof will fall within the non-oncology indication (whether or not the patients taking the Licensed Compound or Licensed Product has cancer or a disease, disorder, or condition that results from the patient having, or being treated for, cancer). For the avoidance of doubt, a single Clinical Trial or NDA shall not trigger an obligation by Celgene to pay milestones with respect to both the oncology and non-oncology indications but instead shall be treated as falling only within one indication or the other and requiring not more than one milestone payment; provided that, if the Parties initially elect one indication (e.g. , oncology) to apply to a Licensed Compound or Licensed Product but later determine it is not effective for that indication, the Parties may then elect to proceed with the other indication (e.g. , non-oncology) for such Licensed Compound or Licensed Product; however, notwithstanding the last sentence of the next paragraph, such Licensed Compound or Licensed Product shall only trigger milestones in the new indication (in this example, non-oncology) that occur after such election and shall not trigger any earlier milestones in the new indication.

For clarity, the milestone payments set forth in this Section 5.2 shall be paid only once for each indication, regardless of how many Licensed Compounds and Licensed Products may achieve the milestone event and regardless of whether the same Licensed Compound or Licensed Product achieves the milestone event for the same indication more than once. By way of a nonlimiting example, if a Licensed Compound and a Licensed Product achieve the same milestone event in the same indication, only one payment is due. Furthermore, to the extent a Licensed Compound or Licensed Product fails and a replacement Licensed Compound or Licensed Product is selected, any milestones previously paid for such failed Licensed Compound or Licensed Product shall not be paid a second time with respect to such replacement Licensed Compound or Licensed Product. Except as provided in the prior paragraph, to the extent that any prior milestone has not been paid at the time of achievement of a subsequent milestone, then upon the achievement of such subsequent milestone all preceding unpaid milestone payments shall be made in addition to the payment corresponding to the milestone that has been achieved; provided that the acceptance or approval of [* * *] shall not be deemed to trigger any milestone payment for [* * *] in any other country or jurisdiction.

For purposes of determining the occurrence of milestones under this Section 5.2 and Section 5.3, [* * *] shall be deemed to have occurred [* * *] days following [* * *]; provided that, if such [* * *], such [* * *] shall not be deemed to have occurred until such comments have been addressed to the satisfaction of [* * *].

The Parties agree that, effective as of the execution of the First Amendment to this Agreement, Celgene shall have no obligations to pay any amounts due pursuant to the provisions of Section 5.2 of the Original Agreement (including the table of milestones set forth therein) prior to such

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amendment, and the provisions of this Section 5.2 (including the table of milestones set forth herein) will replace such former provisions in their entirety as of the Amended and Restated Effective Date. Acceleron acknowledges and agrees that all payments that were due pursuant to the provisions of the former Section 5.2 of the Original Agreement were paid in full.

For clarity and notwithstanding any other provision of this Agreement, in no event shall Celgene be obligated to make any milestone payments pursuant to this Section 5.2 with respect to any Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field.

5.3 Option Compound Development Milestones . Provided that the option in Article 7 is exercised in full, for a Licensed Compound or Licensed Product containing an [* * *] Antibody, [* * *] Antibody, or [* * *] Antibody, Celgene shall also pay to Acceleron the amounts set forth below no later than [* * *] days after the earliest date on which the corresponding milestone event has first been achieved with respect to any such Licensed Compound or Licensed Product (for the avoidance of doubt, the milestones set forth below shall be payable separately with respect to a Licensed Compound or Licensed Product containing an [* * *] Antibody, an [* * *] Antibody or a [* * *] Antibody):

<i>Milestone Event</i>	<i>Payment for Each Indication for [* * *] Antibodies, [* * *] Antibodies and [* * *] Antibodies</i>	
	Oncology	Non-Oncology
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]

The determination of whether a Clinical Trial or NDA falls within the oncology indication or non-oncology indication will be made in the same manner as provided in Section 5.2.

For clarity, the milestone payments set forth in this Section 5.3 shall be paid only once for each indication for a Licensed Compound or Licensed Product the underlying Licensed Compound of which is an [* * *] Antibody, once for each indication for a Licensed Compound or Licensed Product the underlying Licensed Compound of which is an [* * *] Antibody, and once for each indication for a Licensed Compound or Licensed Product the underlying Licensed Compound of which is a [* * *] Antibody, regardless of how many Licensed Compounds and Licensed Products with such Licensed Compound may achieve the milestone event and regardless of whether the same Licensed Compound or Licensed Product achieves the milestone event for the same indication more than once. By way of a nonlimiting example, if an [* * *] Antibody Licensed Compound and a Licensed Product containing an [* * *] Antibody achieve the same milestone event in the same indication,

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only one payment is due; if an [* * *] Antibody Licensed Compound and a Licensed Product containing an [* * *] Antibody achieve the same milestone event in the same indication, only one payment is due; and if a [* * *] Antibody Licensed Compound and a Licensed Product containing a [* * *] Antibody achieve the same milestone event in the same indication, only one payment is due. In addition for clarity, if an [* * *] Antibody Licensed Compound or Licensed Product achieves a particular milestone, and an [* * *] Antibody Licensed Compound or Licensed Product achieves the same milestone, the particular milestone payment will be made twice, once with respect to the [* * *] Antibody Licensed Compound or Licensed Product and once with respect to the [* * *] Antibody Licensed Compound or Licensed Product. Furthermore, to the extent a Licensed Compound or Licensed Product the underlying Licensed Compound of which is an [* * *] Antibody, [* * *] Antibody, or [* * *] Antibody fails and a replacement Licensed Compound or Licensed Product with the same Licensed Compound is selected, any milestones previously paid for such failed Licensed Compound or Licensed Product shall not be paid a second time with respect to such replacement Licensed Compound or Licensed Product. To the extent that any prior milestone has not been paid at the time of achievement of a subsequent milestone, then upon the achievement of such subsequent milestone all preceding unpaid milestone payments shall be made in addition to the payment corresponding to the milestone that has been achieved; provided that the acceptance or approval of an NDA in any one country or jurisdiction shall not be deemed to trigger any milestone payment for the acceptance or approval of an NDA in any other country or jurisdiction.

The Parties agree that, effective as of the execution of the First Amendment to this Agreement, Celgene shall have no obligations to pay any amounts due pursuant to the provisions of Section 5.3 of the Original Agreement (including the table of milestones set forth therein) prior to such amendment, and the provisions of this Section 5.3 (including the table of milestones set forth herein) will replace such former provisions in their entirety. Acceleron acknowledges and agrees that all payments that were due pursuant to the provisions of the former Section 5.3 of the Original Agreement were paid in full.

5.4 Ex-North American Sales Milestones . Celgene shall also pay to Acceleron the amounts set forth below no later than [* * *] days after the earliest date on which the corresponding milestone event has first been achieved with respect to each Licensed Product in the Celgene Field:

<i>Milestone Event</i>	<i>Payment</i>
[* * *]	\$[* * *]
[* * *]	\$[* * *]
[* * *]	\$[* * *]

For clarity and notwithstanding any other provision of this Agreement, in no event shall Celgene be obligated to make any milestone payments pursuant to this Section 5.4 with respect to any Net Sales of Sotatercept Licensed Product in the PH Field.

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Once Celgene has made any particular milestone payment under this Section 5.4, Celgene shall not be obligated to make any payment under this Section 5.4 with respect to the re-occurrence of the same milestone for the same Licensed Product (regardless of how many indications the Licensed Product may be approved for). For making the determinations under this Section 5.4, Celgene Field Net Sales shall be derived from audited financial statements of Celgene (or the applicable Affiliate, Sublicensee or Distributing Party or its designee); provided, however, that Celgene shall use U.S. GAAP to calculate in good faith the Celgene Field Net Sales derived from any entities that are not audited or have not completed their audit within [* * *] days after the end of the preceding Contract Year. For clarity, two dosage forms of a product would constitute the same Licensed Product; however, any derivatives and modifications of a Licensed Product are considered distinct Licensed Products, other than modifications that are limited to changes in the formulation of a Licensed Product (which formulation modifications would constitute the same Licensed Product).

In the event that, on a Licensed Product-by-Licensed Product basis, a Licensed Product has received Regulatory Approval in a country only for one or more indications in either the Celgene Field or the PH Field (and not in indications in both the Celgene Field and the PH Field), all sales of such Licensed Product in such country shall be deemed Net Sales of such Licensed Product in the Celgene Field or the PH Field, respectively. In the event that a Licensed Product is sold in a country in both the PH Field and the Celgene Field, the JCC will allocate Net Sales of such Licensed Product in the PH Field and the Celgene Field pursuant to Section 3.2.5(i).

5.5 Sharing Costs .

5.5.1. Cost Sharing. The Parties shall be responsible for paying costs as set forth in this Section.

(a) Subject to Section 5.5.1(b), Celgene shall be responsible for paying one hundred percent (100%) of (i) all Development Costs and (ii) all Operating Costs, in each case incurred on or after the Amended and Restated Effective Date.

(b) Acceleron shall be responsible for paying one hundred percent (100%) of (i) all Development Costs and (ii) all Operating Costs, in each case incurred on or after the Amended and Restated Effective Date in the conduct of PH Field Development Activities (including, for clarity, all Celgene Development Activities described in clause (iii) of the definition thereof).

(c) Patent Procurement Costs shall be shared in accordance with the provisions of Section 8.2.4.

(d) Purchases of capital equipment related to Manufacturing (*e.g.* , the purchase and qualification of a manufacturing facility or of additional manufacturing lines) shall not be included in any cost to be shared or allocated under this Agreement.

5.5.2. Sharing Mechanics. The payment of costs pursuant to this Agreement shall be subject to the following:

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(a) Notwithstanding anything in this Agreement to the contrary, no cost, expense, amount or sum allocable or chargeable to the Parties' activities under this Agreement shall be allocated or charged more than once. Unless otherwise specifically authorized by the Parties or this Agreement, all costs, expenses, amounts or sums to be charged or allocated by one Party to the other Party under this Agreement shall not be so chargeable or allocable unless they are directly related to this Agreement and the activities to be performed under this Agreement.

(b) It is the intention of the Parties that the interpretation of the definitions related to this Article 5 shall be in accordance with U.S. GAAP consistently applied in accordance with the applicable Party's then current practices. A Party shall promptly make the appropriate adjustments to the financial information it supplies under this Agreement to reflect changes to the provisions, including reasonable detail underlying the adjustment, in reporting results of operation.

(c) Furthermore, for any costs or expenses in connection with the performance of its activities hereunder, which are reimbursable by one Party or subject to cost-sharing between the Parties, if such costs or expenses consist of payments made by either Party to a Third Party, they shall be charged hereunder at the respective Party's actual out-of-pocket cost.

(d) Notwithstanding anything in this Agreement to the contrary, each Party shall be solely responsible for all travel costs for such Party's and its Affiliates' and agents' employees incurred in connection with the performance of such Party's obligations hereunder, and no travel-related expenses incurred by either Party in connection with Development activities hereunder shall be included in Development Costs or Operating Costs.

5.5.3. Cost Reporting.

(a) Development Costs.

(i) No later than [* * *] Business Days after the end of each Contract Quarter, (i) Acceleron shall report to Celgene an estimate of Development Costs (including any Third Party Intellectual Property Costs that are deemed Development Costs) incurred in the conduct of Development activities in the Celgene Field by or on behalf of Acceleron and Patent Procurement Costs (for which reimbursement is required pursuant to Section 8.2.4), in each case incurred on or following the Amended and Restated Effective Date, and (ii) Celgene shall report to Acceleron an estimate of Development Costs (including any Third Party Intellectual Property Costs that are deemed Development Costs) incurred in the conduct of Development activities in the PH Field by or on behalf of Celgene and Patent Procurement Costs (for which reimbursement is required pursuant to Section 8.2.4), in each case incurred on or following the Amended and Restated Effective Date.

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(ii) Furthermore, as soon as practicable after the end of each Contract Quarter, but in any event no later than [* * *] days after the end of each Contract Quarter, each Party shall report to the other Party actual Development Costs and Patent Procurement Costs described in Section 5.5.3(a)(i).

(b) Results of Operations in North America.

(i) No later than [* * *] Business Days after the end of each Contract Quarter, (A) each Party shall report to the other Party an estimate of such Party's results of operations in North America with respect to all Licensed Compounds and Licensed Products in the Celgene Field in the Territory related to the following: (1) aggregate gross invoice prices of all units of Licensed Product sold; (2) sales returns and allowances; (3) Celgene Field Net Sales; (4) number of units sold; and (5) in the case of Acceleron, all Sales Force Costs of Acceleron and any other Operating Costs of Acceleron in North America in the Celgene Field that are incurred under the Commercialization Plan/Budget (the costs in this clause (5) collectively, the "**Acceleron NA Operating Costs**"), (B) Acceleron shall report to Celgene an estimate of the Operating Costs, if any, incurred by or on behalf of Acceleron as the Distributing Party of Sotatercept Licensed Products in the Celgene Field under the Commercialization Plan/Budget and (C) Celgene shall report to Acceleron an estimate of the Operating Costs, if any, incurred by or on behalf of Celgene as the Distributing Party of Sotatercept Licensed Products in the PH Field under the Commercialization Plan/Budget.

(ii) Furthermore, as soon as practicable after the end of each Contract Quarter, but in any event no later than [* * *] days after the end of each Contract Quarter, each Party shall report to the other Party actual results of operations in North America in the Celgene Field and actual Operating Costs, each as described in the prior sentence.

5.5.4. Expense Limitations.

(a) Expenses charged by either Party as Development Costs in the other Party's Subfield for any Contract Year shall not exceed [* * *] percent [* * *] of the amount included for the total expenditure in the relevant then-current Development Plan/Budget for such Subfield.

(b) The Acceleron NA Operating Costs for any Contract Year shall not exceed [* * *] percent [* * *] of the amount included for the total expenditure in the then-current Commercialization Plan/Budget.

(c) The Operating Costs incurred by any Party as the Distributing Party of a Sotatercept Licensed Product in the other Party's Subfield shall not exceed [* * *]

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percent [* * *] of the amount included for the total expenditure in the then-current Commercialization Plan/Budget.

(d) If any of the costs described in Sections 5.5.4(a) through 5.5.4(c) (i.e. Development Costs in the other Party's Subfield, Acceleron NA Operating Costs or Operating Costs in the other Party's Subfield) are expected to vary by more than [* * *] percent [* * *] from the amounts budgeted for expenditure during the Contract Year, the Party responsible for the forecasted variance shall promptly revise the Development Plan/Budget or Commercialization Plan/Budget, as applicable, and submit it in writing, with an explanation of the variance and the reasons therefore, to the other Party. If the Joint Development Committee or Joint Commercialization Committee, as applicable, agrees in writing that the revised budget is acceptable then such revised budget shall be incorporated into the respective Development Plan/Budget or Commercialization Plan/Budget for the remainder of the Contract Year.

5.5.5. Reconciliation Statements. In addition to providing the reports specified and set forth in Section 5.5.3, within [* * *] days following the end of a Contract Quarter, Celgene shall prepare, in consultation with Acceleron, a statement showing the calculation of costs to be allocated to each Party pursuant to this Section 5.5 and the cash settlement required (the "**Reconciliation Statement**"). Payments required pursuant to Reconciliation Statements shall be made by Acceleron or Celgene in the manner set forth in Section 5.7.5.

5.6 Royalties Payable for Celgene Field Net Sales .

5.6.1. Royalty Percentages .

(a) Celgene as the Distributing Party. For sales of Licensed Products in the Field (other than sales of Sotatercept Licensed Products in the PH Field) in the Territory for which Celgene is the Distributing Party pursuant to Section 2.6.2, Celgene shall retain all amounts received for such sales; provided that Celgene shall pay to Acceleron the following royalty payments on a Licensed Product-by-Licensed Product basis during the applicable Royalty Term:

- (i) [* * *] percent [* * *] of annual Celgene Field Net Sales in each region of the Territory during a Contract Year for that portion of the annual Celgene Field Net Sales in such region that is less than or equal to [* * *];
- (ii) [* * *] percent [* * *] of annual Celgene Field Net Sales in each region of the Territory during a Contract Year for that portion of the annual Celgene Field Net Sales in such region that is greater than [* * *] and less than or equal to [* * *]; and
- (iii) [* * *] percent [* * *] of annual Celgene Field Net Sales in each region of the Territory during a Contract Year for that portion of the annual Celgene Field Net Sales in such region that is greater than [* * *];

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provided further that the applicable thresholds above will be determined on a region-by-region basis with each of the following areas of the Territory treated as one region: (i) North America and (ii) the rest of the Territory.

(b) Accelaron as the Distributing Party. For sales of Sotatercept Licensed Products in the Celgene Field in the Territory for which Accelaron is the Distributing Party pursuant to Section 2.6.2, Accelaron shall retain all amounts received for such sales; provided that Accelaron shall pay to Celgene royalty payments on Celgene Field Net Sales on a Sotatercept Licensed Product-by-Sotatercept Licensed Product basis during the applicable Royalty Term at a royalty rate equal to [* * *] that would apply for such Sotatercept Licensed Product if Celgene was the Distributing Party of such Licensed Product. By way of illustration, if Accelaron is the Distributing Party for a Sotatercept Licensed Product in the Celgene Field for which, if Celgene was the Distributing Party for such Sotatercept Licensed Product, Celgene would pay Accelaron a royalty of [* * *] percent [* * *] of Celgene Field Net Sales under this Agreement (e.g., such Celgene Field Net Sales were in the portion of Celgene Field Net Sales in a region in the Territory that is less than or equal to [* * *] and no royalty adjustments under this Agreement are then applicable), Accelaron shall owe Celgene a royalty equal to [* * *] percent [* * *] of Celgene Field Net Sales of such Sotatercept Licensed Product.

5.6.2. Cumulative Royalties. The obligation to pay royalties under this Agreement shall be imposed only once with respect to a single unit of a Licensed Product.

5.6.3. Adjustment in Royalty Rates.

(a) Know-How Only or Generic Competition. On a country-by-country and Licensed Product-by-Licensed Product basis, upon the earlier to occur of (i) the date on which the offering for sale, selling, making, having made, using or importing of a Licensed Product is no longer covered by a Valid Claim of an Accelaron Patent Right in such country (but such Manufacture, use or sale of a Licensed Product continues to be covered by Accelaron Know-How) or (ii) the date on which in such country there are one or more Generic Products, then the royalty percentage applicable to Celgene Field Net Sales of such Licensed Product under Section 5.6.1(a) for such Licensed Product in such country shall be reduced by fifty percent (50%) for the remainder of the Royalty Term.

(b) Celgene Third Party Licenses. In the event that one or more licenses to Third Party Intellectual Property are required by Celgene to offer for sale, sell, make, have made, use or import Licensed Compounds or Licensed Products in the Celgene Field in the Territory without infringing the Third Party Intellectual Property (including claims of a pending patent application that are reasonably expected to issue), then Celgene may offset fifty percent (50%) of the amount of commercially reasonable royalties or other payments payable by Celgene to such Third Party (or paid or reimbursed by Celgene pursuant to Section 5.6.3(c)) with respect to a particular Licensed Product against amounts Celgene is obligated to pay Accelaron under

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Section 5.4 or Section 5.6.1(a) for such Licensed Product; provided that in no such event shall any such offset reduce by more than fifty percent (50%) the payments otherwise due to Acceleron in particular Contract Years; provided further that on a Licensed Product-by-Licensed Product basis, any Third Party royalty payments that are not credited against royalties or sales milestones paid to Acceleron in the Contract Year in which they were accrued shall be carried forward and credited against royalties or sales milestones payable to Acceleron in the subsequent Contract Year(s) hereunder until such royalty credits are completely expended. The calculation of the royalty reduction under this Section 5.6.3(b) shall be conducted on a country-by-country and Licensed Product-by-Licensed Product basis. Celgene shall provide Acceleron with notice and a copy of each such license, and any modification or termination thereof, promptly (and in any event within [* * *] days after such agreement has been fully executed) after execution of such license, modification or termination; provided that any such copy may be redacted to remove any confidential, proprietary or competitive information of Celgene or its Sublicensee, but such copy shall not be redacted to the extent that it impairs Acceleron's ability to ensure compliance with this Agreement. With respect to any license entered into by Celgene to Third Party Intellectual Property, Celgene shall use Commercially Reasonable Efforts to ensure that such Third Party Intellectual Property is sublicensable to Acceleron to the extent required under this Agreement.

(c) Third Party Intellectual Property. Acceleron shall not enter into an agreement with a Third Party to obtain a license under Third Party Intellectual Property that solely covers the offering for sale, selling, making, having made, using or importing Licensed Compounds or Licensed Products in the Celgene Field in the Territory (including rights of a pending patent application that are reasonably expected to issue) without first offering Celgene the opportunity to contact such Third Party regarding entering into such agreement directly. With respect to Third Party Intellectual Property that covers the offering for sale, selling, making, having made, using or importing Licensed Compounds or Licensed Products in the Celgene Field in the Territory but also covers Acceleron's other products or compounds, Acceleron shall notify the Joint Development Committee or Joint Commercialization Committee, as applicable, of the Third Party Intellectual Property (a "**Third Party Intellectual Property Notice**"). With respect to such a license for such Third Party Intellectual Property that covers the offering for sale, selling, making, having made, using or importing Licensed Compounds or Licensed Products in the Celgene Field in the Territory, Acceleron may enter into the license for such Third Party Intellectual Property; provided that, if the Joint Development Committee or Joint Commercialization Committee, as applicable, determines that such Third Party Intellectual Property should be part of the Collaboration, then the following shall apply: (i) Acceleron shall keep Celgene fully informed of the status of the negotiations with the Third Party and provide Celgene with copies of all draft agreements; (ii) Celgene may provide comments and suggestions with respect to the negotiation of the agreement with the Third Party, and Acceleron shall reasonably consider all comments and suggestions reasonably recommended by Celgene; (iii)

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Acceleron shall use Commercially Reasonable Efforts to ensure that such Third Party Intellectual Property is sublicensable to Celgene in accordance with the terms of this Agreement, treating (unless otherwise agreed by the Parties) the Third Party Intellectual Property as Acceleron Know-How or Acceleron Patent Rights hereunder and treating the agreement licensing such the Third Party Intellectual Property in the same way as the Salk License (including as provided in Section 4.7), except for payment obligations; provided that, if Acceleron is not able to obtain a license from such Third Party that is sublicensable in accordance with this clause (iii), then Acceleron shall promptly so notify Celgene and shall exclude from any such license that Acceleron obtains the offering for sale, selling, making, having made, using or importing Licensed Compounds or Licensed Products in the Celgene Field in the Territory, and (iv) the Parties shall allocate the Third Party Intellectual Property Costs, unless otherwise agreed, as follows: (x) the Parties shall determine in good faith an allocation of upfront payments and intellectual property acquisition fees paid to any such Third Party with respect to Licensed Compounds or Licensed Products to be treated as either Development Costs or Operating Costs, (y) development milestone payments owed to such Third Party that are required to be paid as a result of the Development of Licensed Compounds or Licensed Products shall be treated as Development Costs, and (z) sales milestone payments and royalties owed to such Third Party that are required to be paid as a result of sales of Licensed Products shall be treated as royalties paid to Third Parties pursuant to Section 5.6.3(b). In the event that Acceleron delivers to Celgene a Third Party Intellectual Property Notice and pursues a license to the applicable Third Party Intellectual Property from such Third Party, Celgene will not directly or indirectly (other than through Acceleron pursuant to this Agreement) pursue a license to such Third Party Intellectual Property unless (1) Acceleron decides to not pursue a license to such Third Party Intellectual Property that covers a Licensed Compound or Licensed Product (in which event, Acceleron will promptly notify Celgene of such decision), (2) Acceleron notifies Celgene that Acceleron is not able to obtain a sublicensable license in accordance with clause (iii) of the third sentence of this Section, or (3) Celgene was already in discussions with such Third Party prior to Celgene's receipt of the Third Party Intellectual Property Notice regarding licensing such Third Party Intellectual Property.

5.6.4. Reports and Royalty Payments. Within [* * *] days after the beginning of each Contract Quarter during the Royalty Term, the Distributing Party for each Licensed Product in the Celgene Field shall deliver to the other Party a report setting forth for the previous Contract Quarter the following information on a Licensed Product-by-Licensed Product and country-by-country basis in the Territory: (a) the gross sales and Celgene Field Net Sales of Licensed Product, (b) the number of units sold by the Distributing Party or its designee pursuant to this Agreement, (c) the basis for any adjustments to the royalty payable for the sale of each Licensed Product and (d) the royalty due hereunder for the sales of each Licensed Product (the “**Royalty Report**”). The total royalty due for the sale of Licensed Products during such Contract Quarter shall be remitted at the time such report is made. No such

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reports or royalty shall be due for any Licensed Product before the First Commercial Sale of such Licensed Product.

5.7 Royalties Payable for PH Field Net Sales .

5.7.1. Royalty Percentages .

(a) Acceleron as the Distributing Party . For sales of Sotatercept Licensed Products in the PH Field in the Territory for which Acceleron is the Distributing Party pursuant to Section 2.6.2, Acceleron shall retain all amounts received for such sales; provided that, with respect to each Sotatercept Licensed Product in a country, Acceleron shall pay to Celgene royalty payments on PH Field Net Sales during the applicable PH Field Royalty Term of such Sotatercept Licensed Product in such country at a royalty rate equal to [* * *] percent [* * *] of PH Field Net Sales of such Sotatercept Licensed Product in such country.

(b) Celgene as the Distributing Party . For sales of Sotatercept Licensed Products in the PH Field in the Territory for which Celgene is the Distributing Party pursuant to Section 2.6.2, Celgene shall retain all amounts received for such sales; provided that Celgene shall pay to Acceleron royalty payments on PH Field Net Sales on a Sotatercept Licensed Product-by-Sotatercept Licensed Product basis and country-by-country basis during the applicable PH Field Royalty Term at a royalty rate equal to [* * *] for such Sotatercept Licensed Product in such country if Acceleron was the Distributing Party of such Sotatercept Licensed Product in the PH Field (as such PH Field Royalty Rate may be adjusted pursuant to the terms of this Agreement).

5.7.2. Cumulative Royalties . The obligation to pay royalties under this Agreement shall be imposed only once with respect to a single unit of a Sotatercept Licensed Product.

5.7.3. Adjustment in Royalty Rates .

(a) Know-How Only or Generic Competition . On a country-by-country and Sotatercept Licensed Product-by-Sotatercept Licensed Product basis, upon the earlier to occur of (i) the date on which the offering for sale, selling, making, having made, using or importing of a Sotatercept Licensed Product is no longer covered by a Valid Claim of an Acceleron Patent Right or a Celgene Patent Right in such country (but such Manufacture, use or sale of a Sotatercept Licensed Product continues to be covered by Acceleron Know-How or Celgene Know-How) or (ii) the date on which in such country there are one or more Generic Products with respect to such Sotatercept Licensed Product, then the royalty percentage applicable to PH Field Net Sales of such Sotatercept Licensed Product under Section 5.7.1(a) for such Sotatercept Licensed Product in such country shall be reduced by fifty percent (50%) for the remainder of the PH Field Royalty Term.

(b) Acceleron Third Party Licenses . In the event that one or more licenses to Third Party Intellectual Property are required by Acceleron to offer for sale, sell,

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make, have made, use or import Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory without infringing the Third Party Intellectual Property (including claims of a pending patent application that are reasonably expected to issue), then Acceleron may offset fifty percent (50%) of the amount of commercially reasonable royalties or other payments payable by Acceleron to such Third Party (or paid or reimbursed by Acceleron pursuant to Section 5.6.3(c)) with respect to a particular Sotatercept Licensed Product in the PH Field against amounts Acceleron is obligated to pay Celgene under Section 5.7.1(a) for such Sotatercept Licensed Product, provided that in no such event shall any such offset reduce by more than fifty percent (50%) the payments otherwise due to Celgene in particular Contract Years; provided further that on a Sotatercept Licensed Product-by-Sotatercept Licensed Product basis, any Third Party royalty payments that are not credited against royalties paid to Celgene in the Contract Year in which they were accrued shall be carried forward and credited against royalties payable to Celgene in the subsequent Contract Year(s) hereunder until such royalty credits are completely expended. The calculation of the royalty reduction under this Section 5.7.3(b) shall be conducted on a country-by-country and Sotatercept Licensed Product-by-Sotatercept Licensed Product basis. Acceleron shall provide Celgene with notice and a copy of each such license, and any modification or termination thereof, promptly (and in any event within [* * *] days after such agreement has been fully executed) after execution of such license, modification or termination; provided that any such copy may be redacted to remove any confidential, proprietary or competitive information of Acceleron or its Sublicensee, but such copy shall not be redacted to the extent that it impairs Celgene's ability to ensure compliance with this Agreement. With respect to any license entered into by Acceleron to Third Party Intellectual Property, Acceleron shall use Commercially Reasonable Efforts to ensure that such Third Party Intellectual Property is sublicensable to Celgene to the extent required under this Agreement.

(c) Third Party Intellectual Property. Celgene shall not enter into an agreement with a Third Party to obtain a license under Third Party Intellectual Property that solely covers the offering for sale, selling, making, having made, using or importing Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory (including rights of a pending patent application that are reasonably expected to issue) without first offering Acceleron the opportunity to contact such Third Party regarding entering into such agreement directly. With respect to Third Party Intellectual Property that covers the offering for sale, selling, making, having made, using or importing Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory but also covers Celgene's other products or compounds (including Sotatercept Licensed Compounds or Sotatercept Licensed Products outside of the PH Field), Celgene shall notify the Joint Development Committee or Joint Commercialization Committee, as applicable, of the Third Party Intellectual Property (a "**PH Field Third Party Intellectual Property Notice**"). With respect to such a license for such Third Party Intellectual Property that covers the offering for sale, selling, making, having made, using or importing Sotatercept

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Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory, Celgene may enter into the license for such Third Party Intellectual Property; provided that, if the Joint Development Committee or Joint Commercialization Committee, as applicable, determines that such Third Party Intellectual Property should be part of the Collaboration, then the following shall apply: (i) Celgene shall keep Acceleron fully informed of the status of the negotiations with the Third Party and provide Acceleron with copies of all draft agreements; (ii) Acceleron may provide comments and suggestions with respect to the negotiation of the agreement with the Third Party, and Celgene shall reasonably consider all comments and suggestions reasonably recommended by Acceleron; (iii) Celgene shall use Commercially Reasonable Efforts to ensure that such Third Party Intellectual Property is sublicensable to Acceleron in accordance with the terms of this Agreement, treating (unless otherwise agreed by the Parties) the Third Party Intellectual Property as Celgene Know-How or Celgene Patent Rights hereunder, except for payment obligations; provided that, if Celgene is not able to obtain a license from such Third Party that is sublicensable in accordance with this clause (iii), then Celgene shall promptly so notify Acceleron and shall exclude from any such license that Celgene obtains the offering for sale, selling, making, having made, using or importing Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the Territory, and (iv) the Parties shall allocate the Third Party Intellectual Property Costs, unless otherwise agreed, as follows: (x) the Parties shall determine in good faith an allocation of upfront payments and intellectual property acquisition fees paid to any such Third Party with respect to Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field for which Acceleron shall be responsible, (y) development milestone payments owed to such Third Party that are required to be paid as a result of the Development of Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field shall be borne by Acceleron, and (z) sales milestone payments and royalties owed to such Third Party that are required to be paid as a result of sales of Sotatercept Licensed Products in the PH Field shall be treated as royalties paid to Third Parties pursuant to Section 5.7.3(b). In the event that Celgene delivers to Acceleron a PH Field Third Party Intellectual Property Notice and pursues a license to the applicable Third Party Intellectual Property from such Third Party, Acceleron will not directly or indirectly (other than through Celgene pursuant to this Agreement) pursue a license to such Third Party Intellectual Property unless (1) Celgene decides to not pursue a license to such Third Party Intellectual Property that covers a Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field (in which event, Celgene will promptly notify Acceleron of such decision), (2) Celgene notifies Acceleron that Celgene is not able to obtain a sublicensable license in accordance with clause (iii) of the third sentence of this Section, or (3) Acceleron was already in discussions with such Third Party prior to Acceleron's receipt of the PH Field Third Party Intellectual Property Notice regarding licensing such Third Party Intellectual Property.

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5.7.4. Reports and Royalty Payments. Within [* * *] days after the beginning of each Contract Quarter during the PH Field Royalty Term, the Distributing Party for each Licensed Product in the PH Field shall deliver to the other Party a report setting forth for the previous Contract Quarter the following information on a Sotatercept Licensed Product-by-Sotatercept Licensed Product and country-by-country basis in the PH Field in the Territory: (a) the gross sales and PH Field Net Sales of Sotatercept Licensed Product, (b) the number of units sold by the Distributing Party or its designee pursuant to this Agreement, (c) the basis for any adjustments to the royalty payable for the sale of each Sotatercept Licensed Product and (d) the royalty due hereunder for the sales of each Sotatercept Licensed Product (the “**PH Field Royalty Report**”). The total royalty due for the sale of Licensed Products during such Contract Quarter shall be remitted at the time such report is made. No such reports or royalty shall be due for any Licensed Product before the First Commercial Sale of such Sotatercept Licensed Product.

5.8 Payment Provisions Generally .

5.8.1. Taxes and Withholding. If laws, rules or regulations require withholding of income taxes or other taxes imposed upon payments set forth in Section 5.6, the Party making payments to the other Party under this Agreement (the “**Paying Party**”) shall make such withholding payments as required and subtract such withholding payments from the payments set forth in Section 5.6. The Paying Party shall submit appropriate proof of payment of the withholding taxes to the Receiving Party within a reasonable period of time. At the request of the Party receiving payments from the other Party under this Agreement (the “**Receiving Party**”), the Paying Party shall give the Receiving Party such reasonable assistance, which shall include the provision of appropriate certificates of such deductions made together with other supporting documentation as may be required by the relevant tax authority, to enable the Receiving Party to claim exemption from such withholding or other tax imposed or obtain a repayment thereof or reduction thereof and shall upon request provide such additional documentation from time to time as is reasonably required to confirm the payment of tax.

5.8.2. Payment and Currency Exchange.

(a) All amounts (including all costs sharing) payable and calculations hereunder shall be in United States dollars and shall be paid by bank wire transfer in immediately available funds to such bank account as may be designated in writing by Acceleron or Celgene, as applicable, from time to time. Whenever for the purposes of calculating the royalties payable under Section 5.6 or the costs payable under Section 5.5 conversion from any foreign currency shall be required, all amounts shall first be calculated in the currency of sale or currency of incurrence and then converted into United States dollars by applying the average monthly rate of exchange listed in the New York edition of *The Wall Street Journal* for the final month of the applicable Contract Quarter.

(b) Where royalty amounts are due for Celgene Field Net Sales or PH Field Net Sales in a country where, for reasons of currency, tax or other regulations, transfer

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of foreign currency out of such country is prohibited, the Paying Party has the right to place the Receiving Party's royalties in a bank account in such country in the name of and under the sole control of the Receiving Party; provided, however, that the bank selected be reasonably acceptable to the Receiving Party and that the Paying Party inform the Receiving Party of the location, account number, amount and currency of money deposited therein. After the Receiving Party has been so notified, those monies shall be considered as royalties duly paid to the Receiving Party and will be completely controlled by the Receiving Party.

(c) When in any country in the Territory the law or regulations prohibit both the transmittal and the deposit of royalties on sales in such country, royalty payments due on Celgene Field Net Sales or PH Field Net Sales shall be suspended for as long as such prohibition is in effect and as soon as such prohibition ceases to be in effect, all royalties that the Paying Party would have been under an obligation to transmit or deposit but for the prohibition shall forthwith be deposited or transmitted, to the extent allowable.

5.8.3. Records. Each Party shall keep and maintain accurate and complete records which are relevant to costs, expenses, sales and payments throughout the Territory used to determine payments to be made under this Agreement, and such records shall be maintained for a period of three (3) years from creation of individual records for examination at the other Party's expense by an independent certified public accountant selected by the other Party as described in Section 5.8.4. A Party's right to complete a final audit upon termination or expiration of this Agreement shall expire one year after such termination or expiration. Any records or accounting information received from the other Party shall be Confidential Information of the disclosing Party for purposes of Article 9 of this Agreement. Results of any such audit shall be provided to both Parties, subject to Article 9 of this Agreement.

5.8.4. Audits and Interim Reviews.

(a) Subject to the provisions of Section 5.8.3, either Party may request that a nationally recognized, independent accounting firm to be mutually agreed upon by the Parties, which is not either Party's independent accounting firm, perform an audit or interim review of the other Party's books as they relate to this Agreement in order to express an opinion regarding such Party's accounting for revenues, costs and expenses, as applicable, under this Agreement. Such audits or review shall be conducted at the expense of the requesting Party.

(b) Upon [* * *] Business Days' prior written notice from a Party (the "**Auditing Party**"), the other Party (the "**Audited Party**") shall permit such accounting firm to examine the relevant books and records of the Audited Party, including any Affiliates, as may be reasonably necessary to verify the reports and information submitted by the Audited Party and the accuracy of any Royalty Report, PH Field Royalty Report or Reconciliation Statement. An examination by a Party under this Section 5.8.4 (whether of the Audited Party or its Affiliates) shall [* * *] and shall be limited to the pertinent books and records for any Contract Year ending not more

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than [* * *] months before the date of the request. The accounting firm shall be provided access to such books and records at the Audited Party's facility(ies) where such books and records are normally kept and such examination shall be conducted during the Audited Party's normal business hours. The Audited Party may require the accounting firm to sign a standard non-disclosure agreement with terms that are not inconsistent with the terms of this Agreement before providing the accounting firm access to the Audited Party's facilities or records. Upon completion of the audit, the accounting firm shall provide both Celgene and Acceleron a written report disclosing whether the reports submitted by the Audited Party are correct or incorrect and the specific details concerning any discrepancies. No other information shall be provided to the Auditing Party. If the accountant determines that, based on errors in the reports so submitted, any report prepared in accordance with this Agreement is incorrect, the Parties shall promptly revise the report and the associated Royalty Report, PH Field Royalty Report or Reconciliation Statement and any additional amount owed by one Party to the other shall be paid within [* * *] days after receipt of the accountant's report, along with interest as provided in Section 5.8.5; provided, however, that no such interest shall be payable if the errors leading to the Royalty Report, PH Field Royalty Report or Reconciliation Statement being incorrect were in the reports provided by the Party to receive such additional amount. Additionally, if the accountant determines that the reports submitted by the Audited Party misstate the Audited Party's share of costs by more than [* * *] percent [* * *] to the Auditing Party's detriment, the Audited Party shall reimburse the Auditing Party for the expenses incurred by the Auditing Party in conducting the audit. In the event of any sublicense or transfer of rights with respect to Licensed Compounds or Licensed Products by a Party under this Agreement, the sublicensor or transferor shall provide for audit rights by the other Party to this Agreement in accordance with this Section 5.8.4.

5.8.5. Payments Between the Parties. There shall be a cash settlement between the Parties no later than [* * *] days after the end of each Contract Quarter. In the event that (a) any payment hereunder (including any royalty payment due by Celgene to Acceleron under this Agreement) is made after the date specified in the preceding sentence (other than the extent that a payment that is the subject of a good faith dispute between the Parties that has been outstanding for no more than [* * *] Business Days), and (b) such payment is overdue by more than [* * *] Business Days, the paying Party shall pay interest to the other Party at the lesser of (i) the annualized interest rate at the three (3) month LIBOR plus one percent (1%) or (ii) the highest rate permitted by applicable law from the date that such additional amount should have first been paid.

**Article 6
EXCLUSIVITY**

6.1 Prohibitions .

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6.1.1. If Celgene irrevocably forfeits its rights to develop an Option Compound pursuant to Article 7 (a “ **Forfeited Option Compound** ”), then, during the Agreement Term, neither Acceleron nor any of its Affiliates, directly or indirectly with a Third Party, shall, with any such Forfeited Option Compound or product containing any such Forfeited Option Compound (i) conduct any clinical study whose primary endpoint is [* * *] unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (ii) and (iii) of this Section shall apply notwithstanding the conduct of such clinical trials, (ii) seek or obtain Regulatory Approval for such product indicated for [* * *], or (iii) market or promote such product for the [* * *].

6.1.2. During the Agreement Term, neither Acceleron nor any of its Affiliates, directly or indirectly with a Third Party, shall, with any product containing [* * *]: (i) conduct any clinical study whose primary endpoint is [* * *] unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (ii) and (iii) of this Section shall apply notwithstanding the conduct of such clinical trials, (ii) seek or obtain Regulatory Approval for such product indicated for [* * *], or (iii) market or promote such product for [* * *]. Notwithstanding the foregoing, neither Acceleron nor its Affiliates shall be restricted in any way, directly or indirectly, from developing or commercializing [* * *] for [* * *].

6.1.3. During the Agreement Term, neither Party nor any of its Affiliates, directly or indirectly with a Third Party, shall, whether pursuant to this Agreement or otherwise, with any product containing [* * *] (i) conduct any clinical study whose primary endpoint is [* * *] unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (ii) and (iii) of this Section shall apply notwithstanding the conduct of such clinical trials, (ii) seek or obtain Regulatory Approval for such product indicated for [* * *], or (iii) market or promote such product for [* * *].

6.1.4. In any Third Party license, development, research, collaboration, commercialization or similar agreement with respect to an Option Compound, [* * *], [* * *], or other product, as applicable, each Party and its Affiliates shall include restrictions on such Third Party’s use of the Party’s or its Affiliates intellectual property that are the same as those on the Parties and its Affiliates set forth in this Section 6.1. For clarity, the prohibition on conducting activities directly or indirectly with a Third Party includes a prohibition on providing any support for an external or academic investigator or site for conducting a clinical study.

6.1.5. During the Agreement Term, neither Acceleron nor any of its Affiliates, directly or indirectly with a Third Party, shall, with any product: (a) conduct any clinical study whose primary endpoint is Use in Anemia unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (b) and (c) of this Section shall apply notwithstanding the conduct of such clinical trials; (b) seek or obtain Regulatory Approval for such product indicated for Use in Anemia; or (c) market or promote such product for Use in Anemia. Notwithstanding the foregoing, the provisions of this Section 6.1.5 shall not apply to Acceleron or its Affiliates to the extent of conducting the activities required to fulfill Acceleron’s obligations hereunder or under the ACE-536 Agreement.

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6.1.6. Subject to the terms of any definitive agreement entered into by the Parties pursuant to Section 4.8, during the time period following the Amended and Restated Effective Date and during the Agreement Term:

(a) neither Celgene nor any of its Affiliates, directly or indirectly with a Third Party, shall, with any Restricted Product: (i) conduct any clinical study whose primary endpoint is an indication in the PH Field unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (ii) and (iii) of this Section 6.1.6(a) shall apply notwithstanding the conduct of such clinical trials; (ii) seek or obtain Regulatory Approval for any Restricted Product indicated for any indication in the PH Field; or (c) market or promote any Restricted Product for any indication in the PH Field; provided that, notwithstanding the foregoing, the provisions of this Section 6.1.6(a) shall not apply to Celgene or its Affiliates to the extent of conducting the activities required to fulfill Celgene's obligations hereunder or under the ACE-536 Agreement; and

(b) neither Acceleron nor any of its Affiliates, directly or indirectly with a Third Party, shall, with any Restricted Product: (i) conduct any clinical study whose primary endpoint is an indication in the Celgene Field unless such clinical study is required by any Regulatory Authority, in which event, the provisions of clauses (ii) and (iii) of this Section 6.1.6(b) shall apply notwithstanding the conduct of such clinical trials; (ii) seek or obtain Regulatory Approval for any Restricted Product indicated for any indication in the Celgene Field; or (iii) market or promote any Restricted Product for any indication in the Celgene Field; provided that, notwithstanding the foregoing, the provisions of this Section 6.1.6(b) shall not apply to Acceleron or its Affiliates to the extent of conducting the activities required to fulfill Acceleron's obligations hereunder or under the ACE-536 Agreement.

6.1.7. For purposes of this Article 6, each of the following terms shall have the meanings set forth below:

(a) “**ACE-536 Licensed Product** ” means any Licensed Product (as defined in the ACE-536 Agreement) that contains ACE-536 (as defined in the ACE-536 Agreement).

(b) “**Anemia** ” means anemias, disorders of red blood cells and disorders of erythropoiesis. For the avoidance of doubt, “Anemia” includes any decrease in function and quality of red blood cells, or any deficiency in the function of red blood cells, or less than the normal quantity of hemoglobin in the blood, or any deficiency in the function of hemoglobin.

(c) “**Use in Anemia** ” means the treatment, prevention, modulation or diagnosis of Anemia, including any companion diagnostic or biomarkers associated with the treatment, prevention, modulation or diagnosis of Anemia. For example, treatment includes increase of hematocrit, hemoglobin, or red blood cells.

(d) “**Restricted Product** ” means any Licensed Compound, any Licensed Product, ACE-536 (as defined in the ACE-536 Agreement) or any ACE-536 Licensed Product.

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6.2 Third Party Acquisitions.

6.2.1. Bone-Loss, Anti-Cancer, Muscle Loss and PH Field Exclusivities. The provisions of Sections 6.1.1, 6.1.2, 6.1.3 and 6.1.6 (and the provisions of Section 6.1.4 related thereto) are not intended to apply to any activity otherwise prohibited by such sections if a Party's involvement in such prohibited activity results from such Party's acquisition by a Third Party (either directly or through any Affiliate, whether by merger, purchase of assets or equity, or otherwise), but only if (i) such Third Party, prior to such acquisition or merger, was already engaged in such prohibited activity (the "Third Party Activity"), and (ii) no Celgene Technology, Acceleron Technology, or Joint Technology is used in connection with such Third Party Activities.

6.2.2. Anemia Exclusivity. The provisions of Section 6.1.5 (and the provisions of Section 6.1.4 related thereto) do not apply to any activity otherwise prohibited by Section 6.1.5 if Acceleron's involvement or the involvement of any of its Affiliates in such prohibited activity results from or occurs subsequently to the acquisition of Acceleron by a Third Party (either directly or through any Affiliate, whether by merger, purchase of assets or equity, or otherwise), but only if:

(a) no Celgene Technology, Acceleron Technology or Joint Technology is used in connection with such Third Party activities;

(b) no Patent Rights Controlled by Acceleron or its Affiliates immediately prior to the acquisition or Patent Rights developed based on the Know-How described in Section 6.2.2(c) is used in connection with such Third Party activities;

(c) no Know-How relating to any TGF Beta superfamily compounds (including a ligand, binding partner of a ligand, or a receptor of any such compounds) Controlled by Acceleron or their Affiliates prior to the acquisition or further Know-How relating to such TGF Beta superfamily compound developed based on such existing Know-How is used in connection with such Third Party activities for the longer of seven (7) years from the Effective Date or five (5) years from the date of the acquisition of Acceleron by a Third Party; and

(d) no Know-How Controlled by Celgene or its Affiliates that is provided, prior to the acquisition, to Acceleron pursuant to this Agreement or developed based on such existing Know-How is used in connection with such Third Party activities.

6.2.3. Acquisitions of Acceleron by Certain Third Parties. Subsequent to an acquisition of Acceleron by a designated Third Party set forth in Schedule 6.2.3, the following shall apply:

(a) Notwithstanding anything to the contrary in Section 2.1.1, Celgene shall be solely responsible for conducting all Development activities of each

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Licensed Compound or related Licensed Product in the Celgene Field except for PH Field Development Activities which shall still be conducted by or on behalf of Acceleron pursuant to Section 2.1.1 and this Section 6.2.3;

(b) Notwithstanding anything to the contrary in Section 2.4.1, Celgene may, within ninety (90) days, provide Acceleron with written notice, at Celgene's sole discretion, instructing Acceleron to cease all Manufacturing activities hereunder; and

(c) Celgene's obligation to provide reports under Article 2 and Article 3 shall cease; provided, however, that Celgene shall continue to provide reports under Section 2.9.3 (which reports will be respect to the entire Territory, not just outside North America and Europe) and semiannual reports regarding Development of Licensed Products.

6.3 Acquisitions of Third Parties . The provisions of this Article 6 do not apply to any activity otherwise prohibited by this Article 6 if a Party's involvement or the involvement of any of its Affiliates in such prohibited activity results from such Party's acquisition (either directly or through any Affiliate, whether by merger, purchase of assets or equity, or otherwise) of all or substantially all of the business or assets of a Third Party, but only if (i) such Third Party, prior to such acquisition or merger, was already engaged in such prohibited activity (the "**Acquired Party Activity**"), and (ii) such acquiring Party shall, within thirty (30) days after the date of such Party's consummation of such acquisition, notify the other Party of such acquisition and comply with the other provisions of this Section 6.3. Following consummation of such an acquisition, the acquiring Party shall, at its option, either (i) use good faith efforts to identify a Third Party purchaser to whom such Party will divest its interest in the Acquired Party Activity and to enter into a definitive agreement with such Third Party for such divestiture as soon as reasonably practicable under the circumstances, but such divestiture must be completed no later than twelve (12) months after the closing of such Party's acquisition of the Acquired Party Activity, or (ii) promptly discontinue such Acquired Party Activity; provided that, notwithstanding which option is chosen, such divestiture or discontinuation must be accomplished no later than twelve (12) months after the closing of such Party's acquisition of the Acquired Party Activity. During the time period following the consummation of an acquisition covered by this Section 6.3 through the divestiture or discontinuation of the Acquired Party Activity, the acquiring Party shall not use any Celgene Technology, Acceleron Technology, or Joint Technology in connection with such Acquired Party Activities. So long as the acquiring Party divests of, or discontinues, the Acquired Party Activity in accordance with this Section 6.3, such acquisition shall not be deemed a violation of this Article 6. Notwithstanding anything to the contrary in this Article 6, this Section 6.3 shall not apply to any activity of Acceleron, its Affiliates or a Third Party acquirer of Acceleron subsequent to the acquisition of Acceleron by a Third Party (either directly or through any Affiliate, whether by merger, purchase of assets or equity, or otherwise); provided that the provisions of Section 6.2 shall continue to apply to Acceleron, its Affiliates, a Third Party acquirer of Acceleron and any Third Party acquired by Acceleron (either directly or through any Affiliate, whether by merger, purchase of assets or equity, or otherwise).

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6.4 Termination of ACE-536 Agreement . In the event of termination of the ACE-536 Agreement by Acceleron for cause under Section 10.2.1 of the ACE-536 Agreement, Acceleron’s use of any “Licensed Compounds” or “Licensed Products” under the ACE-536 Agreement shall no longer be subject to the exclusivity provisions of Article 6 of this Agreement that relate to a product for Use in Anemia; provided that, for the avoidance of doubt, any other exclusivity provisions of this Agreement shall continue to apply. For the avoidance of doubt, termination of the ACE-536 Agreement under Section 10.3 or Section 10.4 of the ACE-536 Agreement or expiration of the ACE-536 Agreement shall not affect any rights or obligations of the Parties under this Agreement, and Acceleron’s use of any “Licensed Compounds” or “Licensed Products” under the ACE-536 Agreement shall continue to be subject to any exclusivity provisions of this Agreement.

Article 7

OPTION PROGRAM

7.1 Conduct of Option Compound Programs . Acceleron shall be solely responsible for, and shall pay all costs associated with, managing all Development, and Manufacturing activities for each Option Compound through the completion of Phase 2A Clinical Trials for each Option Compound in its sole discretion. Unless Celgene forfeits its right to an Option Compound pursuant to Section 7.2, for a period of [* * *] from the Effective Date, Celgene shall have the exclusive option to such Option Compound in accordance with the terms hereof, and Acceleron shall not grant any Third Party any rights to such Option Compound.

7.2 Option Program Payments . With respect to products containing [* * *] Antibodies, [* * *] Antibodies, or [* * *] Antibodies, Acceleron shall provide Celgene with written notice after the earliest date on which the corresponding milestone event has first been achieved with respect to the applicable Option Compound. In the event that Celgene makes each payment set forth in the chart below, through and including the payment due upon completion of a Phase 2A Clinical Trial, (the “**Option Program Payments**”) with respect to products containing [* * *] Antibodies, [* * *] Antibodies, or [* * *] Antibodies no later than [* * *] days (or [* * *] days in the case of the third milestone event related to delivery of the results of the Phase 2A Clinical Trial) after Celgene’s receipt of notice from Acceleron that the corresponding milestone event has first been achieved with respect to the applicable Option Compound, (i) the definition of “Licensed Compound” shall automatically be deemed, effective as of the date of receipt of the last applicable Option Program Payment by Acceleron, to include [* * *] Antibodies, [* * *] Antibodies, or [* * *] Antibodies, as applicable, and (ii) the definition of “Acceleron Patent Rights” shall automatically be deemed, effective as of the date of receipt of the last applicable Option Program Payment by Acceleron, to include the [* * *] Antibody Patent Rights, [* * *] Antibody Patent Rights, or [* * *] Antibody Patent Rights, as applicable. In the event that Celgene does not make each Option Program Payment for a particular Option Compound within the required time period, Celgene shall fully and irrevocably forfeit any right to develop such Option Compound, and all right, title and interest in such Option Compound shall remain the property of Acceleron. For clarity, the making of any Option Program Payment is solely within the discretion of Celgene.

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<i>Milestone Event</i>	<i>Payment for Each Option Compound</i>		
	[* * *]	[* * *]	[* * *]
[* * *]	\$[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]	\$[* * *]
[* * *]	\$[* * *]	\$[* * *]	\$[* * *]

For clarity, each Option Program Payment set forth in this Section 7.2 shall be paid only once for each Option Compound, regardless of whether more than one Clinical Trial may be conducted for such Option Compound.

7.3 **Updates; Reports** . For so long as Celgene’s option under this Article 7 remains in place, Acceleron shall provide Celgene with regular updates no less than once a [* * *] on the results of the Option Compound Development program. Such updates shall be conducted by telephone or video-conference, and prior to each such update, Acceleron shall provide Celgene with a written summary of the activities conducted under the Option Compound program for the preceding [* * *] and supporting data related thereto. Celgene shall have the right to reasonably request and to receive in a timely manner clarifications and answers to questions with respect to such reports.

**Article 8
INTELLECTUAL PROPERTY PROTECTION AND RELATED MATTERS**

8.1 Salk Patent Rights .

8.1.1. Celgene acknowledges that the Acceleron Patent Rights listed on Schedule 8.1 (the “ **Salk Patent Rights** ”) have been licensed by Acceleron from Salk pursuant to the Salk License.

8.1.2. Acceleron acknowledges that, pursuant to the Salk License, it has the below rights with respect to the Salk Patent Rights and agrees to keep Celgene fully informed of these rights, as well as provide to Celgene all information and copies of documents received from Salk or its patent counsel relating to the Salk Patent Rights:

- (a) The right to proceed with the Prosecution of the Salk Patent Rights in the event that Salk does not exercise its rights to do so;
- (b) The right, in certain circumstances, to review any patent documents prior to filing and to provide comments and suggestions for revision thereof; and
- (c) The right, in certain circumstances, to initiate legal proceedings against third parties for infringement of the Salk Patent Rights.

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8.1.3. In the event that Acceleron is permitted to proceed with Prosecution, provide comments or suggestions to patent documents, or initiate legal proceedings with respect to the Salk Patent Rights, then such Salk Patent Rights shall be treated in the same manner as other Acceleron Patent Rights under this Article 8, and Acceleron shall exercise all such rights with respect to the Salk Patent Rights pursuant to the instructions of Celgene, if Celgene is given the first right to act under this Article 8.

8.2 Prosecution of Patent Rights .

8.2.1. Other Acceleron Patent Rights and Joint Patent Rights. The following terms shall apply to all Acceleron Patent Rights owned by Acceleron and all Joint Patent Rights.

(a) Primary Responsibility.

(i) Acceleron, through counsel of its choosing, shall have primary responsibility for and control over obtaining, filing, prosecuting (including any interferences, reissue proceedings, re-examinations, oppositions, and revocations), and maintaining (collectively, “**Prosecuting**” or, when used as a noun, “**Prosecution**”) throughout the Territory the Acceleron Patent Rights (and, for clarity, will be the “Prosecuting Party” with respect to the Acceleron Patent Rights), and Celgene shall cooperate with Acceleron in regard thereto. Celgene, through counsel of its choosing, shall have primary responsibility for and control over Prosecuting throughout the Territory the Joint Patent Rights (and, for clarity, will be the “Prosecuting Party” with respect to the Joint Patent Rights), and Acceleron shall cooperate with Celgene in regard thereto. If the Prosecuting Party elects to abandon (except in the course of Prosecution to pursue such subject matter or claim in a continuing application) any subject matter or claim that (x) relates to any of the rights licensed to the Non-Prosecuting Party hereunder or (y) is filed or requested to be filed by a Prosecuting Party at the request of the Non-Prosecuting pursuant to Section 8.2.1(a)(ii), the Prosecuting Party shall so notify the Non-Prosecuting Party promptly (but no less than [* * *] prior to any deadlines for Prosecution) in writing of its intention in good time to enable the Non-Prosecuting Party to meet any deadlines by which an action must be taken to preserve any such rights in such subject matter or claim, and the Non-Prosecuting Party shall be entitled to acquire control of Prosecuting such subject matter or claim and be deemed the Prosecuting Party with respect thereto.

(ii) Notwithstanding the foregoing, the Prosecuting Party’s choice of outside patent counsel shall be reasonably acceptable to the Non-Prosecuting Party, and the Prosecuting Party shall keep the Non-Prosecuting Party fully informed of Prosecution and provide the Non-Prosecuting Party with copies of material correspondence (including applications, office actions, responses, etc.) relating to Prosecution of any Patent Rights being Prosecuted by such Prosecuting Party. The Non-Prosecuting Party may provide comments and

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suggestions with respect to any material actions to be taken by the Prosecuting Party, and the Prosecuting Party shall reasonably consider all comments and suggestions and shall take all Prosecution actions reasonably recommended by the Non-Prosecuting Party. The Prosecuting Party shall consult with the Non-Prosecuting Party before taking any action that would have a material adverse impact on the scope of claims within the Accelaron Patent Rights or Joint Patent Rights, as applicable. The Prosecuting Party shall use Commercially Reasonable Efforts to Prosecute additional claims substantially similar to those suggested by the Non-Prosecuting Party, if any, in such jurisdictions of the Territory requested by the Non-Prosecuting Party.

(iii) In order to facilitate the Non-Prosecuting Party's right to comment, the Prosecuting Party shall provide copies of all such official correspondence and any proposed responses by the Prosecuting Party at least [* * *] days prior to any filing or response deadlines, or within [* * *] Business Days of the Prosecuting Party's receipt of any official correspondence if such correspondence only allows for [* * *] or less to respond, and the Non-Prosecuting Party shall provide any comments promptly and in sufficient time to allow the Prosecuting Party to meet applicable filing requirements. In no event shall the Prosecuting Party be required to delay any submission, filing or response past any deadline that is not extendable. The Prosecuting Party agrees to use Commercially Reasonable Efforts to avoid extension fees, unless agreed to in advance by the Parties, and to take such action as deemed reasonably necessary to preserve pendency of the Patent Rights being Prosecuted by such Prosecuting Party, including the filing of any new or continuing patent application or payment of any fee necessary to preserve pendency of a pending application.

(iv) Accelaron covenants and agrees that it shall not grant any Third Party any right to control the Prosecution of the Accelaron Patent Rights or to approve or consult with respect to any Patent Rights licensed to Celgene hereunder, in any case, that is more favorable to the rights granted to Celgene hereunder or otherwise conflicts with Celgene's rights hereunder.

(b) Common Interest. All information exchanged between the Parties or between the Parties' outside patent counsel regarding Prosecution of the Accelaron Patent Rights or Joint Patent Rights shall be deemed Confidential Information. In addition, the Parties acknowledge and agree that, with regard to such Prosecution of the Accelaron Patent Rights or Joint Patent Rights, the interests of the Parties as licensor and licensee are to obtain the strongest patent protection possible, and as such, are aligned and are legal in nature. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning the Accelaron Patent Rights or Joint Patent Rights, including privilege under the common interest doctrine and similar or related doctrines.

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(c) Election Not to Continue Prosecution; Abandonment. If a Prosecuting Party elects (i) not to Prosecute patent applications for the Acceleron Patent Rights or Joint Patent Rights under its Prosecution control in any country, (ii) not to continue the Prosecution of any Acceleron Patent Right or Joint Patent Right under its Prosecution control in a particular country in the Territory, (iii) not to Prosecute patent applications for the Acceleron Patent Rights or Joint Patent Rights under its Prosecution control in a particular country following a written request from the Non-Prosecuting Party to Prosecute in such country, or (iv) not to Prosecute patent applications for the Acceleron Patent Rights or Joint Patent Rights under its Prosecution control reasonably sufficient to protect the Licensed Compounds and Licensed Product following a written notice from the Non-Prosecuting Party setting forth the Non-Prosecuting Party's good faith analysis of the insufficiency of the Prosecuting Party's patent applications, then the Prosecuting Party shall so notify the Non-Prosecuting Party promptly (but no less than 30 days prior to the date that a response is due) in writing of its intention in good time to enable the Non-Prosecuting Party to meet any deadlines by which an action must be taken to establish or preserve any such rights in such patent in such country, and the Prosecuting Party shall permit the Non-Prosecuting Party, should the Non-Prosecuting Party choose to do so, to Prosecute or otherwise pursue such Acceleron Patent Rights or Joint Patent Rights in such country in the Non-Prosecuting Party's own name, and the Prosecuting Party shall cooperate with the Non-Prosecuting Party in regard thereto.

8.2.2. Celgene Patent Rights.

(a) Prosecution outside the PH Field. Celgene, through counsel of its choosing, shall have the sole responsibility for and control over Prosecuting throughout the Territory the Celgene Patent Rights, but shall have no obligation to Prosecute such Patent Rights.

(b) Prosecution in the PH Field.

(i) Celgene, through counsel of its choosing, shall have primary responsibility for and control over Prosecuting throughout the Territory the PH Field Celgene Patent Rights (and, for clarity, will be the "Prosecuting Party" with respect to such PH Field Celgene Patent Rights), and Acceleron shall cooperate with Celgene in regard thereto. If Celgene elects to abandon (except in the course of Prosecution to pursue such subject matter or claim in a continuing application) any subject matter or claim that (x) relates to any of the rights licensed to Acceleron hereunder or (y) is filed or requested to be filed by Celgene at the request of Acceleron pursuant to Section 8.2.2(b)(ii), Celgene shall so notify Acceleron promptly (but no less than [* * *] prior to any deadlines for Prosecution) in writing of its intention in good time to enable Acceleron to meet any deadlines by which an action must be taken to preserve any such rights in such subject matter or claim, and notwithstanding Section 8.2.2(a), Acceleron shall be entitled to acquire control of Prosecuting

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such subject matter or claim and be deemed the Prosecuting Party with respect thereto.

(ii) Notwithstanding the foregoing, the Prosecuting Party's choice of outside patent counsel shall be reasonably acceptable to the Non-Prosecuting Party, and the Prosecuting Party shall keep the Non-Prosecuting Party fully informed of Prosecution and provide the Non-Prosecuting Party with copies of material correspondence (including applications, office actions, responses, etc.) relating to Prosecution of any Patent Rights being Prosecuted by such Prosecuting Party. The Non-Prosecuting Party may provide comments and suggestions with respect to any material actions to be taken by the Prosecuting Party, and the Prosecuting Party shall reasonably consider all comments and suggestions and shall take all Prosecution actions reasonably recommended by the Non-Prosecuting Party. The Prosecuting Party shall consult with the Non-Prosecuting Party before taking any action that would have a material adverse impact on the scope of claims within any PH Field Celgene Patent Right. The Prosecuting Party shall use Commercially Reasonable Efforts to Prosecute additional claims substantially similar to those suggested by the Non-Prosecuting Party, if any, in such jurisdictions of the Territory requested by the Non-Prosecuting Party.

(iii) In order to facilitate the Non-Prosecuting Party's right to comment, the Prosecuting Party shall provide copies of all such official correspondence and any proposed responses by the Prosecuting Party at least [* * *] prior to any filing or response deadlines, or within [* * *] of the Prosecuting Party's receipt of any official correspondence if such correspondence only allows for [* * *] or less to respond, and the Non-Prosecuting Party shall provide any comments promptly and in sufficient time to allow the Prosecuting Party to meet applicable filing requirements. In no event shall the Prosecuting Party be required to delay any submission, filing or response past any deadline that is not extendable. The Prosecuting Party agrees to use Commercially Reasonable Efforts to avoid extension fees, unless agreed to in advance by the Parties, and to take such action as deemed reasonably necessary to preserve pendency of such PH Field Celgene Patent Rights being Prosecuted by such Prosecuting Party, including the filing of any new or continuing patent application or payment of any fee necessary to preserve pendency of a pending application.

(iv) Celgene covenants and agrees that it shall not grant any Third Party any right to control the Prosecution of any of the PH Field Celgene Patent Rights or to approve or consult with respect to any such PH Field Celgene Patent Rights, in any case, that is more favorable to the rights granted to Acceleron hereunder or otherwise conflicts with Acceleron's rights hereunder.

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(v) All information exchanged between the Parties or between the Parties' outside patent counsel regarding Prosecution of the PH Field Celgene Patent Rights shall be deemed Confidential Information. In addition, the Parties acknowledge and agree that, with regard to such Prosecution of such PH Field Celgene Patent Rights, the interests of the Parties as licensor and licensee are to obtain the strongest patent protection possible, and as such, are aligned and are legal in nature. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning the PH Field Celgene Patent Rights, including privilege under the common interest doctrine and similar or related doctrines.

(vi) If a Prosecuting Party elects, (i) not to Prosecute patent applications for any PH Field Celgene Patent Right under its Prosecution control in any country, (ii) not to continue the Prosecution of any PH Field Celgene Patent Right under its Prosecution control in a particular country in the Territory, (iii) not to Prosecute patent applications for any PH Field Celgene Patent Right under its Prosecution control in a particular country following a written request from the Non-Prosecuting Party to Prosecute in such country, or (iv) not to Prosecute patent applications for any PH Field Celgene Patent Right under its Prosecution control reasonably sufficient to protect Sotatercept Licensed Compounds and the Sotatercept Licensed Products following a written notice from the Non-Prosecuting Party setting forth the Non-Prosecuting Party's good faith analysis of the insufficiency of the Prosecuting Party's patent applications, then the Prosecuting Party shall so notify the Non-Prosecuting Party promptly (but no less than [* * *] prior to the date that a response is due) in writing of its intention in good time to enable the Non-Prosecuting Party to meet any deadlines by which an action must be taken to establish or preserve any such rights in such patent in such country, and the Prosecuting Party shall permit the Non-Prosecuting Party, should the Non-Prosecuting Party choose to do so, to Prosecute or otherwise pursue such PH Field Celgene Patent Right in such country in the Non-Prosecuting Party's own name, and the Prosecuting Party shall cooperate with the Non-Prosecuting Party in regard thereto.

8.2.3. Cooperation. Each Party hereby agrees: (a) to make its employees, agents and consultants reasonably available to the other Party (or to the other Party's authorized attorneys, agents or representatives), to the extent reasonably necessary to enable such Party to undertake patent Prosecution as contemplated by this Agreement; (b) to cooperate, if necessary and appropriate, with the other Party in gaining patent term extensions wherever applicable to Patent Rights that are subject to this Agreement; and (c) to endeavor in good faith to coordinate its efforts with the other Party to minimize or avoid interference with the Prosecution of the other Party's patent applications that are subject to this Agreement.

8.2.4. Patent Procurement Costs.

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(a) All Patent Procurement Costs related to Prosecuting Patent Rights hereunder in Designated Countries shall be shared by the Parties as follows: (i) Patent Procurement Costs relating to the Prosecution of Celgene Patent Rights in Designated Countries or any other countries in the Territory shall be paid for by Celgene, (ii) Patent Procurement Costs relating to the Prosecution of Joint Patent Rights in Designated Countries shall be borne equally by the Parties and (iii) Patent Procurement Costs relating to the Prosecution of Acceleron Patent Rights in Designated Countries shall be borne [* * *] percent [* * *] by Acceleron and [* * *] percent [* * *] by Celgene.

(b) In the event that Celgene requests that an Acceleron Patent Right or a Joint Patent Right be Prosecuted in any country other than the Designated Countries, then any Patent Procurement Costs relating to such Prosecution of such Acceleron Patent Right or Joint Patent Right, as applicable, in such country shall be deemed a Development Cost. In the event that Acceleron requests that a Joint Patent Right or PH Field Celgene Patent Right be Prosecuted in any country other than the Designated Countries, then any Patent Procurement Costs relating to such Prosecution of such Joint Patent Right in such country shall be borne [* * *] percent [* * *] by Acceleron and [* * *] percent [* * *] by Celgene.

(c) Notwithstanding anything else in this Section 8.2.4, any Patent Procurement Costs owed by Acceleron to Salk or any other third party licensor pursuant to an agreement executed by Acceleron prior to the Effective Date (or, with respect to any Option Compound, prior to the date that such Option Compound is deemed a Licensed Compound in accordance with Article 7) shall be borne solely by Acceleron.

8.3 Enforcement of Patent Rights .

8.3.1. Notification. Each Party shall promptly report in writing to the other Party during the Agreement Term any (a) known or suspected infringement of any Acceleron Patent Rights, Joint Patent Rights or Celgene Patent Rights claiming or relating to Licensed Compounds or Licensed Products, by a Third Party or (b) unauthorized use or misappropriation of any Confidential Information, including Acceleron Technology, Joint Technology and Celgene Technology claiming or relating to Licensed Compounds or Licensed Products, by a Third Party of which it becomes aware and shall provide the other Party with all available evidence supporting such infringement, or unauthorized use or misappropriation.

8.3.2. Rights to Enforce.

(a) Acceleron Technology. The following terms shall apply to all Acceleron Patent Rights, Acceleron Improvements and Acceleron Know-How owned by Acceleron and, with respect to other Acceleron Technology (excluding Acceleron Collaboration IP), including Salk Patent Rights, to the extent permitted by the Salk Licenses or other applicable third party licenses. In respect of Licensed Compounds

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and Licensed Products in the Territory, Acceleron shall have the first right, but not the obligation, to take any reasonable measures it deems appropriate to stop infringing activities in the Field in the Territory with respect to (including initiating or prosecuting an infringement or other appropriate suit or action against any Third Party who at any time has infringed, or is suspected of infringing, or defending any declaratory judgment action with respect to) any Acceleron Patent Rights claiming or relating to Licensed Compounds or Licensed Products or of using without proper authorization any Acceleron Know-How and Acceleron Improvements. In the event that Acceleron elects not to take action pursuant to this Section 8.3.2(a), Acceleron shall so notify Celgene promptly in writing of its intention in good time to enable Celgene to meet any deadlines by which an action must be taken to establish or preserve any enforcement rights, and Celgene shall have the right (to the extent Acceleron has the ability to grant Celgene such right with respect to the Salk Patent Rights or other applicable Third Party Patent Rights), but not the obligation, to take any such reasonable measures to stop such infringing activities by such alleged infringer.

(b) Acceleron Collaboration IP; Joint Technology. The following terms shall apply to all Joint Technology and all Acceleron Collaboration IP. In respect of Licensed Compounds and Licensed Products in the Territory, Celgene shall have the first right, but not the obligation, to take any reasonable measures it deems appropriate to stop infringing activities in the Field in the Territory with respect to (including initiating or prosecuting an infringement or other appropriate suit or action against any Third Party who at any time has infringed, or is suspected of infringing, or defending any declaratory judgment action with respect to) any Joint Patent Rights claiming or relating to Licensed Compounds or Licensed Products or of using without proper authorization any Joint Improvements, Joint Collaboration IP or Acceleron Collaboration IP. In the event that Celgene elects not to take action pursuant to this Section 8.3.2(b), Celgene shall so notify Acceleron promptly in writing of its intention in good time to enable Acceleron to meet any deadlines by which an action must be taken to establish or preserve any enforcement rights, and Acceleron shall have the right, but not the obligation, to take any such reasonable measures to stop such infringing activities by such alleged infringer. In any enforcement action involving Joint Technology, the Parties agree to be joined as parties to such enforcement action if necessary to enable the enforcement action.

(c) Celgene Technology. The following terms shall apply to all Celgene Patent Rights, Celgene Improvements, Celgene Collaboration IP and Celgene Know-How owned by Celgene and, with respect to other Celgene Technology, to the extent permitted by the applicable licenses. Celgene shall have the sole right, but not the obligation, to take any reasonable measures it deems appropriate to stop infringing activities in the Field in the Territory, including initiating or prosecuting an infringement or other appropriate suit or action against any Third Party who at any time has infringed, or is suspected of infringing, or defending any declaratory judgment action with respect to, any Celgene Patent Rights claiming or relating to

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Licensed Compounds or Licensed Products or of using without proper authorization any Celgene Know-How, Celgene Improvements or Celgene Collaboration IP.

8.3.3. Procedures; Expenses and Recoveries. The Party having the right to initiate any infringement suit under Section 8.3.2(a) or 8.3.2(b) above shall have the sole and exclusive right to select counsel for any such suit (which counsel shall be reasonably acceptable to the other Party) and shall pay all expenses of the suit, including attorneys' fees and court costs and reimbursement of the other Party's reasonable out-of-pocket expense in rendering assistance requested by the initiating Party. If required under Applicable Law in order for the initiating Party to initiate or maintain such suit, or if either Party is unable to initiate or prosecute such suit solely in its own name or it is otherwise advisable to obtain an effective legal remedy, in each case, the other Party shall join as a party to the suit and shall execute and cause its Affiliates to execute all documents necessary for the initiating Party to initiate litigation to prosecute and maintain such action. The initiating Party will keep the other Party reasonably informed of the status of the infringement suit. At the initiating Party's request, the other Party shall provide reasonable assistance to the initiating Party in connection with an infringement suit at no charge to the initiating Party except for reimbursement by the initiating Party of reasonable out-of-pocket expenses incurred in rendering such assistance. The non-initiating Party may participate and be represented in any such suit by its own counsel at its own expense. If the Parties obtain from a Third Party, in connection with such suit under Section 8.3.2(a) or 8.3.2(b), any damages, license fees, royalties or other compensation (including any amount received in settlement of such litigation), such amounts shall be allocated as follows:

- (a) to reimburse each Party for all expenses of the suit, including attorneys' fees and disbursements, court costs and other litigation expenses; and
- (b) any remaining amount shall be [* * *] unless the infringement relates solely to Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field, in which case any remaining amount shall be [* * *].

8.4 **Claimed Infringement of Third Party Rights** .

8.4.1. Notice . In the event that a Third Party at any time provides written notice of a claim to, or brings an action, suit or proceeding against, any Party, or any of their respective Affiliates or Sublicensees, claiming infringement of such Third Party's patent rights or unauthorized use or misappropriation of its know-how based upon an assertion or claim arising out of the Development, Manufacture or Commercialization of a Licensed Compound or Licensed Product in the Territory ("**Infringement Claim**"), such Party shall promptly notify the other Party of the Infringement Claim or the commencement of such action, suit or proceeding, enclosing a copy of the Infringement Claim and all papers served. Each Party agrees to make available to the other Party its advice and counsel regarding the technical merits of any such claim at no cost to the other Party and to offer reasonable assistance to the other Party at no cost to the other Party.

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8.4.2. Right to Defend. Celgene shall have the right, but not the obligation, to defend any Infringement Claim brought against Celgene or its Affiliates or Sublicensees arising out of the Development, Manufacture or Commercialization of a Licensed Compound or Licensed Product in the Territory. With respect to any such Infringement Claim brought against Acceleron or its Affiliates, Acceleron shall notify Celgene, and the Parties, in good faith, shall determine who should defend such suit; provided that, for any Infringement Claim brought against Acceleron or its Affiliates or Sublicensees arising solely out of the Development or Commercialization of an Sotatercept Licensed Compound or Sotatercept Licensed Product in the PH Field in the Territory, Acceleron shall have the right, but not the obligation, to defend such Infringement Claim. All litigation costs and expenses incurred by the Defending Party (as defined below) in connection with such Infringement Claim, and all damages, payments and other amounts awarded against, or payable by, either Party under any settlement with such Third Party shall be borne by the Defending Party.

8.4.3. Procedure. The Party having the obligation or first right to defend an Infringement Claim shall be referred to as the “**Defending Party**.” The Defending Party shall have the sole and exclusive right to select counsel for any Infringement Claim; provided that such counsel shall be reasonably acceptable to the other Party. The Defending Party shall keep the other Party fully informed of any such claims, shall consult with the other Party with respect to the strategy and conduct of any defense of such claims, and shall provide the other Party with copies of all documents filed in, and all written communications relating to, any suit brought in connection with such claims, which copies of documents filed or communications sent by the Defending Party will be provided in advance of filing or sending. The other Party may provide comments and suggestions with respect to any material actions to be taken by the Defending Party, and the Defending Party shall reasonably consider all comments and suggestions and shall take all prosecution actions reasonably recommended by the other Party. The other Party may also participate and be represented in any such claim or related suit, at its own expense. The other Party shall have the sole and exclusive right to control the defense of an Infringement Claim in the event the Defending Party fails to exercise its right to assume such defense within thirty (30) days following written notice from the other Party of such Infringement Claim. No Party shall settle any claims or suits involving rights of another Party (or rights of such Party to the extent they are licensed to such other Party) without obtaining the prior written consent of such other Party, which consent shall not be unreasonably withheld.

8.4.4. Limitations. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN SECTION 11.7, THE FOREGOING STATES THE ENTIRE RESPONSIBILITY OF ACCELERON AND CELGENE, AND THE SOLE AND EXCLUSIVE REMEDY OF ACCELERON OR CELGENE, AS THE CASE MAY BE, IN THE CASE OF ANY CLAIMED INFRINGEMENT OF ANY THIRD PARTY PATENT RIGHTS OR UNAUTHORIZED USE OR MISAPPROPRIATION OF ANY THIRD PARTY’S KNOW-HOW.

8.5 **Other Infringement Resolutions**. In the event of a dispute or potential dispute that has not ripened into a demand, claim or suit of the types described in Sections 8.3 and 8.4 of this Agreement (*e.g.* , actions seeking declaratory judgments and revocation proceedings), the same

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principles governing control of the resolution of the dispute, consent to settlements of the dispute, and implementation of the settlement of the dispute shall apply.

8.6 Product Trademarks & Product Designation .

8.6.1. Subject to Section 8.6.2, (a) Celgene shall select and own the Product Trademarks for each Licensed Product and shall be solely responsible for filing and maintaining the Product Trademarks in the Territory and (b) Celgene shall assume full responsibility, at its sole cost and expense, for any infringement of a Product Trademark for a Licensed Product by a Third Party (and shall retain in full any recoveries for such infringement) and shall defend and indemnify Acceleron for and against any claims of infringement of the rights of a Third Party by Acceleron's use of a Product Trademark in connection with a Licensed Product in accordance with the terms of this Agreement. In addition, Celgene shall have the right to select the product designation or generic name for the Licensed Compounds and Licensed Products; provided that Acceleron's consent to such designation or name shall be required for an Sotatercept Licensed Compound or Sotatercept Licensed Product being Developed or Commercialized by or on behalf of Acceleron, its Affiliate or Sublicensee in the PH Field.

8.6.2. Acceleron shall select and own the Product Trademarks for each Sotatercept Licensed Product being or to be Commercialized solely in the PH Field and shall be solely responsible for filing and maintaining such Product Trademarks in the Territory. Acceleron shall assume full responsibility, at its sole cost and expense, for any infringement of such a Product Trademark by a Third Party (and shall retain in full any recoveries for such infringement).

8.7 Marking . Each Party agrees to mark, and to require any Affiliate or Sublicensee, to mark any Licensed Product (or their containers or labels) made, sold, or otherwise distributed by it or them with any notice of patent rights necessary or desirable under Applicable Law to enable the Acceleron Patent Rights to be enforced to their full extent in any country where Licensed Products are made, used, sold, or offered for sale. In all countries within North America, to the extent legally permissible, both Parties' names and logos will appear with equal prominence on Licensed Product labels and promotional materials. In any such country within North America where this is not legally permitted, the Parties agree to work together in good faith to identify a mechanism to allow the association of both Parties' names with the Product.

8.8 Patent Term Extensions . The Parties shall use reasonable efforts to obtain all available supplementary protection certificates (" SPC ") and other extensions of the Celgene Patent Rights, Acceleron Patent Rights and Joint Patent Rights (including those available under the Hatch-Waxman Act). Each Party shall execute such authorizations and other documents and take such other actions as may be reasonably requested by the other Party to obtain such extensions. The Parties shall cooperate with each other in gaining patent term restorations, extensions or SPCs wherever applicable to Celgene Patent Rights, Acceleron Patent Rights or Joint Patent Rights. The Party first eligible to seek patent term restoration or extension of any such Patent Rights or any SPC related thereto may do so; provided, that if in any country the first Party has an option to extend the patent

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term for only one of several patents, the first Party shall consult with the other Party before making the election; provided, further that, notwithstanding the foregoing, if, at the time the first Party becomes eligible to seek patent term restoration or extension of any such Patent Rights or any SPC related thereto, the other Party is Developing or Commercializing a Licensed Product in their respective Subfield, then the decisions to seek any such patent term restoration or extension of any such Patent Rights or any SPC related thereto and, if applicable, elect one of several patents for which to extend the patent term shall require the mutual consent of both Parties. If more than one patent is eligible for extension or patent term restoration, the Parties shall select in good faith a strategy that shall maximize patent protection and commercial value for each Licensed Product. All filings for such extensions and certificates shall be made by the Party to whom responsibility for Prosecution of the Celgene Patent Rights, Acceleron Patent Rights or Joint Patent Rights are assigned; provided that, in the event that the Party to whom such responsibility is assigned elects not to file for an extension or SPC, such Party shall (a) inform the other Party of its intention not to file, (b) grant the other Party the right to file for such extension or SPC in the Patent Rights' owner's name, and (c) provide all necessary assistance in connection therewith.

**Article 9
CONFIDENTIALITY**

9.1 Confidential Information .

9.1.1. Confidentiality. All Confidential Information disclosed by a Party to the other Party during the Agreement Term shall be used by the receiving Party solely in connection with the activities contemplated by this Agreement, shall be maintained in confidence by the receiving Party and shall not otherwise be disclosed by the receiving Party to any other person, firm, or agency, governmental or private (other than a Party's Affiliates), without the prior written consent of the disclosing Party. Acceleron and Celgene each agrees that it shall provide Confidential Information received from the other Party only to its employees, consultants and advisors, and to the employees, consultants and advisors of such Party's Affiliates or Sublicensees, and Third Parties acting on behalf of such Party, who have a need to know and have an obligation to treat such information and materials as confidential, which obligations are no less stringent than those contained in this Article 9. Each Party shall be responsible for a breach of this Article 9 by its Affiliates, Sublicensee, Third Parties acting on behalf of such Party, and their respective employees, consultants and advisors. All obligations of confidentiality imposed under this Article 9 shall expire [* * *].

9.1.2 Authorized Disclosure. Notwithstanding the provisions of Sections 9.1.1, 9.2, or 9.3, each Party may disclose Confidential Information belonging to the other Party to the extent such disclosure is reasonably necessary to:

- (a) comply with Applicable Laws (including the rules and regulations of the Securities and Exchange Commission or any national securities exchange) and with judicial process;
- (b) Prosecute Patent Rights as contemplated by this Agreement;

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- (c) defend or prosecute litigation in accordance with Article 8; provided that the receiving Party provides prior written notice of such disclosure to the disclosing Party and takes reasonable and lawful actions to avoid or minimize the degree of such disclosure;
- (d) make filings and submissions to, or correspond or communicate with, any Regulatory Authority or clinical registry, including for purposes of obtaining authorizations to conduct Clinical Trials of, and to Commercialize, Licensed Products pursuant to this Agreement; and
- (e) exercise its rights hereunder (including, with respect to Celgene, disclosures to potential Sublicensees); provided such disclosure is covered by terms of confidentiality similar to those set forth herein.

In the event a Party shall deem it reasonably necessary to disclose Confidential Information belonging to the other Party pursuant to this Section 9.1.2, such Party shall (i) to the extent possible give reasonable advance notice of such disclosure to the other Party sufficiently prior to making such disclosure so as to allow the other Party adequate time to take whatever action it may deem appropriate to protect the confidentiality of the information, (ii) provide reasonable assistance to the other Party with respect thereto, and (iii) take reasonable measures to ensure confidential treatment of such information.

9.1.3 Accelaron's Use of Confidential Information. Celgene acknowledges the fact that as a private company, Accelaron shall, from time to time, engage in fundraising activities with private investors. Accelaron may disclose this Agreement, including its terms and subject matter, under terms of confidentiality no less strict than those contained in this Agreement, to such investors or potential investors (including potential acquirers) in or potential licensees of Accelaron conducting due diligence in each instance. Accelaron shall provide Celgene with a list of all such persons executing such confidentiality agreements and shall be responsible for a breach of this Article 9 by such persons. Celgene shall permit a copy of this Agreement to be provided to Salk as a requirement of the Salk License, such copy to be considered confidential information under the Salk License and to be redacted to the extent permitted under the Salk License, which redaction shall be subject to the prior written approval of Celgene.

9.1.4 ACE-536 Agreement. The Parties acknowledge and agree that Confidential Information disclosed pursuant to this Agreement may have application to the Parties' rights and obligations under the ACE-536 Agreement and *vice versa*. Therefore, the Parties agree that information can be deemed Confidential Information under this Agreement and "Confidential Information" under the ACE-536 Agreement and that such information will be subject to the confidentiality and non-use obligations of both agreements.

9.1.5 Joint Technology. The Parties agree that, in order to effectuate the provisions of Section 4.6.2, subject to any exclusive licenses granted hereunder, (a) the non-use provisions of this Article 9 shall not apply to each Party's use of Joint Technology, and (b) each Party

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may disclose the Joint Technology to Third Parties who are under terms of confidentiality no less strict than those contained in this Agreement.

9.2 **Publication Review** . Except as required by Applicable Law or, subject to the last sentence of this Section, as may be permitted under any agreement identified on Schedule 2.8, from and after the Effective Date, Celgene shall have the sole right to publish or present the results of any work relating to the Licensed Products or Licensed Compounds; provided that Acceleron shall have the right to publish or present works relating solely to PH Field Development Activities or the Sotatercept Licensed Compounds or Sotatercept Licensed Products, in each case, in the PH Field, subject to the other provisions of this Section 9.2 (the Party entitled to publish pursuant to this Section being hereafter referred to as the “**Publishing Party**”). The Publishing Party shall publish or present such results in a manner consistent with the publication strategy developed by either the Joint Development Committee or the Joint Commercialization Committee. The Publishing Party shall provide to the other Party for review any (a) abstracts, posters and slide presentations prior to any scientific meetings, and such other Party shall have at least [* * *] Business Days to provide feedback to such other Party, and (b) primary and final manuscripts and review articles prior to journal submission, and such other Party shall have at least [* * *] Business Days to provide feedback. The Party that is not the Publishing Party may require that its Confidential Information that may be disclosed in any such proposed publication or presentation be deleted prior to such publication or presentation. Except to the extent a publication or presentation relates solely to PH Field Development Activities or a Sotatercept Licensed Compound or a Sotatercept Licensed Product in the PH Field, Acceleron’s right to publish hereunder will be subject to the prior consent of Celgene, such consent not to be unreasonably withheld or delayed and which consent shall be deemed given if Celgene has not objected to any such publication within the applicable [* * *] Business Day periods described above. With respect to any publication or presentation that relates solely to PH Field Development Activities or a Sotatercept Licensed Compound or a Sotatercept Licensed Product in the PH Field, such publication or presentation will not require Celgene’s prior consent, provided that in addition to deleting any Confidential Information of Celgene as provided above, Acceleron shall delete any other information the publication or presentation of which [* * *]. If (x) a Third Party that is a party to an agreement identified on Schedule 2.8 is permitted to publish or present the results of any work conducted by such Third Party pursuant to such agreement and relating to the Licensed Products or Licensed Compounds, and (y) such Third Party is required to present such publication or presentation to Acceleron for prior review or approval, then (1) to the extent that Acceleron is permitted to disclose to Celgene such publications or presentations, Acceleron shall disclose such publications or presentations to Celgene, (2) to the extent that Acceleron is not permitted to disclose to Celgene such publications or presentations, Acceleron shall notify Celgene in the event such a publication or presentation has been submitted to Acceleron by such a Third Party, and (3) with respect to such publications or presentations, to the extent such relate to Licensed Compounds and Licensed Products other than Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field, (regardless of whether they were disclosed to Celgene or Celgene was merely notified of them), Acceleron shall take any action requested by Celgene, including withholding consent to such publication or presentation, to the extent Acceleron has the right to take such action under the applicable agreement with such Third Party.

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9.3 Public Announcements and Use of Names . No disclosure of the existence of, or the terms of, this Agreement may be made by either Party, and no Party shall use the name, trademark, trade name or logo of the other Party or its employees in any publicity, news release or disclosure relating to this Agreement or its subject matter, in each case, without the prior written permission of the other Party, except as may be required by law or expressly permitted by the terms hereof, including Section 9.1.2 . A press release announcing this Agreement is attached to this Agreement as Schedule 9.3, which may be released by either Party on the date agreed to by the Parties. Except for issuing such press release and subsequent announcements of the information contained in such press release, neither Party shall originate any publicity, news release or public announcements, written or oral, whether to the public or press, stockholders or otherwise, relating to the execution of this Agreement, the subject matter of this Agreement or any activities contemplated hereby, any of the terms of this Agreement, or any amendment hereto without the prior written consent of the other Party, except as may be required by law or expressly permitted by the terms hereof, including Section 9.1.2 . Notwithstanding the foregoing, Celgene, in its sole discretion, may determine the timing and content of any press release with respect to activities conducted hereunder beginning with the Phase 2B Clinical Trials with respect to each Licensed Compound or Licensed Product and all activities thereafter; provided that Celgene may not use Acceleron's name in any such press release without the prior written consent of Acceleron, except for the limited purpose of identifying Acceleron as the licensor of the Acceleron Technology, the party conducting the Phase 1 Clinical Trials and Phase 2A Clinical Trials, the party Developing and/or Commercializing Sotatercept Licensed Compounds and Sotatercept Licensed Products in the PH Field or for purpose of republishing materials that have previously been published in accordance with this Section 9.3 ; provided further that Acceleron may, (a) to the extent required by applicable securities laws, issue any press release with respect to activities conducted hereunder beginning with the Phase 2B Clinical Trials with respect to each Licensed Compound or Licensed Product or (b) determine the timing and content of any press release relating solely to PH Field Development Activities, in each case so long as Acceleron provides Celgene: (i) with at least [* * *] Business Days' prior written notice to review and provide feedback to Acceleron on the content of such disclosure, which feedback Acceleron shall consider in good faith; and (ii) the right to require that its Confidential Information [* * *] be redacted from such disclosure. Notwithstanding the foregoing, once a public announcement is approved in accordance with this Section 9.3, a Party may reuse and subsequently disclose the information in such public announcement and may continue to disclose the contents of such public announcement without resubmitting such materials for further approval; provided that such Party does not materially change content and/or the manner in which the name, trademark, trade name or logo of the other Party is used.

**Article 10
TERM AND TERMINATION**

10.1 Term . The term of this Agreement shall commence on the Amended and Restated Effective Date and expire, unless this Agreement is terminated earlier in accordance with this Article 11, on a country-by-country basis, upon the latest to occur of the following: (a) the expiration of the Royalty Term with respect to all Licensed Products in the Celgene Field in such country in the Territory, (b) the expiration of the PH Field Royalty Term with respect to all Sotatercept Licensed Products in

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the PH Field in such country in the Territory and (c) Celgene has exercised or forfeited its option with regard to each Option Compound. For the avoidance of doubt, both Sections 10.1(a) and (b) shall be deemed to have occurred on the date on which no Development or Commercialization activities for any Licensed Compound or Licensed Product in the Field are ongoing and, according to the Joint Development Committee and Joint Commercialization Committee, no additional Development or Commercialization activities, respectively, are expected to commence. Upon the occurrence of the events described in clause (a) above, all licenses granted by Acceleron under this Agreement for such Licensed Products or Licensed Compounds in the Celgene Field in such country shall become fully paid-up, perpetual, non-exclusive, sublicensable, irrevocable, royalty-free licenses. Upon the occurrence of the events described in clause (b) above, all licenses granted by Celgene under this Agreement for Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field in the such country shall become fully paid-up, perpetual, non-exclusive, sublicensable, irrevocable, royalty-free licenses.

10.2 Termination for Cause .

10.2.1. Cause for Termination . This Agreement may be terminated at any time during the Agreement Term:

(a) upon written notice by either Party if the other Party (the “ **Breaching Party** ”) is in breach of its material obligations hereunder and has not cured such breach within [* * *] (or [* * *] for breaches of payment obligations) after notice requesting cure of the breach; provided that, notwithstanding the foregoing, in the event of a breach of a material obligation that is capable of being cured, but is not reasonably capable of being cured within the [* * *] cure period, if the Breaching Party (i) proposes within such [* * *] period a written plan to cure such breach within a defined time frame, and (ii) makes good faith efforts to cure such default and to implement such written cure plan, then the non-breaching Party may not terminate this Agreement for so long as the Breaching Party is diligently pursuing such cure in accordance with such plan; or

(b) by either Party upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other Party; provided, however, that in the event of any involuntary bankruptcy or receivership proceeding such right to terminate shall only become effective if the Party consents to the involuntary bankruptcy or receivership or such proceeding is not dismissed within [* * *] after the filing thereof. Celgene acknowledges that pursuant to the Salk License, Salk may terminate the Salk License immediately with no further notice obligation or opportunity to cure if Acceleron becomes insolvent, makes an assignment for the benefit of creditors, has a petition in bankruptcy filed for or against it or has a receiver or trustee in bankruptcy or similar officer appointed to take charge of all or part of Acceleron’s property; provided that the provisions of Section 4.7.4 hereof would apply.

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10.2.2. Effect of Termination for Cause.

(a) Termination by Acceleron. Without limiting any other legal or equitable remedies that Acceleron may have, if Acceleron terminates this Agreement in accordance with Section 10.2.1, then the effects of such termination set forth in Section 10.5.1 shall be effective and take place.

(b) Termination by Celgene. Without limiting any other legal or equitable remedies that Celgene may have, if Celgene terminates this Agreement in accordance with Section 10.2.1, then (i) the licenses granted to Acceleron pursuant to Section 4.2 shall terminate, (ii) the right of reference granted to Celgene by Acceleron under Section 4.5.1 shall become perpetual and irrevocable, (iii) Acceleron shall no longer retain the rights set forth in Section 4.3, (iv) the licenses granted to Celgene under Section 4.1 shall continue in perpetuity, (v) as between the Parties and without limiting any other provision of this Agreement, Celgene shall be solely responsible for all Commercialization of Licensed Products in the Field (including booking all sales, and managing the sale, invoicing and distribution system for Licensed Products in the Field), such Commercialization to be conducted in Celgene's sole discretion, (vi) Acceleron shall assign to Celgene all of its rights, title and interest in Product Trademarks for Sotatercept Licensed Products in the PH Field, (vii) Acceleron shall transfer to Celgene ownership of any NDAs or Regulatory Approvals then in Acceleron's name related to Sotatercept Licensed Compounds or Sotatercept Licensed Products in the PH Field and notify the appropriate Regulatory Authorities and take any other action reasonably necessary to effect such transfer of ownership; provided that if ownership of an NDA or Regulatory Approval cannot be transferred to Celgene in any country, Acceleron hereby grants (effective only upon any such termination of this Agreement) to Celgene a permanent, exclusive (even as to Acceleron) and irrevocable right of access and reference to such NDAs and Regulatory Approvals for Sotatercept Licensed Compounds and Sotatercept Licensed Products in such country in the PH Field, (viii) Celgene shall pay Acceleron [* * *] percent [* * *] of the Celgene Field Royalty Rate (calculated as if the relevant Licensed Product is in the Celgene Field and Celgene is the Distributing Party for such Licensed Product) on all Net Sales of Licensed Products in the Field in a country in the Territory occurring after the effective date of termination for (A) with respect to Licensed Products in the Celgene Field, the duration of the Royalty Term for such Licensed Product in such country and (B) with respect to Sotatercept Licensed Products in the PH Field, the duration of the PH Field Royalty Term for such Sotatercept Licensed Product in such country; (ix) Celgene shall have no obligation to pay any milestones arising under this Agreement after the date of such termination; (x) Acceleron's obligations under Article 6 (Exclusivity) shall survive such termination for as long as Celgene is paying royalties pursuant hereto; and (xi) Acceleron shall continue to be solely responsible for all royalty, milestone, and other payments owed to Salk or any other third party licensor pursuant to an agreement executed by Acceleron prior to the Effective Date (or, with respect to any Option Compound, prior to the date that such Option Compound is deemed a Licensed

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Compound in accordance with Article 7); provided that, if Acceleron is the Breaching Party and Celgene terminates this Agreement in accordance with Section 10.2.1(a) for a breach by Acceleron of its material obligations under Article 6 (Exclusivity) or if Acceleron breaches such Article 6 (Exclusivity) following termination during the period such obligations survive as provided in this Section 10.2.1(b), then Celgene shall have no further obligation to pay any royalties hereunder based on Celgene Field Net Sales arising after the date of such termination, but Celgene shall be responsible for paying royalties based on PH Field Net Sales and any royalties due to Salk and other Third Parties pursuant to Section 5.6.3(c) with respect to activities of Celgene in exercising such licenses.

10.3 Termination for Convenience . At any time, Celgene may terminate this Agreement, on a country-by-country or Licensed Product-by-Licensed Product basis or in its entirety, for any reason, upon one hundred eighty (180) days' advance written notice to Acceleron.

10.4 Termination for Failure to Meet End Points . If a Licensed Compound or Licensed Product fails to meet the end point criteria set by the Joint Development Committee pursuant to Section 3.3 for a particular Clinical Trial or Development activity, Celgene may terminate this Agreement, on a Licensed Product-by-Licensed Product basis or in its entirety, upon 45 days' advance written notice to Acceleron.

10.5 Other Effects of Termination .

10.5.1. By Acceleron for Cause . In the event that Acceleron terminates this Agreement for cause under Section 10.2.1 :

(a) License and Assignment .

(i) All licenses granted to Celgene under this Agreement with respect to the applicable country or Licensed Product shall terminate and the license granted by Celgene to Acceleron in clause (a) of Section 4.2 shall become irrevocable, shall continue in perpetuity and shall be royalty-bearing as follows: for each Sotatercept Licensed Product in the PH Field, Acceleron shall pay Celgene [* * *] percent [* * *] of the PH Field Royalty Rate (calculated as if Acceleron is the Distributing Party for the relevant Sotatercept Licensed Product) on PH Field Net Sales of such Sotatercept Licensed Product in the PH Field in a country in the Territory occurring after the effective date of termination for the duration of the PH Field Royalty Term of such Sotatercept Licensed Product in such country. In addition, the right of reference granted to Acceleron by Celgene under Section 4.5.2 shall become perpetual and irrevocable. Celgene's obligations under Section 6.1.6 shall survive such termination for as long as Acceleron is paying royalties pursuant thereto.

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(ii) In addition to and without limiting any of the rights granted and maintained pursuant to Section 10.5.1(a)(i), Celgene (a) hereby grants (effective only upon any such termination of this Agreement) to Acceleron a worldwide, non-exclusive, non-transferable license, with the right to sublicense (under the same terms that Acceleron may sublicense its rights pursuant to Section 4.4.2), under the Celgene Technology to offer for sale, sell, make, have made, use and import Licensed Compounds (and Option Compounds to the extent that they have become Licensed Compounds at the time of termination pursuant to Section 7.2) and Licensed Products in the Celgene Field in the Territory, which license shall be (i) royalty-free if Acceleron terminates this Agreement for cause under Section 10.2.1 for a breach by Celgene of its material obligations under Article 6 (Exclusivity) and (ii) royalty-bearing for Celgene Field Net Sales in the event that Acceleron terminates this Agreement for any other cause under Section 10.2.1 as follows: for each Licensed Product in the Celgene Field, Acceleron shall pay Celgene [* * *] percent [* * *] of the Celgene Field Royalty Rate (calculated as if Celgene was the Distributing Party for the relevant Licensed Product) on Celgene Field Net Sales of such Licensed Product in the Celgene Field in a country in the Territory occurring after the effective date of termination for the duration of the Royalty Term for such Licensed Product in such country; (b) shall assign or sublicense to Acceleron, to the extent possible and as requested by Acceleron, Celgene's rights and obligations under any Third Party licenses entered into pursuant to Sections 5.6.3(b) or 5.6.3(c), (c) shall assign to Acceleron all of its rights, title and interest in Product Trademarks, and (d) shall transfer to Acceleron ownership of any NDAs or Regulatory Approvals then in Celgene's name related to Licensed Compounds or Licensed Products and notify the appropriate Regulatory Authorities and take any other action reasonably necessary to effect such transfer of ownership. If ownership of an NDA or Regulatory Approval cannot be transferred to Acceleron in any country, Celgene hereby grants (effective only upon any such termination of this Agreement) to Acceleron a permanent, exclusive (even as to Celgene) and irrevocable right of access and reference to such NDAs and Regulatory Approvals for Licensed Compounds and Licensed Products in such country in the Field. The royalties to be paid by Acceleron to Celgene shall be paid under the terms specified in Section 5.6.1(a), in each case substituting "Acceleron" for "Celgene" and vice versa with respect to all obligations and definitions, and otherwise *mutatis mutandis* .

(b) Commercialization of Licensed Products . As of and following the effective date of termination, as between the Parties and without limiting any other provision of this Agreement, Acceleron shall be solely responsible for all Commercialization of Licensed Products in the Field (including booking all sales, and managing the sale, invoicing and distribution system for Licensed Products in the Field), such Commercialization to be conducted in Acceleron's sole discretion.

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(c) Transfer of Materials. In the event Acceleron exercises its rights pursuant to Section 10.5.1, Celgene shall negotiate in good faith with Acceleron regarding Celgene transferring to Acceleron, at Acceleron's cost, materials developed under this Agreement in the course of Developing and Commercializing Licensed Compounds or Licensed Products that are directly related to Licensed Compounds or Licensed Products to the extent provided in and in accordance with such agreement.

(d) Confidential Information. Notwithstanding Section 9.1.1, which provides that obligations of confidentiality shall expire [* * *] years following termination or expiration of this Agreement, for so long as the Celgene Know-How, Celgene Improvements or Celgene Collaboration IP to be licensed to Acceleron pursuant to Section 10.5.1 remain Confidential Information, Acceleron's obligations of confidentiality pursuant to Article 9 shall survive and continue in full force and effect.

(e) Continuity of Supply. Subject to the terms and conditions of any other agreement between the Parties, in the event that Celgene has begun Manufacture of Clinical Supplies or Commercial Supplies pursuant to Section 2.4, then at Acceleron's request, Celgene shall continue to Manufacture and supply Acceleron with such Clinical Supplies or such Commercial Supplies, as applicable, at [* * *], for an additional [* * *] after termination for Clinical Supplies and for an additional [* * *] after termination for Commercial Supplies; provided, however, that Celgene shall not be obligated to Manufacture or supply such Clinical Supplies or Commercial Supplies in excess of the greater of (i) the anticipated amounts of such supply as set forth in the applicable Development Plan/Budget or Commercialization Plan/Budget for such [* * *] or (ii) the amount of such Clinical Supplies or Commercial Supplies Manufactured by Celgene in the [* * *] prior to termination and provided further that, at Acceleron's request, Celgene shall, at its own expense, promptly conduct a technology transfer to Acceleron or its designee of all Celgene Technology required for Acceleron to Manufacture and supply (or have Manufactured and supplied) Clinical Supplies or Commercial Supplies of Licensed Compounds or Licensed Products and shall provide reasonable support to assist in such transfer of the Manufacturing process. In the event that the Clinical Supplies or Commercial Supplies are being Manufactured by a Third Party under contract, to the extent permitted by the terms of such contract, Celgene shall assign such contracts to Acceleron. For all future Third Party Manufacturing contracts related to the Licensed Compounds or Licensed Products, Celgene shall use Commercially Reasonable Efforts to ensure that such contracts are assignable to Acceleron in the event of termination of this Agreement as provided in Section 10.5.1.

10.5.2. By Celgene for Convenience or for Failure to Meet Endpoints. In the event that Celgene terminates this Agreement for convenience under Section 10.3 or for failure to meet end points under Section 10.4:

(a) License and Assignment.

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(i) All licenses granted to Celgene under this Agreement with respect to the applicable country or Licensed Product shall terminate. In addition, the right of reference granted to Acceleron by Celgene under Section 4.5.2 shall become perpetual and irrevocable and Celgene's obligations under Section 6.1.6 shall survive such termination.

(ii) In addition to and without limiting any of the rights granted and maintained pursuant to Section 10.5.2(a)(i), Celgene (a) hereby grants (effective only upon any such termination of this Agreement) to Acceleron a perpetual, irrevocable, worldwide, exclusive, non-transferable and royalty-bearing license, with the right to sublicense (under the same terms that Celgene may sublicense its rights pursuant to Section 4.4.2), under the Celgene Technology to offer for sale, sell, make, have made, use and import Licensed Compounds (and Option Compounds to the extent that they have become Licensed Compounds at the time of termination pursuant to Section 7.2) and Licensed Products in the Field in the Territory; (b) shall assign or sublicense to Acceleron, to the extent possible and as requested by Acceleron, Celgene's rights and obligations under any Third Party licenses entered into pursuant to Sections 5.6.3(b) or 5.6.3(c), (c) shall assign to Acceleron all of its rights, title and interest in Product Trademarks, and (d) shall transfer to Acceleron ownership of any NDAs or Regulatory Approvals then in Celgene's name related to Licensed Compounds or Licensed Products and notify the appropriate Regulatory Authorities and take any other action reasonably necessary to effect such transfer of ownership. If ownership of an NDA or Regulatory Approval cannot be transferred to Acceleron in any country, Celgene hereby grants (effective only upon any such termination of this Agreement) to Acceleron a permanent, exclusive (even as to Celgene) and irrevocable right of access and reference to such NDAs and Regulatory Approvals for Licensed Compounds and Licensed Products in such country in the Field.

(iii) With respect to each Licensed Product in the Field, Acceleron shall pay to Celgene the PH Field Royalty Rate (calculated as if the relevant Licensed Product is in the PH Field and Acceleron is the Distributing Party for such Licensed Product) on the Net Sales of such Licensed Product in the Field in a country in the Territory occurring after the effective date of termination for (A) with respect to Licensed Products in the Celgene Field, the duration of the Royalty Term for such Licensed Product in such country and (B) with respect to Sotatercept Licensed Products in the PH Field, the duration of the PH Field Royalty Term for such Sotatercept Licensed Product in such country.

(b) Termination Agreement. In addition to and without limiting any of the rights granted and maintained pursuant to this Section 10.5.2, the Parties shall negotiate in good faith and enter into a termination agreement effective as of the effective date

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of termination which would further memorialize and elaborate upon the terms of this Section 10.5.2 and set forth other customary terms and conditions intended to facilitate Acceleron's Development and Commercialization of Licensed Compounds and Licensed Products in the Field in the Territory, subject to restrictions on Use in Anemia. Following such termination, Acceleron shall be required to continue to pay to Celgene the royalty set forth in Section (a) and such payment terms relating to such royalty, consistent with the payment terms set forth in this Agreement, would be included in such termination agreement.

(c) Commercialization of Licensed Products. As of and following the effective date of termination, as between the Parties and without limiting any other provision of this Agreement, Acceleron shall be solely responsible for all Commercialization of Licensed Products in the Field (including booking all sales, and managing the sale, invoicing and distribution system for Licensed Products in the Field), such Commercialization to be conducted in Acceleron's sole discretion.

(d) Confidential Information. Notwithstanding Section 9.1.1, which provides that obligations of confidentiality shall expire [* * *] years following termination or expiration of this Agreement, for so long as the Celgene Know-How, Celgene Improvements or Celgene Collaboration IP to be licensed to Acceleron pursuant to Section 10.5.1 remain Confidential Information, Acceleron's obligations of confidentiality pursuant to Article 9 shall survive and continue in full force and effect.

(e) Continuity of Supply. Except in the event of a termination of this Agreement pursuant to Section 10.4, in the event that Celgene has begun Manufacture of Clinical Supplies or Commercial Supplies pursuant to Section 2.4, then at Acceleron's request, Celgene shall continue to Manufacture and supply Acceleron with such Clinical Supplies or such Commercial Supplies, as applicable, at [* * *], for an additional [* * *] after termination for Clinical Supplies and for an additional [* * *] after termination for Commercial Supplies; provided, however, that Celgene shall not be obligated to Manufacture or supply such Clinical Supplies or Commercial Supplies in excess of the greater of (i) the anticipated amounts of such supply as set forth in the applicable Development Plan/Budget or Commercialization Plan/Budget for such [* * *] or (ii) the amount of such Clinical Supplies or Commercial Supplies Manufactured by Celgene in the [* * *] prior to termination and provided further that, at Acceleron's request, Celgene shall, at its own expense, promptly conduct a technology transfer to Acceleron or its designee of all Celgene Technology required for Acceleron to Manufacture and supply (or have Manufactured and supplied) Clinical Supplies or Commercial Supplies of Sotatercept Licensed Compounds or Sotatercept Licensed Products and shall provide reasonable support to assist in such transfer of the Manufacturing process. In the event that the Clinical Supplies or Commercial Supplies are being Manufactured by a Third Party under contract, to the extent permitted by the terms of such contract, Celgene shall assign such contracts to Acceleron. For all future Third Party Manufacturing contracts related to the Licensed Compounds or Licensed Products, Celgene shall use Commercially

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Reasonable Efforts to ensure that such contracts are assignable to Acceleron in the event of termination of this Agreement as provided in Section 10.5.1. In the event Acceleron exercises its rights pursuant to this Section 10.5.2(e), Celgene shall negotiate in good faith with Acceleron regarding Celgene transferring to Acceleron, at Acceleron's cost, materials developed under this Agreement in the course of Developing and Commercializing Licensed Compounds or Licensed Products that are directly related to Licensed Compounds or Licensed Products to the extent provided in and in accordance with such agreement.

10.6 Sell-Down . If Celgene, its Affiliates or Sublicensees at termination of this Agreement possess Licensed Product, have started the Manufacture thereof or have accepted orders therefor, Celgene, its Affiliates or Sublicensees shall have the right, for up to [* * *] following the date of termination, to sell (or, if Acceleron is the Distributing Party, to have the Distributing Party or its designee sell) their inventories thereof that were allocated for the Celgene Field, complete the Manufacture thereof and Commercialize such fully-Manufactured Licensed Product in the Celgene Field, in order to fulfill such accepted orders or distribute such fully-Manufactured Licensed Product, subject to the obligation of Celgene to pay Acceleron the royalty payments as provided in Article 5 of this Agreement.

10.7 Transfer of Records . Upon expiration of this Agreement or in the event that Celgene terminates this Agreement for cause under Section 10.2.1, Acceleron will continue to maintain all records described in Section 2.2 or transfer them to Celgene, as requested by Celgene.

10.8 Rights in Bankruptcy . All rights and licenses granted under or pursuant to this Agreement by Acceleron or Celgene, including Article 4, are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code or analogous provisions of Applicable Law outside the United States, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code or analogous provisions of Applicable Law outside the United States (hereinafter "**IP**"). The Parties agree that Celgene or Acceleron, as applicable, as licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code or any other provisions of Applicable Law outside the United States that provide similar protection for IP. Upon the bankruptcy of Acceleron or Celgene, the non-bankrupt Party shall further be entitled to a complete duplicate of (or complete access to, as appropriate) any such IP, and such IP, if not already in such Party's possession, shall be promptly delivered to such Party.

10.9 Effect of Expiration or Termination; Survival . Expiration or termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such expiration or termination. The provisions of Article 9, Article 10, Article 12 and Sections 4.4.4, 4.6, 4.7.4, 11.5, 11.6, 11.7, as well as Sections 8.2, 8.3, 8.4.4 and 8.6 (but only to the extent that Celgene's exclusive license survives pursuant to Section 10.2.2(b)) shall survive any expiration or termination of this Agreement. Except as set forth in this Article 10, upon termination or expiration of this Agreement

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all other rights and obligations cease. Any expiration or early termination of this Agreement shall be without prejudice to the rights of either Party against the other accrued or accruing under this Agreement before termination.

**Article 11
REPRESENTATIONS AND WARRANTIES; INDEMNIFICATION**

11.1 Mutual Representations and Warranties . Each Party represents and warrants to the other Party that as of the Effective Date and the Amended and Restated Effective Date of this Agreement:

11.1.1. It is duly organized and validly existing under the laws of its jurisdiction of incorporation or formation and has full corporate or other power and authority to enter into this Agreement and to carry out the provisions hereof. Further, except for any Regulatory Approvals, pricing or reimbursement approvals, manufacturing approvals or similar approvals necessary for the Development, Manufacture or Commercialization of the Licensed Compounds and Licensed Products, all necessary consents, approvals and authorizations of all government authorities required to be obtained by such Party as of the Effective Date in connection with the execution, delivery and performance of this Agreement have been obtained by the Effective Date.

11.1.2. It is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the person or persons executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate action.

11.1.3. This Agreement is legally binding upon it and enforceable in accordance with its terms. The execution, delivery and performance of this Agreement by it does not conflict with any agreement, instrument or understanding, oral or written, to which it is a party and by which it may be bound.

11.2 Acceleron Representations, Warranties and Covenants . Acceleron represents and warrants to Celgene that as of the Effective Date, or covenants, as applicable, that:

11.2.1. Acceleron Controlled the Acceleron Patent Rights existing as of the Effective Date and was entitled to grant the licenses specified under the Original Agreement. The Acceleron Patent Rights existing as of the Effective Date constituted all of the Patent Rights Controlled by Acceleron as of the Effective Date that relate to or are necessary or useful to Develop, Manufacture or Commercialize a Licensed Compound or a Licensed Product in the Field. Acceleron has not previously assigned, transferred, conveyed or otherwise encumbered its right, title and interest in the Acceleron Technology in a manner that conflicts with any rights granted to Celgene hereunder. During the Agreement Term, Acceleron shall not encumber the rights granted to Celgene hereunder with respect to the Acceleron Patent Rights.

11.2.2. Acceleron Controlled the Option Patent Rights existing as of the Effective Date and was entitled to grant the options for licenses specified under the Original Agreement. During

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the Agreement Term, Acceleron shall not encumber the Option Patent Rights in a manner that conflicts with any rights granted to Celgene hereunder.

11.2.3. To the best knowledge of Acceleron and its Affiliates, there was no actual or threatened infringement of the Acceleron Patent Rights or the Option Patent Rights in the Celgene Field by any Third Party or any other infringement or threatened infringement that would adversely affect Celgene's rights under the Original Agreement.

11.2.4. There were no claims, judgments or settlements against or owed by Acceleron or its Affiliates or pending or, to the best knowledge of Acceleron and its Affiliates, threatened claims or litigation relating to the Acceleron Technology that would impact activities under the Original Agreement.

11.2.5. The Salk License, as set forth in Exhibit A, is in full force and effect and has not been modified or amended.

11.2.6. Neither Acceleron nor, to the best knowledge of Acceleron, Salk was in default with respect to a material obligation under, and neither such party had claimed or had grounds upon which to claim that the other party is in default with respect to a material obligation under, the Salk License.

11.2.7. To the best knowledge of Acceleron, the Salk Patent Rights were not, prior to or on the Effective Date, subject to any restrictions or limitations except as set forth in the Salk License, a true and correct copy of which is attached as Exhibit A.

11.2.8. Acceleron had not waived or allowed to lapse any of its rights under the Salk License with respect to Licensed Compounds or Licensed Products, and no such rights had lapsed or otherwise expired or been terminated.

11.2.9. As of the Effective Date, neither Acceleron nor any of its respective employees or, to the best knowledge of Acceleron or its Affiliates, its agents, in their capacity as such, had been disqualified or debarred by the FDA, pursuant to 21 U.S.C. §§ 335(a) or (b), or been charged with or convicted under United States law for conduct relating to the development or approval, or otherwise relating to the regulation of any Licensed Product under the Generic Drug Enforcement Act of 1992, or any other relevant law, rule, or regulation or been disbarred, disqualified, or convicted under or for any equivalent or similar applicable foreign law, rule, or regulation.

11.2.10. ActRIIA is a "Primary Licensed Product" under the Salk License, and, if ActRIIA becomes a "Secondary Licensed Product" under the Salk License, Acceleron will continue to have the right to grant to Celgene a sublicense of all of Acceleron's rights under the Salk License to the extent set forth in this Agreement without any alteration from the granted rights associated with a "Primary Licensed Product," except that the license from Salk becomes non-exclusive.

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11.2.11. The Acceleron Patent Rights, and to the best knowledge of Acceleron or its Affiliates, the Salk Patent Rights, had been filed and diligently prosecuted in accordance with all Applicable Laws in the Territory and had been maintained, with all applicable fees with respect thereto having been paid.

11.2.12. To the best knowledge of Acceleron or its Affiliates, each of the issued Acceleron Patents Rights was valid and enforceable.

11.2.13. To the best knowledge of Acceleron (after due investigation), there had been no patent applications arising from research funded by [* * *] since the effective date of [* * *], as described in [* * *] except for U.S. patent application Nos. [* * *] and [* * *] and all foreign counterparts thereto and all provisional applications, continuations, continuations-in-part, and divisions thereof.

11.2.14. For purposes of exercising its rights or performing its obligations hereunder in Developing, Manufacturing and Commercializing Licensed Compounds or Licensed Product [* * *], Celgene does not need access or a license to (a) the patent rights specified in Section 11.2.13 or (b) to the best knowledge of Acceleron or its Affiliates, any and all Know-How, Patent Rights, or other intellectual property rights that were licensed to Acceleron or its Affiliates or that they otherwise have access to but were not Controlled by Acceleron or its Affiliates pursuant to the Original Agreement.

11.2.15. Without limiting any other provision of this Agreement, Acceleron will not conduct Development or Commercialization of Licensed Compounds or Licensed Products in the Celgene Field except as expressly provided in this Agreement without Celgene's written consent.

11.3 Option Compound Representations and Warranties . Immediately prior to an Option Compound becoming a "Licensed Compound" pursuant to Article 7, Acceleron shall represent and warrant to Celgene the matters set forth in Section 11.2 with respect to such Option Compound or shall notify Celgene of which representations and warranties, if any, are untrue.

11.4 Celgene Representations, Warranties and Covenant s . Celgene represents and warrants to Acceleron that as of the Effective Date, and to the best knowledge of Celgene or its Affiliates, there were no claims, judgments or settlements against or owed by Celgene or its Affiliates or pending or threatened claims or litigation relating to the Celgene Technology that would impact activities under this Agreement. Additionally, without limiting any other provision of this Agreement, Celgene covenants that in the event that Acceleron [* * *], Celgene will not [* * *] without Acceleron's written consent.

11.5 Warranty Disclaimer . EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, TO THE OTHER PARTY WITH RESPECT TO ANY TECHNOLOGY OR OTHER SUBJECT MATTER OF THIS

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AGREEMENT AND HEREBY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT WITH RESPECT TO ANY AND ALL OF THE FOREGOING. EACH PARTY HEREBY DISCLAIMS ANY REPRESENTATION OR WARRANTY THAT THE DEVELOPMENT, MANUFACTURE OR COMMERCIALIZATION OF ANY LICENSED COMPOUND, OPTION COMPOUND OR LICENSED PRODUCT UNDER THIS AGREEMENT SHALL BE SUCCESSFUL.

11.6 **No Consequential Damages** . NEITHER PARTY HERETO SHALL BE LIABLE FOR SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT OR THE EXERCISE OF ITS RIGHTS HEREUNDER, INCLUDING LOST PROFITS ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF SUCH DAMAGES. NOTHING IN THIS SECTION 11.6 IS INTENDED TO LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF EITHER PARTY OR TO LIMIT A PARTY'S LIABILITY FOR BREACHES OF ITS OBLIGATION REGARDING [* * *].

11.7 **Indemnification and Insurance** .

11.7.1. Indemnification by Celgene . Celgene shall indemnify, hold harmless, and defend Acceleron, its Affiliates, and their respective directors, officers, employees and agents and their respective successors, heirs and assigns (“ **Acceleron Indemnitees** ”) from and against any and all Third Party claims, suits, losses, liabilities, damages, costs, fees and expenses (including reasonable attorneys' fees and expenses of litigation) (collectively, “ **Losses** ”) to the extent arising out of or resulting from (a) any breach of, or inaccuracy in, any representation or warranty made by Celgene in this Agreement, or any breach or violation of any covenant or agreement of Celgene in or pursuant to this Agreement; (b) the negligence or willful misconduct by or of Celgene, its Affiliates or Sublicensees, and their respective directors, officers, employees and agents; and (c) any product liability claims (under any theory, including actions in the form of tort, warranty or strict liability) relating to Celgene's Development, Manufacturing (other than Manufacture of Existing Drug Product supplied by Celgene to Acceleron for use in connection with Development activities under this Agreement, except to the extent such Losses arise out of Celgene's breach of its warranty with respect to Existing Drug Product in Section 2.4.2), and Commercialization activities under this Agreement. Celgene shall have no obligation to indemnify the Acceleron Indemnitees to the extent that the Losses arise out of or result from, directly or indirectly, any breach of, or inaccuracy in, any representation or warranty made by Acceleron in this Agreement, or any breach or violation of any covenant or agreement of Acceleron in or pursuant to this Agreement, or the negligence or willful misconduct by or of any of the Acceleron Indemnitees. For clarity, any actions taken or not taken by Acceleron at Celgene's written direction with respect to Licensed Compounds or Licensed Products pursuant to this Agreement shall constitute activities of Celgene for purposes of this Section 11.7.1.

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11.7.2. Indemnification by Acceleron. Acceleron shall indemnify, hold harmless, and defend Celgene, its Affiliates, and their respective directors, officers, employees and agents and their respective successors, heirs and assigns (“ **Celgene Indemnitees** ”) from and against any and all Losses to the extent arising out of or resulting from (a) any breach of, or inaccuracy in, any representation or warranty made by Acceleron in this Agreement, or any breach or violation of any covenant or agreement of Acceleron in or pursuant to this Agreement; (b) the negligence or willful misconduct by or of Acceleron, its Affiliates and their respective Sublicensees, and their respective directors, officers, employees and agents; or (c) any product liability claims (under any theory, including actions in the form of tort, warranty or strict liability) relating to Acceleron’s Development, Manufacturing, and Commercialization activities under this Agreement, including Acceleron’s use of Existing Drug Product in connection with Development activities under this Agreement. Acceleron shall have no obligation to indemnify the Celgene Indemnitees to the extent that the Losses arise out of or result from, directly or indirectly, any breach of, or inaccuracy in, any representation or warranty made by Celgene in this Agreement, or any breach or violation of any covenant or agreement of Celgene in or pursuant to this Agreement, or the negligence or willful misconduct by or of any of the Celgene Indemnitees. For clarity, any actions taken or not taken by Celgene at Acceleron’s written direction with respect to Sotatercept Licensed Compounds or Sotatercept Licensed Products pursuant to Section 2.3.3 or otherwise pursuant to this Agreement shall constitute activities of Acceleron for purposes of this Section 11.7.2.

11.7.3. Indemnification Procedure. In the event of any such claim against any Celgene Indemnitee or Acceleron Indemnitee (individually, an “ **Indemnitee** ”), the indemnified Party shall promptly notify the other Party in writing of the claim and the indemnifying Party shall manage and control, at its sole expense, the defense of the claim and its settlement. The Indemnitee shall cooperate with the indemnifying Party and may, at its option and expense, be represented in any such action or proceeding. The indemnifying Party shall not be liable for any settlements, litigation costs or expenses incurred by any Indemnitee without the indemnifying Party’s prior written authorization. Notwithstanding the foregoing, if the indemnifying Party believes that any of the exceptions to its obligation of indemnification of the Indemnitees set forth in Section 11.7.1 or 11.7.2 may apply, the indemnifying Party shall promptly notify the Indemnitees, which may be represented in any such action or proceeding by separate counsel at their expense; provided that the indemnifying Party shall be responsible for payment of such expenses if the Indemnitees are ultimately determined to be entitled to indemnification from the indemnifying Party. Any other provision of this Article 11 to the contrary, no Indemnitee under this Agreement shall be required to waive a conflict of interest under any applicable rules of professional ethics or responsibility if such waiver would be required for a single law firm to defend both the indemnifying Party and one or more Indemnitees. In such case, the indemnifying Party shall provide a defense of the affected Indemnitees through a separate law firm reasonably acceptable to the affected Indemnitees at the indemnifying Party’s expense.

11.7.4. Joint Defendants. If a product liability suit is brought against either Party relating in any way to a Licensed Product or Licensed Compound, and it is not clear from the

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allegations in the complaint or the known facts surrounding the allegations in the complaint as to whether a claim exists for which there is a right of indemnification pursuant to Section 11.7.1 or 11.7.2 above, then Celgene shall be responsible for controlling the defense of such suit in the first instance. During such period that Celgene is controlling such defense, with regard to the costs of such defense, including attorneys' fees, Celgene and Acceleron each shall be responsible for [* * *] of all such costs. No settlement, consent judgment or other voluntary final disposition of any such suit may be entered into without the prior written consent of Acceleron, which consent shall not be unreasonably withheld or delayed. If, at any time in the course of such suit, it becomes apparent from discovery or otherwise that a claim exists for which indemnification may be obtained in accordance with Section 11.7.1 or 11.7.2 above, then the indemnification provisions of either Section 11.7.1 or 11.7.2 above, whichever is applicable, and the indemnification procedures of Section 11.7.3 shall become applicable and govern further proceedings in the suit.

11.7.5. Insurance. As of the Effective Date and throughout the term of this Agreement, each Party shall procure and maintain, at its sole cost and expense, commercial general liability insurance and products liability coverage (each including broad form contractual liability coverage for such Party's indemnification obligation under Section 11.7.1 or 11.7.2 above, as applicable) in amounts not less than [* * *] per incident and [* * *] annual aggregate; provided that after approval of the first NDA by a Regulatory Authority for use of a Licensed Product, such products liability coverage shall be increased to not less than [* * *] per incident and [* * *] annual aggregate. Each Party shall name the other Party as additional insureds on each such insurance policy relating to this Agreement. Celgene may elect to self-insure all or parts of the limits described above. The minimum amounts of insurance coverage required under this Section 11.7.5 shall not be construed to create a limit of either Party's liability with respect to its indemnification obligation under Section 11.7.1 or 11.7.2 above, as applicable.

11.8 [* * *] Promptly following the completion, under the ACE-536 Agreement, of the first Phase 2 Clinical Trial of a Licensed Product (as defined in the ACE-536 Agreement) for myelofibrosis by Celgene, its Affiliate or Sublicensee (as defined in the ACE-536 Agreement), the Parties [* * *].

**Article 12
MISCELLANEOUS PROVISIONS**

12.1 Dispute Resolution; Governing Law .

12.1.1. Disputes. Unless otherwise set forth in this Agreement, in the event of any dispute arising under this Agreement between the Parties, the Parties may refer such dispute to the respective Executive Officers, and such Executive Officers shall attempt in good faith to resolve such dispute. If the Parties are unable resolve a given dispute pursuant to this Section 12.1.1 within [* * *] days of referring such dispute to the Executive Officers, either Party shall be free to pursue any remedy that may be available to it at law or in equity.

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800 Boylston Street
Boston, MA 02119
Attn: Marc A. Rubenstein
Telephone: (617) 951-7000
Fax: (617) 235-0706

If to Celgene: [* * *]
 Attn: [* * *]
 Telephone: [* * *]
 Fax: [* * *]

with a copy to: [* * *]
 Attn: [* * *]
 Telephone: [* * *]
 Fax: [* * *]

Either Party may change its address to which notices shall be sent by giving notice to the other Party in the manner herein provided.

12.5 **Force Majeure** . No failure or omission by either Party in the performance of any obligation of this Agreement shall be deemed a breach of this Agreement or create any liability if the same shall arise from any cause or causes beyond the reasonable control of such Party, including the following: acts of god; acts or omissions of any government; any rules, regulations or orders issued by any governmental authority or by any officer, department, agency or instrumentality thereof; fire; storm; flood; earthquake; accident; war; terrorist act; rebellion; insurrection; riot; and invasion; provided that such Party provides notice to the other Party of such an event, and the non-performing Party uses Commercially Reasonable Efforts to cure such failure or omission resulting from one of the above causes as soon as is practicable; provided further that, in the event the suspension of performance continues for [* * *] days, and such failure to perform would constitute a material breach of this Agreement in the absence of such force majeure event, the Parties will discuss how to proceed under this Agreement, which may include termination of this Agreement by the non-affected Party.

12.6 **Compliance with Applicable Laws** . Neither Party shall export any technology licensed to it by the other Party under this Agreement except in compliance with United States export laws and regulations. The Parties shall at all times comply with all material laws and regulations applicable to its activities under this Agreement.

12.7 **Independent Contractors** . It is understood and agreed that the relationship between the Parties is that of independent contractors and that nothing in this Agreement shall be construed as authorization for either Acceleron or Celgene to act as agent for the other. Nothing herein contained shall be deemed to create an employment, agency, joint venture or partnership relationship between the Parties or any of their agents or employees for any purpose, including tax purposes, or to create

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any other legal arrangement that would impose liability upon one Party for the act or failure to act of the other Party. Neither Party shall have any express or implied power to enter into any contracts or commitments or to incur any liabilities in the name of, or on behalf of, the other Party, or to bind the other Party in any respect whatsoever.

12.8 **Further Assurance** s. Each Party hereto agrees to execute, acknowledge and deliver such further instruments, and to do all other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

12.9 **No Strict Construction** . This Agreement has been prepared jointly and shall not be strictly construed against either Party.

12.10 **Headings** . The captions or headings of the sections or other subdivisions hereof are inserted only as a matter of convenience or for reference and shall have no effect on the meaning of the provisions hereof.

12.11 **No Implied Waivers; Rights Cumulative** . No failure on the part of Acceleron or Celgene to exercise, and no delay in exercising, any right, power, remedy or privilege under this Agreement, or provided by statute or at law or in equity or otherwise, shall impair, prejudice or constitute a waiver of any such right, power, remedy or privilege or be construed as a waiver of any breach of this Agreement or as an acquiescence therein, nor shall any single or partial exercise of any such right, power, remedy or privilege preclude any other or further exercise thereof or the exercise of any other right, power, remedy or privilege.

12.12 **Effect of Restatement; Entire Agreement.** From and after the Amended and Restated Effective Date, this Agreement (including the Exhibits and Schedules hereto) constitutes the entire agreement between the Parties with respect to the subject matter hereof, and supersedes and replaces all prior agreements and negotiations with respect to such subject matter from and after the Amended and Restated Effective Date, including the Original Agreement and the Amended Agreement. The effectiveness of this Agreement shall be without prejudice to the rights of either Party against the other Party accrued or accruing under the Amended Agreement prior to the Amended and Restated Effective Date.

12.13 **Severability** . If any provision hereof should be held invalid, illegal or unenforceable in any respect in any jurisdiction, the Parties hereto shall substitute, by mutual consent, valid provisions for such invalid, illegal or unenforceable provisions, which valid provisions in their economic effect are sufficiently similar to the invalid, illegal or unenforceable provisions that it can be reasonably assumed that the Parties would have entered into this Agreement with such valid provisions. In case such valid provisions cannot be agreed upon, the invalid, illegal or unenforceable of one or several provisions of this Agreement shall not affect the validity of this Agreement as a whole,

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unless the invalid, illegal or unenforceable provisions are of such essential importance to this Agreement that it is to be reasonably assumed that the Parties would not have entered into this Agreement without the invalid, illegal or unenforceable provisions.

12.14 **No Third Party Beneficiaries** . No person or entity other than Celgene, Acceleron and their respective Affiliates and permitted assignees hereunder shall be deemed an intended beneficiary hereunder or have any right to enforce any obligation of this Agreement.

12.15 **Execution in Counterparts** . This Agreement may be executed in counterparts, each of which counterparts, when so executed and delivered, shall be deemed to be an original, and all of which counterparts, taken together, shall constitute one and the same instrument.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Collaboration, License and Option Agreement as of the date first set forth above.

ACCELERON PHARMA, INC.

By: /s/ Habib Dable

Name: Habib Dable

Title: President and Chief Executive Officer

CELGENE CORPORATION

By: /s/ Angus J. Grant

Name: Angus J. Grant

Title: Corporate Vice President, Business Development

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EXHIBIT A

COPY OF THE SALK LICENSE

[Attached to Original Agreement.]

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SCHEDULE 1.12

ACTIVIN A/ACTIVIN A ANTIBODY PATENT RIGHTS

[* * *]	[* * *]	[* * *]	[* * *]	[* * *]	[* * *]
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SCHEDULE 1.15

ACTIVIN B/ACTIVIN B ANTIBODY PATENT RIGHTS

[* * *]	[* * *]	[* * *]	[* * *]	[* * *]	[* * *]
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SCHEDULE 1.23

BMP-3/BMP-3 ANTIBODY PATENT RIGHTS

Acceleron Dkt. No.	Title	Serial No.	Publication No.	Status	Filing Date
[* * *]	[* * *]	[* * *]	[* * *]	[* * *]	[* * *]

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**SCHEDULE 1.109
SOTATERCEPT LICENSED COMPOUND**

[* * *]

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SCHEDULE 2.8

THIRD PARTY SERVICE PROVIDERS

[* * *]

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SCHEDULE 4.6.6

OUTSIDE COUNSEL FOR INVENTORSHIP/PATENT DISPUTES

[* * *]

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**SCHEDULE 6.2.3
DESIGNATED THIRD PARTY ACQUIRORS**

[* * *]

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SCHEDULE 9.3

PRESS RELEASE



Acceleron to Develop Sotatercept in Pulmonary Arterial Hypertension

- *Acceleron gains rights to fund, develop, and lead global commercialization of, sotatercept in pulmonary arterial hypertension -*
- *Acceleron expects to initiate a Phase 2 trial of sotatercept in pulmonary arterial hypertension in 1H 2018 -*
- *Preclinical results show potential first-in-class disease modifying properties of sotatercept in pulmonary arterial hypertension -*
- *Sotatercept is a well-defined TGF-beta superfamily ligand trap with a widely established preclinical and clinical profile -*

CAMBRIDGE, MA – September 19, 2017 – Acceleron Pharma Inc. (NASDAQ: XLRN), the leading biopharmaceutical company in the discovery and development of TGF-beta therapeutics to treat serious and rare diseases, today announced it has amended the sotatercept development and commercialization collaboration agreement with Celgene Corporation, originally executed on February 20, 2008. The amended agreement provides Acceleron with global access to sotatercept for development and commercialization in pulmonary arterial hypertension (PAH).

“We are very pleased to announce the execution of this amended agreement alongside our long-time collaboration partner, Celgene. Sotatercept shows tremendous potential to be a groundbreaking therapy for pulmonary arterial hypertension, and we expect sotatercept, as a Phase 2-ready compound, to be Acceleron’s lead molecule as we build our new focus in pulmonary disorders,” said Habib Dable, Chief Executive Officer for Acceleron. “Our mission with sotatercept now, as we move to initiate a Phase 2 trial in the first half of 2018, is to improve the lives of those living with pulmonary arterial hypertension.”

“While many therapies are approved for the treatment of pulmonary arterial hypertension, these therapies all focus on a mechanism of vasodilation and the prognosis for patients remains poor,” Eric Austin, M.D., Director, Vanderbilt Pediatric Pulmonary Hypertension Program. “Sotatercept’s mechanism is intended to rectify the deficits in molecular signaling that underlie both the familial and idiopathic forms of this disease. The preclinical data with sotatercept is very encouraging, and I look forward to seeing data from clinical trials.”

“This amended agreement unites Acceleron’s scientific leadership in the TGF-beta superfamily with Celgene’s commitment to advance novel molecules, such as sotatercept, for patients in therapeutic areas of high unmet medical need,” said Scott Smith, Chief Operating Officer for Celgene.

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Under the amended and restated collaboration agreement, Acceleron has the right to fund and conduct all research and development activities for sotatercept in the pulmonary hypertension field. Should sotatercept be approved for an indication in the pulmonary hypertension field, Acceleron will be responsible for global commercialization and Celgene will be eligible to receive royalties on global net sales in that field. The original collaboration deal terms will remain in place with respect to development and commercialization outside of the pulmonary hypertension field.

Sotatercept is an investigational product that is not approved for use in any country.

Acceleron R&D Day Conference Call and Webcast Information

The live webcast will be accessible under "Events & Presentations" in the Investors/Media page of the Company's website at www.acceleronpharma.com.

Individuals can participate in the conference call by dialing 877-312-5848 (domestic) or 253-237-1155 (international) and refer to "Acceleron 2017 R&D Day."

The archived webcast will be available for replay on the Acceleron website approximately two hours after the event.

About sotatercept

Sotatercept is an activin receptor type IIA fusion protein that acts as a ligand trap for members in the transforming growth factor-beta (TGF- β) protein superfamily involved in remodeling and regeneration of a variety of different tissues, including the vasculature and fibrosis.

About Pulmonary Arterial Hypertension

Pulmonary Arterial Hypertension (PAH) is a rare and chronic, rapidly progressing disorder characterized by the constriction of small pulmonary arteries transporting high pressure blood from the heart to the lungs. The high or increased blood pressure causes significant strain on the heart, often leading to limited physical activity, heart failure and reduced life expectancy. The 5-year survival rate for patients with PAH is approximately 57%. There are currently four classes of therapies approved for treatment of PAH: endothelin receptor antagonists (ERAs), phosphodiesterase-5 (PDE-5) inhibitors, prostacyclin analogues and soluble guanylate cyclase (sGC) stimulators. The available therapies all act by promoting the dilation of pulmonary vessels, which have positive effects for patients, but do not impact the underlying cause of the disease. As a result, PAH often progresses rapidly for many patients despite standard of care treatment. A growing body of research has implicated imbalances in BMP and TGF- β signaling as a primary driver of PAH in familial, idiopathic and acquired forms of the disease.

About Acceleron

Acceleron is the biopharmaceutical leader in TGF-beta science, focused on the discovery and development of innovative therapeutics to treat patients with serious and rare diseases. Its pioneering research and protein engineering platform engages the target-rich TGF-beta superfamily and its remarkable ability to regulate cellular growth and repair.

Under a global partnership with Celgene, Acceleron is in Phase 3 development with luspatercept, a potential first-in-class chronic anemia therapy for the treatment of rare blood diseases. The Company is also advancing a neuromuscular franchise with two distinct Myostatin+ agents, ACE-083 and ACE-2494, and a pulmonary

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program with a Phase 2 trial of sotatercept planned in pulmonary arterial hypertension. Acceleron has ongoing preclinical research efforts targeting additional indications in these three disease areas where there is significant unmet medical need.

For more information, please visit www.acceleronpharma.com. Follow Acceleron on Social Media: [@AcceleronPharma](https://twitter.com/AcceleronPharma) and [LinkedIn](https://www.linkedin.com/company/acceleron-pharma).

Forward-Looking Statements

This press release contains forward-looking statements about the Company's strategy, future plans and prospects, including statements regarding the development of the Company's compounds, the timeline for clinical development and regulatory approval of the Company's compounds and the expected timing for reporting of data from ongoing clinical trials. The words "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "potential," "project," "should," "target," "will," "would," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

Actual results could differ materially from those included in the forward-looking statements due to various risks and uncertainties, including, but not limited to, that preclinical testing of the Company's compounds and data from clinical trials may not be predictive of the results or success of ongoing or later clinical trials, that the development of the Company's compounds will take longer and/or cost more than planned, that the Company or its collaboration partner, Celgene, will be unable to successfully complete the clinical development of the Company's compounds, that the Company or Celgene may be delayed in initiating, enrolling or completing any clinical trials, and that the Company's compounds will not receive regulatory approval or become commercially successful products. These and other risks and uncertainties are identified under the heading "Risk Factors" included in the Company's most recent Annual Report on Form 10-K, and other filings that the Company has made and may make with the SEC in the future.

The forward-looking statements contained in this press release are based on management's current views, plans, estimates, assumptions and projections with respect to future events, and the Company does not undertake and specifically disclaims any obligation to update any forward-looking statements.

Contacts:

Acceleron Pharma Inc.
Todd James, IRC, (617) 649-9393
Vice President, Investor Relations and Corporate Communications
Or
Candice Ellis, (617) 649-9226
Manager, Investor Relations and Corporate Communications

Media:
BMC Communications
Brad Miles, (646) 513-3125

Source: Acceleron Pharma

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CERTIFICATION OF CHIEF EXECUTIVE OFFICER, ACCELERON PHARMA INC.

I, Habib J. Dable, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Acceleron Pharma Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f))) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - 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.

November 7, 2017

/s/ Habib J. Dable

Date

Habib J. Dable
Chief Executive Officer and President
(Principal Executive Officer)

CERTIFICATION OF CHIEF FINANCIAL OFFICER, ACCELERON PHARMA INC.

I, Kevin F. McLaughlin, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Acceleron Pharma Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f))) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - 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.

November 7, 2017

/s/ Kevin F. McLaughlin

Date

Kevin F. McLaughlin
Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)

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

In connection with the Quarterly Report on Form 10-Q of Acceleron Pharma Inc. (the "Company") for the period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of the Company hereby certifies, pursuant to 18 U.S.C. Section 1350, that to his or her knowledge:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 7, 2017

By: /s/ Habib J. Dable

Habib J. Dable
President and Chief Executive Officer
(Principal Executive Officer)

Date: November 7, 2017

By: /s/ Kevin F. McLaughlin

Kevin F. McLaughlin
Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)