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RADIUS HEALTH, INC.

FORM 10-Q
(Quarterly Report)

Filed 11/02/17 for the Period Ending 09/30/17

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended 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 001-35726

Radius Health, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**80-0145732**
(State or other jurisdiction of Incorporation or organization)	(IRS Employer Identification Number)

950 Winter Street
Waltham, Massachusetts 02451
(Address of Principal Executive Offices and Zip Code)

(617) 551-4000
(Registrant's telephone number, including area code)

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

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

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

Number of shares of the registrant’s Common Stock, $.0001 par value per share, outstanding as of October 30, 2017 : 44,591,841 shares

RADIUS HEALTH, INC.
FORM 10-Q
FOR THE QUARTER ENDED SEPTEMBER 30, 2017

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PART I FINANCIAL INFORMATION

Item 1. Condensed Consolidated Financial Statements

Radius Health, Inc.
Condensed Consolidated Balance Sheets
(In thousands, except share and per share amounts)

	September 30, 2017	December 31, 2016
	(unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 446,938	$ 258,567
Restricted cash	47	47
Marketable securities	21,144	73,880
Accounts receivable, net	11,682	—
Inventory	3,074	—
Prepaid expenses and other current assets	7,808	2,315
Total current assets	490,693	334,809
Property and equipment, net	7,306	4,922
Intangible assets	8,380	—
Other assets	558	551
Total assets	$ 506,937	$ 340,282
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,714	$ 6,128
Accrued expenses and other current liabilities	34,411	26,597
Total current liabilities	38,125	32,725
Other non-current liabilities	213	379
Note payable	162,759	—
Total liabilities	$ 201,097	$ 33,104
Commitments and contingencies		
Stockholders' equity:		
Common stock, $.0001 par value; 200,000,000 shares authorized, 44,531,913 shares and 43,141,134 shares issued and outstanding at September 30, 2017 and December 31, 2016, respectively	4	4
Additional paid-in-capital	1,117,101	935,671
Accumulated other comprehensive income	2	71
Accumulated deficit	(811,267)	(628,568)
Total stockholders' equity	305,840	307,178
Total liabilities and stockholders' equity	$ 506,937	$ 340,282

See accompanying notes to unaudited condensed consolidated financial statements.

Radius Health, Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(Unaudited, in thousands, except share and per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
REVENUES:				
Product revenue, net	$ 3,469	$ —	$ 4,449	$ —
License revenue	10,000	—	10,000	—
OPERATING EXPENSES:				
Cost of sales - product	253	—	358	—
Cost of sales - intangible amortization	200	—	200	—
Research and development	20,997	27,453	60,176	81,827
Selling, general and administrative	47,723	19,240	135,943	50,079
Loss from operations	(55,704)	(46,693)	(182,228)	(131,906)
OTHER (EXPENSE) INCOME:				
Other expense, net	(195)	(78)	(212)	(174)
Interest expense	(2,763)	—	(2,763)	—
Interest income	819	585	1,983	1,996
NET LOSS	$ (57,843)	$ (46,186)	$ (183,220)	$ (130,084)
OTHER COMPREHENSIVE LOSS:				
Unrealized (loss) gain from available-for-sale securities	(1)	(136)	(70)	47
COMPREHENSIVE LOSS	$ (57,844)	$ (46,322)	$ (183,290)	$ (130,037)
LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS - BASIC AND DILUTED (Note 10)	$ (57,843)	$ (46,186)	$ (183,220)	$ (130,084)
LOSS PER SHARE:				
Basic and diluted	$ (1.31)	$ (1.07)	$ (4.21)	$ (3.02)
WEIGHTED AVERAGE SHARES:				
Basic and diluted	43,999,451	43,092,921	43,535,874	43,049,734

See accompanying notes to unaudited condensed consolidated financial statements.

Radius Health, Inc.
Condensed Consolidated Statements of Cash Flows
(Unaudited, in thousands)

	Nine Months Ended September 30,	
	2017	**2016**
CASH FLOWS USED IN OPERATING ACTIVITIES:		
Net loss	$ (183,220)	$ (130,084)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,385	371
Amortization of premium (discount) on marketable securities, net	(100)	797
Amortization of debt discount and debt issuance costs	1,568	—
Stock-based compensation	28,785	18,702
Changes in operating assets and liabilities:		
Inventory	(3,074)	—
Accounts receivable, net	(11,682)	—
Prepaid expenses and other current assets	(5,493)	3,308
Other long-term assets	(7)	(291)
Accounts payable	(2,414)	(3,563)
Accrued expenses and other current liabilities	7,327	7,284
Other non-current liabilities	(166)	402
Net cash used in operating activities	(167,091)	(103,074)
CASH FLOWS (USED IN) PROVIDED BY INVESTING ACTIVITIES:		
Purchases of property and equipment	(2,950)	(2,125)
Payments for capitalized milestones	(8,712)	—
Purchases of marketable securities	(117,441)	(225,497)
Sales and maturities of marketable securities	170,208	367,141
Net cash provided by investing activities	41,105	139,519
CASH FLOWS PROVIDED BY FINANCING ACTIVITIES:		
Proceeds from exercise of stock options	16,167	2,442
Proceeds from issuance of convertible debt	305,000	—
Payment of debt issuance costs	(9,360)	—
Proceeds from issuance of shares under employee stock purchase plan	2,550	—
Net cash provided by financing activities	314,357	2,442
NET INCREASE IN CASH AND CASH EQUIVALENTS	188,371	38,887
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR	258,567	159,678
CASH AND CASH EQUIVALENTS AT END OF PERIOD	$ 446,938	$ 198,565
SUPPLEMENTAL DISCLOSURES:		
Cash paid for income taxes	$ 26	$ —
Property and equipment purchases in accrued expenses at period end	$ 487	$ 406

See accompanying notes to unaudited condensed consolidated financial statements.

Radius Health, Inc.
Notes to Condensed Consolidated Financial Statements
(Unaudited)

1. Organization

Radius Health, Inc. (“Radius” or the “Company”) is a science-driven fully integrated biopharmaceutical company that is committed to developing and commercializing innovative therapeutics in the areas of osteoporosis, oncology and endocrine diseases. On April 28, 2017, the Company's first commercial product, TYMLOS ™ for subcutaneous injection, was approved by the U.S. Food and Drug Administration (“FDA”) for the treatment of postmenopausal women with osteoporosis at high risk for fracture defined as history of osteoporotic fracture, multiple risk factors for fracture, or patients who have failed or are intolerant to other available osteoporosis therapy. The Company's European Marketing Authorisation Application ("MAA") for abaloparatide for subcutaneous injection ("abaloparatide-SC") is under review by the Committee for Medicinal Products for Human Use of the EMA ("CHMP"). The Company's clinical pipeline includes an investigational abaloparatide transdermal patch ("abaloparatide-TD") for potential use in the treatment of women with postmenopausal osteoporosis; the investigational drug elacestrant (RAD1901), a selective estrogen receptor degrader for potential use in the treatment of hormone-receptor positive breast cancer, as well as for potential use in the treatment of vasomotor symptoms in postmenopausal women; and the investigational drug RAD140, a non-steroidal, selective androgen receptor modulator for potential use in the treatment of hormone-receptor positive breast cancer.

The Company is subject to the risks associated with biopharmaceutical companies with a limited operating history, including dependence on key individuals, a developing business model, the necessity of securing regulatory approvals to market its investigational product candidates, market acceptance and the successful commercialization of TYMLOS, or any of the Company’s investigational product candidates following receipt of regulatory approval, competition for TYMLOS or any of the Company's investigational product candidates following receipt of regulatory approval, and the continued ability to obtain adequate financing to fund the Company’s future operations. The Company has incurred losses and expects to continue to incur additional losses for the foreseeable future. As of September 30, 2017 , the Company had an accumulated deficit of $ 811.3 million, and total cash, cash equivalents and marketable securities of $ 468.1 million.

Based upon its cash, cash equivalents and marketable securities balance as of September 30, 2017 , the Company believes that, prior to the consideration of proceeds from partnering and/or collaboration activities, it has sufficient capital to fund its development plans, U.S. commercial activities and other operational activities for not less than twelve months from the date of this filing. The Company expects to finance its commercial activities in the United States and development costs of its clinical product portfolio with its existing cash and cash equivalents and marketable securities, as well as future product sales or through strategic financing opportunities that could include, but are not limited to, partnering or other collaboration agreements, future offerings of its equity, royalty-based financing arrangements, the incurrence of debt, or other alternative financing arrangements which may include a combination of the foregoing. However, there is no guarantee that any of these strategic or financing opportunities will be executed or executed on favorable terms, and some could be dilutive to existing stockholders. If the Company fails to obtain additional capital, it may be unable to conduct its planned commercialization activities or complete its planned preclinical studies and clinical trials and obtain approval of certain investigational product candidates from the FDA or foreign regulatory authorities.

2. Basis of Presentation and Significant Accounting Policies

Basis of Presentation —The accompanying unaudited condensed consolidated financial statements and the related disclosures of the Company have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) for interim financial reporting and as required by Regulation S-X, Rule 10-01. Accordingly, they do not include all the information and footnotes required by U.S. GAAP for complete financial statements. In the opinion of management, all adjustments (including those which are normal and recurring) considered necessary for a fair presentation of the interim financial information have been included.

When preparing financial statements in conformity with U.S. GAAP, the Company must make estimates and assumptions that affect the reported amounts of assets, liabilities, expenses and related disclosures at the date of the financial statements. Actual results could differ from those estimates. Additionally, operating results for the nine months ended September 30, 2017 are not necessarily indicative of the results that may be expected for any other interim period or for the fiscal year ending December 31, 2017 . Subsequent events have been evaluated up to the date of issuance of these financial statements. These interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes, which are contained in our Annual Report on Form 10-K for the year ended December 31, 2016 (“2016 Form 10-K”), filed with the Securities and Exchange Commission (“SEC”) on February 24, 2017.

Certain prior period amounts have been reclassified to conform to the current period presentation.

Significant Accounting Policies — The significant accounting policies identified in the Company's 2016 Form 10-K that require the Company to make estimates and assumptions include: research and development costs, stock-based compensation and fair value measures. There were no changes to significant accounting policies during the nine months ended September 30, 2017 , except for the adoption of two Accounting Standards Updates ("ASU") issued by the Financial Accounting Standards Board ("FASB"), as well as significant accounting policies over revenue, inventory, intangibles, and convertible debt each of which is detailed below.

Stock-based Compensation — In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting* ("ASU 2016-09"). This revised standard affects the accounting for forfeitures, cash flow presentation and income taxes. Specifically, this standard provides an accounting policy election to account for forfeitures as they occur, requires all excess tax benefits and deficiencies on share-based payment awards to be recognized as income tax expense or benefit in the statement of operations, requires the tax effects of exercised or vested awards should be treated as discrete items in the reporting period in which they occur, and requires that excess tax benefits to be classified with other income tax cash flows as an operating activity. The standard permits early adoption in any annual or interim period and will be applied by means of a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption.

Historically, the Company recognized stock-based compensation net of estimated forfeitures over the vesting period of the respective grant. Effective January 1, 2017, the Company adopted ASU 2016-09 and changed its accounting policy to recognize forfeitures as they occur. The new forfeiture policy election was adopted using a modified retrospective approach with a cumulative effect adjustment of approximately $0.5 million to retained earnings as of January 1, 2017. In addition, the Company recognized $6.1 million of accumulated excess tax benefits as deferred tax assets that under the previous guidance could not be recognized until the benefits were realized through a reduction in cash taxes paid. This part of the guidance was applied using a modified retrospective method with a cumulative-effect adjustment to the accumulated deficit for the excess tax benefits not previously recognized. However, given the full valuation allowance placed on the additional $6.1 million of deferred tax assets, the recognition upon adoption had no impact to our accumulated deficit as of January 1, 2016. The adoption of ASU 2016-09 effective January 1, 2017 had no other material impacts on the Company's results of operations, financial position or cash flows.

Revenue Recognition — In April 2017, the FDA approved TYMLOS. Subsequent to receiving FDA approval, the Company entered into a limited number of arrangements with wholesalers in the U.S. (collectively, its "Customers") to distribute TYMLOS. Additionally, in July 2017, the Company entered into a License and Development Agreement (the "Teijin Agreement") with Teijin Limited ("Teijin") for abaloparatide-SC in Japan. These arrangements are the Company's initial contracts with customers and, as such, were evaluated and accounted for in compliance with Accounting Standards Codification ("ASC") Topic 606 - *Revenue from Contracts with Customers* ("Topic 606"), which was adopted during the quarter ended June 30, 2017. In connection therewith, there was no transition to Topic 606 because the Company has no historical revenue. This standard applies to all contracts with customers, except for contracts that are within the scope of other standards. Under Topic 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to be entitled in exchange for those goods or services.

To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with a customer, (ii) identify the performance obligations in the contract, (iii) determine the transaction price, (iv) allocate the transaction price to the performance obligations in the contract, and (v) recognize revenue when (or as) the entity satisfies a performance obligation. The Company only applies the five-step model to arrangements that meet the definition of a contract under Topic 606, including when it is probable that the entity will collect the consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, once the contract is determined to be within the scope of Topic 606, the Company assesses the goods or services promised within each contract, determines those that are performance obligations, and assesses whether each promised good or service is distinct. For a complete discussion of accounting for product revenue, see *Product Revenue, Net* (below).

Product Revenue, Net — The Company sells TYMLOS to a limited number of wholesalers in the U.S (collectively, its "Customers"). These Customers subsequently resell the Company's products to specialty pharmacy providers, as well as other retail pharmacies and certain medical centers or hospitals. In addition to distribution agreements with Customers, the Company enters into arrangements with health care providers and payors that provide for government mandated and/or privately negotiated rebates, chargebacks, and discounts with respect to the purchase of the Company's products.

The Company recognizes revenue on product sales when the Customer obtains control of the Company's product, which occurs at a point in time (upon delivery). Product revenues are recorded net of applicable reserves for variable consideration, including discounts and allowances.

If taxes should be collected from Customers relating to product sales and remitted to governmental authorities, they will be excluded from revenue. The Company expenses incremental costs of obtaining a contract when incurred, if the expected amortization period of the asset that the Company would have recognized is one year or less. However, no such costs were incurred during the three and nine months ended September 30, 2017 .

Reserves for Variable Consideration — Revenues from product sales are recorded at the net sales price (transaction price), which includes estimates of variable consideration for which reserves are established. Components of variable consideration include trade discounts and allowances, product returns, provider chargebacks and discounts, government rebates, payor rebates, and other incentives, such as voluntary patient assistance, and other allowances that are offered within contracts between the Company and its Customers, payors, and other indirect customers relating to the Company's sale of its products. These reserves, as detailed below, are based on the amounts earned, or to be claimed on the related sales, and are classified as reductions of accounts receivable (if the amount is payable to the Customer) or a current liability (if the amount is payable to a party other than a Customer). These estimates take into consideration a range of possible outcomes which are probability-weighted in accordance with the expected value method in Topic 606 for relevant factors such as current contractual and statutory requirements, specific known market events and trends, industry data, and forecasted customer buying and payment patterns. Overall, these reserves reflect the Company's best estimates of the amount of consideration to which it is entitled based on the terms of the respective underlying contracts.

The amount of variable consideration which is included in the transaction price may be constrained, and is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized under the contract will not occur in a future period. The Company's analyses also contemplated application of the constraint in accordance with the guidance, under which it determined a material reversal of revenue would not occur in a future period for the estimates detailed below as of September 30, 2017 and, therefore, the transaction price was not reduced further during the three and nine months ended September 30, 2017 . Actual amounts of consideration ultimately received may differ from the Company's estimates. If actual results in the future vary from the Company's estimates, the Company will adjust these estimates, which would affect net product revenue and earnings in the period such variances become known.

Trade Discounts and Allowances — The Company generally provides Customers with discounts which include incentive fees that are explicitly stated in the Company's contracts and are recorded as a reduction of revenue in the period the related product revenue is recognized. In addition, the Company compensates (through trade discounts and allowances) its Customers for sales order management, data, and distribution services. However, the Company has determined such services received to date are not distinct from the Company's sale of products to the Customer and, therefore, these payments have been recorded as a reduction of revenue within the statement of operations and comprehensive loss through September 30, 2017 , as well as a reduction to trade receivables, net on the condensed consolidated balance sheets.

Product Returns — Consistent with industry practice, the Company generally offers Customers a limited right of return for product that has been purchased from the Company based on the product's expiration date, which lapses upon shipment to a patient. The Company estimates the amount of its product sales that may be returned by its Customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized, as well as reductions to trade receivables, net on the condensed consolidated balance sheets. The Company currently estimates product return liabilities using available industry data and its own sales information, including its visibility into the inventory remaining in the distribution channel. The Company has received an immaterial amount of returns to date and believes that returns of product in future periods will be minimal.

Provider Chargebacks and Discounts — Chargebacks for fees and discounts to providers represent the estimated obligations resulting from contractual commitments to sell products to qualified healthcare providers at prices lower than the list prices charged to Customers who directly purchase the product from the Company. Customers charge the Company for the difference between what they pay for the product and the ultimate selling price to the qualified healthcare providers. These reserves are established in the same period that the related revenue is recognized, resulting in a reduction of product revenue and trade receivables, net. Chargeback amounts are generally determined at the time of resale to the qualified healthcare provider by Customers, and the Company generally issues credits for such amounts within a few weeks of the Customer's notification to the Company of the resale. Reserves for chargebacks consist of credits that the Company expects to issue for units that remain in the distribution channel inventories at each reporting period-end that the Company expects will be sold to qualified healthcare providers, and chargebacks that Customers have claimed, but for which the Company has not yet issued a credit.

Government Rebates — The Company is subject to discount obligations under state Medicaid programs and Medicare. These reserves are recorded in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability which is included in accrued expenses and other current liabilities on the condensed consolidated balance sheets. For Medicare, the Company also estimates the number of patients in the prescription drug coverage gap for whom the Company will owe an additional liability under the Medicare Part D program. The Company's liability for these rebates consists of invoices received for claims from prior quarters that have not been paid or for which an

invoice has not yet been received, estimates of claims for the current quarter, and estimated future claims that will be made for product that has been recognized as revenue, but which remains in the distribution channel inventories at the end of each reporting period.

Payor Rebates — The Company contracts with certain private payor organizations, primarily insurance companies and pharmacy benefit managers, for the payment of rebates with respect to utilization of its products. The Company estimates these rebates and records such estimates in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability.

Other Incentives — Other incentives which the Company offers include voluntary patient assistance programs, such as the Company's co-pay assistance program, which are intended to provide financial assistance to qualified commercially-insured patients with prescription drug co-payments required by payors. The calculation of the accrual for co-pay assistance is based on an estimate of claims and the cost per claim that the Company expects to receive associated with product that has been recognized as revenue, but remains in the distribution channel inventories at the end of each reporting period. The adjustments are recorded in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability which is included as a component of accrued expenses and other current liabilities on the condensed consolidated balance sheets.

Collaboration Revenues — The Company enters into out-licensing agreements which are within the scope of Topic 606, under which it licenses certain rights to its product candidates to third parties. The terms of these arrangements typically include payment to the Company of one or more of the following: non-refundable, up-front license fees; development, regulatory, and commercial milestone payments; payments for manufacturing supply services the Company provides through its contract manufacturers; and royalties on net sales of licensed products. Each of these payments may result in license, collaboration, or other revenue, except revenue from royalties on net sales of licensed products, which would be classified as royalty revenue.

In determining the appropriate amount of revenue to be recognized as it fulfills its obligations under each of its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the stand-alone selling price for each performance obligation identified in the contract. The Company uses key assumptions to determine the stand-alone selling price, which may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates, and probabilities of technical and regulatory success.

Licenses of Intellectual Property — If the license to the Company’s intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue from non-refundable, up-front fees allocated to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. The Company will evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition.

Milestone Payments — At the inception of each arrangement that includes development milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the control of the Company or the customer, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis, for which the Company recognizes revenue as, or when, the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, the Company will re-evaluate the probability of achievement of such development milestones and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect license, collaboration, other revenue, and earnings in the period of adjustment.

Manufacturing Supply Services — Arrangements that include a promise for future supply of drug substance or drug product for either clinical development or commercial supply, at the customer’s discretion, are generally considered as options. The Company assesses if these options provide a material right to the licensee and, if so, they are accounted for as separate performance obligations. If the Company is entitled to additional payments when the licensee exercises these options, any

additional payments are recorded in license, collaboration, or other revenue when the customer obtains control of the goods, which is upon delivery.

Royalties — For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from its out-licensing arrangement.

Product Revenue Reserves and Allowances — Chargebacks, discounts, fees, and returns are recorded as reductions of trade receivables, net on the condensed consolidated balance sheets. Government and other rebates are recoded as a component of accrued expenses and other current liabilities on the condensed consolidated balance sheets.

Inventory —The Company values its inventories at the lower of cost or estimated net realizable value. The Company determines the cost of its inventories, which includes amounts related to materials and manufacturing overhead, on a first-in, first-out basis. The Company performs an assessment of the recoverability of capitalized inventory during each reporting period, and it writes down any excess and obsolete inventories to their estimated realizable value in the period in which the impairment is first identified. Such impairment charges, should they occur, are recorded within cost of product revenues. The determination of whether inventory costs will be realizable requires estimates by management. If actual market conditions are less favorable than projected by management, additional write-downs of inventory may be required which would be recorded as a cost of product sales in the consolidated statements of operations and comprehensive loss.

The Company capitalizes inventory costs associated with the Company's products after regulatory approval when, based on management's judgment, future commercialization is considered probable and the future economic benefit is expected to be realized. Inventory acquired prior to receipt of marketing approval of a product candidate is expensed as research and development expense as incurred. Inventory that can be used in either the production of clinical or commercial product is expensed as research and development expense when selected for use in a clinical manufacturing campaign.

Shipping and handling costs for product shipments are recorded as incurred in cost of product revenues along with costs associated with manufacturing the product, and any inventory write-downs.

Intangible Assets —The Company maintains definite-lived intangible assets related to certain capitalized milestones. These assets are amortized over their remaining useful lives, which are estimated based on the shorter of the remaining patent life or the estimated useful life of the underlying product. Intangible assets are amortized using the economic consumption method if anticipated future revenues can be reasonably estimated. The straight-line method is used when future revenues cannot be reasonably estimated.

The Company assesses its intangible assets for impairment if indicators are present or changes in circumstance suggest that impairment may exist. Events that could result in an impairment, or trigger an interim impairment assessment, include the receipt of additional clinical or nonclinical data regarding one of the Company's drug candidates or a potentially competitive drug candidate, changes in the clinical development program for a drug candidate, or new information regarding potential sales for the drug. If impairment indicators are present or changes in circumstance suggest that impairment may exist, the Company performs a recoverability test by comparing the sum of the estimated undiscounted cash flows of each intangible asset to its carrying value on the condensed consolidated balance sheet. If the undiscounted cash flows used in the recoverability test are less than the carrying value, the Company would determine the fair value of the intangible asset and recognize an impairment loss if the carrying value of the intangible asset exceeds its fair value.

Convertible Note Payable — In accordance with accounting guidance for debt with conversion and other options, the Company separately accounted for the liability and equity components of the Company's 3% Convertible Senior Notes due by 2024 (the "Convertible Notes") by allocating the proceeds between the liability component and the embedded conversion option (the "Equity Component") due to the Company's ability to settle the Convertible Notes in cash, common stock or a combination of cash and common stock, at its option. The carrying amount of the liability components was calculated by measuring the fair value of a similar liability that does not have an associated convertible feature. The allocation was performed in a manner that reflected the Company's non-convertible debt borrowing rate for similar debt. The Equity Component of the Convertible Notes was recognized as a debt discount and represents the difference between the proceeds from the issuance of the Convertible Notes and the fair value of the liability of the Convertible Notes on their respective dates of issuance. The excess of the principal amount of the liability component over its carrying amount (the "Debt Discount") is amortized to interest expense using the effective interest method over seven years. The Equity Component is not remeasured as long as it continues to meet the conditions for equity classification. In connection with issuance of the Convertible Notes, the Company also incurred certain offering costs directly attributable to the offering. Such costs are deferred and amortized over the term of the debt to

interest expense using the effective interest method. A portion of the deferred financing costs incurred in connection with the Convertible Notes was deemed to relate to the Equity Component and was allocated to additional paid-in capital.

Accounting Standards Updates — In January 2016, the FASB issued ASU No. 2016-01, *Financial Statements-Overall* (Subtopic 825-10) ("ASU 2016-01"). ASU 2016-01 provides updated guidance on the recognition and measurement of financial assets and financial liabilities that will supersede most current guidance. ASU 2016-01 primarily affects the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. The amendments in ASU 2016-01 supersede the guidance to classify equity securities with readily determinable fair values into different categories and require equity securities to be measured at fair value with changes in the fair value recognized through net income. The amendments under ASU 2016-01 are effective, for public business entities, for periods beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted. The Company does not expect the adoption of ASU 2016-01 to have a material impact on its results of operations, financial position or cash flows.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"). ASU 2016-02 supersedes the lease guidance under FASB ASC Topic 840, *Leases* , resulting in the creation of FASB ASC Topic 842, *Leases* . ASU 2016-02 requires a lessee to recognize in the statement of financial position a liability to make lease payments and a right-of-use asset representing its right to use the underlying asset for the lease term for both finance and operating leases. ASU 2016-02 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. Early adoption is permitted. The Company is currently assessing the potential impact of adopting ASU 2016-02 on its financial statements and related disclosures.

In August 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"). ASU 2016-15 addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice. ASU 2016-15 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017. Early adoption is permitted. The Company does not expect the adoption of ASU 2016-05 to have a material impact on its results of operations, financial position or cash flows.

In May 2017, the FASB issued ASU 2017-09, *Compensation-Stock Compensation* (Topic 718) ("ASU 2017-09") Scope of Modification Accounting. ASU 2017-09 provides clarification on when modification accounting should be used for changes to the terms or conditions of a share-based payment award. The amendments in ASU 2017-09 are effective for all entities for annual periods, and interim periods within those annual periods, beginning after December 15, 2017, with early adoption permitted, applied prospectively to an award modified on or after the adoption date. This ASU does not change the accounting for modifications but clarifies that modification accounting guidance should only be applied if there is a change to the value, vesting conditions, or award classification and would not be required if the changes are considered non-substantive. The Company is currently assessing the impact that adopting this new accounting standard will have on its consolidated financial statements.

3. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following (in thousands):

	September 30, 2017	December 31, 2016
Commercial costs	$ 8,652	$ 4,038
Research costs	6,780	9,632
Payroll and employee benefits	12,967	9,338
Interest	1,195	—
Professional fees	4,722	3,494
Other current liabilities	95	95
Total accrued expenses and other current liabilities	$ 34,411	$ 26,597

4. Marketable Securities

Available-for-sale marketable securities and cash and cash equivalents as of September 30, 2017 and December 31, 2016 consist of the following (in thousands):

	September 30, 2017			
	Amortized Cost Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash and cash equivalents:				
Cash	$ 110,853	$ —	$ —	$ 110,853
Money market funds	315,110	—	—	315,110
Domestic corporate debt securities	7,000	—	—	7,000
Domestic corporate commercial paper	13,975	—	—	13,975
Total	$ 446,938	$ —	$ —	$ 446,938
Marketable securities:				
Domestic corporate debt securities	$ 11,655	$ —	$ —	$ 11,655
Domestic corporate commercial paper	9,487	2	—	9,489
Total	$ 21,142	$ 2	$ —	$ 21,144

	December 31, 2016			
	Amortized Cost Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash and cash equivalents:				
Cash	$ 77,443	$ —	$ —	$ 77,443
Money market funds	173,631	—	—	173,631
Domestic corporate commercial paper	5,487	—	—	5,487
Domestic corporate debt securities	2,006	—	—	2,006
Total	$ 258,567	$ —	$ —	$ 258,567
Marketable securities:				
Domestic corporate debt securities	$ 19,317	$ —	$ (2)	$ 19,315
Domestic corporate commercial paper	31,852	78	—	31,930
Asset-backed securities	22,639	—	(4)	22,635
Total	$ 73,808	$ 78	$ (6)	$ 73,880

There were no debt securities that had been in an unrealized loss position for more than 12 months as of September 30, 2017 or December 31, 2016 , respectively. There were 3 debt securities in an unrealized loss position for less than 12 months at September 30, 2017 and there were 13 debt securities that had been in an unrealized loss position for less than 12 months at December 31, 2016 . The aggregate unrealized loss on these securities as of September 30, 2017 and December 31, 2016 was less than $1 thousand and $6 thousand, respectively, and the fair value was $9.4 million and $35.7 million, respectively. The Company considered the decrease in market value for these securities to be primarily attributable to current economic conditions. As it was not more likely than not that the Company would be required to sell these securities before the recovery of their amortized cost basis, which may be at maturity, the Company did not consider these investments to be other-than-temporarily impaired as of September 30, 2017 .

As of September 30, 2017 , marketable securities consisted of investments that mature within one year.

5. Fair Value Measurements

The Company determines the fair value of its financial instruments based upon the fair value hierarchy, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. Below are the three levels of inputs that may be used to measure fair value:

- Level 1—Quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

- Level 2—Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Transfers into or out of any hierarchy level are recognized at the end of the reporting period in which the transfers occurred. There were no material transfers between any levels during the nine months ended September 30, 2017 and 2016 , respectively.

The following table summarizes the financial instruments measured at fair value on a recurring basis in the accompanying condensed consolidated balance sheets as of September 30, 2017 and December 31, 2016 (in thousands):

	As of September 30, 2017			
	Level 1	Level 2	Level 3	Total
Assets				
Cash and cash equivalents:				
Cash	$ 110,853	$ —	$ —	$ 110,853
Money market funds (1)	315,110	—	—	315,110
Domestic corporate debt securities (2)	—	7,000	—	7,000
Domestic corporate commercial paper (2)	—	13,975	—	13,975
Total	$ 425,963	$ 20,975	$ —	$ 446,938
Marketable Securities				
Domestic corporate debt securities (2)	$ —	$ 11,655	$ —	$ 11,655
Domestic corporate commercial paper (2)	—	9,489	—	9,489
Total	$ —	$ 21,144	$ —	$ 21,144

	As of December 31, 2016			
	Level 1	Level 2	Level 3	Total
Assets				
Cash and cash equivalents:				
Cash	$ 77,443	$ —	$ —	$ 77,443
Money market funds (1)	173,631	—	—	173,631
Domestic corporate commercial paper (2)	—	5,487	—	5,487
Domestic corporate debt securities (2)	—	2,006	—	2,006
Total	$ 251,074	$ 7,493	$ —	$ 258,567
Marketable Securities				
Domestic corporate debt securities (2)	$ —	$ 19,315	$ —	$ 19,315
Domestic corporate commercial paper (2)	—	31,930	—	31,930
Asset-backed securities (2)	—	22,635	—	22,635
Total	$ —	$ 73,880	$ —	$ 73,880

(1) Fair value is based upon quoted market prices.

(2) Fair value is based upon quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the assets. Inputs are obtained from various sources, including market participants, dealers and brokers.

6. License Agreements

Ipsen

In September 2005, the Company entered into a license agreement (the "License Agreement"), as amended, with an affiliate of Ipsen Pharma SAS ("Ipsen") under which the Company exclusively licensed certain Ipsen compound technology and related patents covering abaloparatide to research, develop, manufacture, and commercialize certain compounds and related products

in all countries, except Japan (where the Company has an option to negotiate a co-promotion agreement for abaloparatide-SC) and France (where the Company's commercialization rights were subject to certain co-marketing and co-promotion rights exercisable by Ipsen, provided that certain conditions included in the License Agreement were met). The Company believes that Ipsen's co-marketing and co-promotion rights in France have permanently expired. Ipsen also granted the Company an exclusive right and license under the Ipsen compound technology and related patents to make, and have made, compounds or products in Japan. Ipsen further granted the Company an exclusive right and license under certain Ipsen formulation technology and related patents solely for purposes of enabling the Company to develop, manufacture, and commercialize compounds and products covered by the compound technology license in all countries, except Japan and France (as discussed above).

In consideration for these rights, the Company made nonrefundable, non-creditable payments in the aggregate of $13.0 million to Ipsen, including payment in recognition of certain milestones having been achieved through September 30, 2017 . The License Agreement provides for further payments upon the achievement of certain future regulatory and commercial milestones. Total additional milestone payments that could be payable under the agreement is €24.0 million (approximately $28.4 million). In connection with the FDA's approval of TYMLOS in April 2017, the Company paid Ipsen a milestone of €8.0 million (approximately $8.7 million) under the License Agreement, which the Company recorded as an intangible asset within the condensed consolidated balance sheet and will amortize over the remaining patent life or the estimated useful life of the underlying product. The agreement also provides that the Company will pay to Ipsen a fixed five percent royalty based on net sales of the product by the Company or its sublicensees on a country-by-country basis until the later of the last to expire of the licensed patents or for a period of 10 years after the first commercial sale in such country. The royalty expense was immaterial for the three and nine months ended September 30, 2017 . The date of the last to expire of the abaloparatide patents licensed from or co-owned with Ipsen, barring any extension thereof, is expected to be March 26, 2028.

If the Company sublicenses abaloparatide to a third party, then the agreement provides that the Company would pay Ipsen a percentage of certain payments received from such sublicensee (in lieu of milestone payments not achieved at the time of such sublicense). The applicable percentage is in the low double-digit range. In addition, if the Company or its sublicensees commercialize a product that includes a compound discovered by it based on or derived from confidential Ipsen know-how, then the agreement provides that the Company would pay to Ipsen a fixed low single digit royalty on net sales of such product on a country-by-country basis until the later of the last to expire of licensed patents that cover such product or for a period of 10 years after the first commercial sale of such product in such country.

The License Agreement expires on a country-by-country basis on the later of (1) the date the last remaining valid claim in the licensed patents expires in that country, or (2) a period of 10 years after the first commercial sale of the licensed products in such country, unless it is sooner terminated in accordance with its terms.

The Company is currently in arbitration proceedings with Ipsen in connection with the License Agreement. See "Legal Proceedings" for more information.

Eisai Co. Ltd.

In June 2006, the Company entered into a license agreement (the "Eisai Agreement"), with Eisai Co. Ltd. ("Eisai"). Under the Eisai Agreement, Eisai granted to the Company an exclusive right and license to research, develop, manufacture and commercialize elacestrant (RAD1901) and related products from Eisai in all countries, except Japan. In consideration for the rights to elacestrant, the Company paid Eisai an initial license fee of $0.5 million , which was expensed during 2006. In March 2015, the Company entered into an amendment to the Eisai Agreement (the "Eisai Amendment") in which Eisai granted to the Company the exclusive right and license to research, develop, manufacture and commercialize elacestrant in Japan. In consideration for the rights to elacestrant in Japan, the Company paid Eisai an initial license fee of $0.4 million upon execution of the Eisai Amendment, which was recognized as research and development expense in 2015 . The Eisai Amendment, as amended, also provides for additional payments of up to $22.3 million , payable upon the achievement of certain clinical and regulatory milestones.

Under the Eisai Agreement, as amended, should a product covered by the licensed technology be commercialized, the Company will be obligated to pay to Eisai royalties in a variable mid-single digit range based on net sales of the product on a country-by-country basis. The royalty rate will be reduced, on a country-by-country basis, at such time as the last remaining valid claim in the licensed patents expires, lapses, or is invalidated and the product is not covered by data protection clauses. In addition, the royalty rate will be reduced, on a country-by-country basis, if, in addition to the conditions specified in the previous sentence, sales of lawful generic versions of such product account for more than a specified minimum percentage of the total sales of all products that contain the licensed compound during a calendar quarter. The latest licensed patent is expected to expire, barring any extension thereof, on August 18, 2026.

The Eisai Agreement, as amended, also grants the Company the right to grant sublicenses with prior written approval from Eisai. If the Company sublicenses the licensed technology to a third party, the Company will be obligated to pay Eisai, in

addition to the milestones referenced above, a fixed low double-digit percentage of certain fees received from such sublicensee and royalties in the low single digit range based on net sales of the sublicensee. The Eisai Agreement expires on a country-by-country basis on the later of (1) the date the last remaining valid claim in the licensed patents expires, lapses or is invalidated in that country, the product is not covered by data protection clauses, and the sales of lawful generic versions of the product account for more than a specified percentage of the total sales of all pharmaceutical products containing the licensed compound in that country; or (2) a period of 10 years after the first commercial sale of the licensed products in such country, unless it is sooner terminated.

Teijin Limited

In July 2017, the Company entered into a License and Development Agreement (the "Teijin Agreement") with Teijin Limited ("Teijin") for abaloparatide-SC in Japan.

Pursuant to the Teijin Agreement, the Company granted Teijin: (i) an exclusive payment-bearing license under certain of the Company's intellectual property to develop and commercialize abaloparatide-SC in Japan, (ii) a non-exclusive payment-bearing license under certain of the Company's intellectual property to manufacture abaloparatide-SC for commercial supply in Japan, (iii) a right of reference to certain of the Company's regulatory data related to abaloparatide-SC for purposes of developing, manufacturing and commercializing abaloparatide-SC in Japan, (iv) a manufacture transfer package, upon Teijin's request, consisting of information and the Company's know-how that is necessary for the manufacture of active pharmaceutical ingredient and abaloparatide-SC, and (v) right, at Teijin's request, to have the Company manufacture (or arrange for a third party to manufacture) and supply (or arrange for a third party to supply) the active pharmaceutical ingredient for the clinical supply of abaloparatide-SC in sufficient quantities to enable Teijin to conduct its clinical trials in Japan. In consideration for these rights, the Company received an upfront payment of $10.0 million , and may receive further payments upon the achievement of certain regulatory and sales milestones, as well as a fixed low double-digit royalty based on net sales of abaloparatide-SC in Japan during the royalty term, as defined below. In addition, the Company has an option to negotiate a co-promotion agreement with Teijin for abaloparatide-SC in Japan upon commercialization.

Pursuant to the Teijin Agreement, the parties may further collaborate on new indications for abaloparatide-SC, and the Company also maintains full global rights to its development program for abaloparatide-TD, which is not part of the Teijin Agreement.

Unless earlier terminated, the Teijin Agreement expires on the later of the (i) date on which the use, sale or importation of abaloparatide-SC is no longer covered by a valid claim under the Company's patent rights licensed to Teijin in Japan, (ii) expiration of marketing or data exclusivity for abaloparatide-SC in Japan, or (iii) 10th anniversary of the first commercial sale of abaloparatide-SC in Japan.

The Company assessed this arrangement in accordance with Topic 606 and concluded that the contract counterparty, Teijin, is a customer. The Company identified the following material promises under the contract: the commercialization and manufacturing licenses under certain intellectual property rights relating to abaloparatide-SC in Japan, as well as the right of reference to certain regulatory information. In addition, the Company identified the following customer option that would create an obligation for the Company if exercised by Teijin - the transfer of manufacturing know-how. The customer option for the transfer of manufacturing know-how represents a material right. Finally, the Company also identified the following customer option that would create a manufacturing obligation for the Company if exercised by Teijin - the supply of abaloparatide-SC for Teijin's clinical trial needs. The customer option for clinical supply of abaloparatide-SC does not represent a material right. Based on these assessments, the Company identified the (i) commercialization and manufacturing licenses, as well as the right of reference to certain regulatory information, and (ii) transfer of manufacturing know-how as the only performance obligations at the inception of the arrangement, which were both deemed to be distinct.

The Company further determined that the up-front payment of $10.0 million constituted the entirety of the consideration to be included in the transaction price, which was allocated to the performance obligations based on the Company's best estimate of their relative stand-alone selling prices. For the commercialization and manufacturing licenses, including the right of reference to certain regulatory information, the stand-alone selling price was calculated using the expected cost approach by leveraging the direct costs incurred by the Company in its recently completed ACTIVExtend Phase 3 clinical trial for abaloparatide-SC, plus an estimated inflation rate. The stand-alone selling price of the transfer of manufacturing know-how was computed using a cost plus margin approach reflecting the level of effort required, which can be reasonably estimated to be incurred over the performance period, multiplied by a fully-burdened internal labor rate plus an expected margin. Based on the estimates of the stand-alone selling prices for each of the performance obligations, as referenced above, the Company determined that substantially all of the $10.0 million transaction price should be allocated to the performance obligation for the commercialization and manufacturing licenses, including the right of reference to certain regulatory information. The consideration allocated to the performance obligation for the transfer of manufacturing know-how was immaterial. The Company believes that a change in the assumptions used to determine its best estimate of the selling price for the

commercialization and manufacturing licenses, including the right of reference to certain regulatory information, would not have a significant effect on the allocation of the underlying consideration to the performance obligations.

Upon execution of the Teijin Agreement, the transaction price included only the $10.0 million up-front payment owed to the Company. The Company received this amount in October 2017. As referenced above, the Company may receive further payments upon the achievement of certain regulatory and sales milestones, totaling up to $40.0 million , as well as a fixed low double-digit royalty based on net sales of abaloparatide-SC in Japan during the royalty term. The future regulatory milestone, which represents variable consideration that was evaluated under the most likely amount method, has not been included in the transaction price, because the amount was fully constrained as of September 30, 2017 . As part of its evaluation of the constraint, the Company considered numerous factors, including that receipt of the milestone is outside the control of the Company. Separately, any consideration related to sales-based milestones as well as royalties on net sales upon commercialization by Teijin, will be recognized when the related sales occur as they were determined to relate predominantly to the licenses granted to Teijin and, therefore, have also been excluded from the transaction price in accordance with the sales-based royalty exception. The Company will re-evaluate the transaction price in each reporting period, as uncertain events are resolved, or as other changes in circumstances occur.

During the three and nine months ended September 30, 2017 , the Company recognized $10.0 million of license revenue, as it had satisfied its promises under the performance obligation for the commercialization and manufacturing licenses, including the right of reference to certain regulatory information, by transferring them at a point in time during the quarter. As of September 30, 2017 , the upfront payment was recorded on the Company’s condensed consolidated balance sheet within accounts receivable, net, as payment was not received until October 2017.

7. Research Agreements

Abaloparatide-SC Phase 3 Extension Study

The Company contracted with Nordic Bioscience Clinical Development VII A/S ("Nordic") to conduct a Phase 3 clinical trial of abaloparatide-SC (the "Phase 3 Clinical Trial"). The Company also contracted with Nordic to perform an extension study to evaluate six months of standard-of-care osteoporosis management following the completion of the Phase 3 Clinical Trial (the "Extension Study"), and, upon completion of this initial six months, an additional period of 18 months of standard-of-care osteoporosis management (the “Second Extension”).

In April 2015, the Company contracted with Nordic to perform additional services, including additional monitoring of patients enrolled in the Second Extension. Payments in cash made to Nordic for these additional services were denominated in euros and totaled up to approximately € 4.1 million (approximately $ 4.3 million).

Payments in cash made to Nordic for the services related to the Extension Study and Second Extension were denominated in both euros and U.S. dollars and totaled up to € 11.9 million (approximately $ 12.5 million) and $ 1.1 million, respectively. As of December 31, 2016, the last patient's final visit in the Second Extension had occurred and all obligations due to Nordic in relation to the Extension Study had been paid.

8. Stock-Based Compensation

Stock Options

A summary of stock option activity during the nine months ended September 30, 2017 is as follows (in thousands, except for per share amounts):

	Shares	Weighted-Average Exercise Price (in dollars per share)	Weighted-Average Contractual Life (in years)	Aggregate Intrinsic Value
Options outstanding at December 31, 2016	6,374	$ 31.60		
Granted	1,977	43.54		
Exercised	(1,301)	12.43		
Cancelled	(802)	40.01		
Expired	(15)	65.62		
Options outstanding at September 30, 2017	6,233	$ 38.23	7.90	$ 41,269
Options exercisable at September 30, 2017	2,798	$ 32.85	6.77	$ 32,626

The weighted-average grant-date fair value per share of options granted during the three and nine months ended September 30, 2017 was $ 23.00 and $ 23.84 , respectively. As of September 30, 2017 , there was approximately $65.4 million of total unrecognized compensation expense related to unvested stock options, which is expected to be recognized over a weighted-average period of approximately 2.7 years.

Restricted Stock Units

The Company awards restricted stock units ("RSUs") to employees under its 2011 Equity Incentive Plan. Each RSU entitles the holder to receive one share of the Company's common stock when the RSU vests. The RSUs vest in four substantially equal installments on each of the first four anniversaries of the vesting commencement date, subject to the employee's continued employment with, or service to, the Company on such vesting date. Compensation expense is recognized on a straight-line basis. In February 2017, the Company awarded 84,950 restricted stock units ("RSUs") to employees at an average grant date fair value of $ 45.65 per RSU.

A summary of RSU activity during the nine months ended September 30, 2017 is as follows (in thousands, except for per share amounts):

	RSUs	Weighted-Average Grant Date Fair Value (in dollars per share)
RSUs Outstanding at December 31, 2016	57	$ 33.03
Granted	85	45.65
Vested	(14)	33.03
Forfeited	(18)	40.72
RSUs Outstanding at September 30, 2017	110	$ 41.59

As of September 30, 2017 , there was approximately $3.8 million of total unrecognized compensation expense related to unvested RSUs, which is expected to be recognized over a weighted-average period of approximately 3.2 years.

Employee Stock Purchase Plan

In September 2016, the Company initiated the first offering period under the Company's 2016 Employee Stock Purchase Plan (the “ESPP”), pursuant to which eligible employees may purchase shares of the Company’s common stock on the last day of each predetermined six -month offering period at 85% of the lower of the fair market value per share at the beginning or end of the applicable offering period. The offering periods run from March 1 through August 31 and from September 1 through February 28 (or February 29, in a leap year) of each year.

As of September 30, 2017 , the Company had recorded a liability of $0.4 million related to its ESPP obligations. In accordance with the terms of our employee stock purchase plan, the Company recorded stock-based compensation expense of $0.3 million and $0.8 million for the three and nine -month periods ended September 30, 2017 , respectively.

9. Income Taxes

The Company did not record a federal or state income tax provision or benefit for the nine months ended September 30, 2017 and 2016 due to the expected loss before income taxes to be incurred for the years ended December 31, 2017 and 2016 , as well as the Company's continued maintenance of a full valuation allowance against its net deferred tax assets.

In December 2016, the Company migrated certain of its intellectual property to a foreign holding company operating in Bermuda. During 2017, the Company implemented additional steps relating to this internal strategy including executing transfer-pricing and cost share arrangements.

10. Net Loss Per Share

Basic and diluted net loss per share is calculated as follows (in thousands, except share and per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Numerator:				
Net loss	$ (57,843)	$ (46,186)	$ (183,220)	$ (130,084)
Denominator:				
Weighted-average number of common shares used in loss per share - basic and diluted	43,999,451	43,092,921	43,535,874	43,049,734
Loss per share - basic and diluted	$ (1.31)	$ (1.07)	$ (4.21)	$ (3.02)

The following potentially dilutive securities, prior to the use of the treasury stock method, have been excluded from the computation of diluted weighted-average shares outstanding, as they would be anti-dilutive. For the three and nine months ended September 30, 2017 and 2016 , all the Company's options to purchase common stock, warrants, and restricted stock units outstanding were assumed to be anti-dilutive as earnings attributable to common stockholders was in a loss position.

	Three and Nine Months Ended September 30,	
	2017	2016
Options to purchase common stock	6,233,398	6,274,181
Warrants	605,415	631,587
Restricted stock units	108,940	56,250

Pursuant to the terms of the Convertible Notes, as referenced above at Note 2, *Basis of Presentation and Significant Accounting Policies* , the Company has a choice to settle the conversion obligation for the Convertible Notes in cash, shares or any combination of the two. As the Convertible Notes are not participating securities, they will not have an impact on the calculation of basic earnings or loss per share. Based on the Company's net loss position, there is no impact on the calculation of dilutive loss per share during the three and nine month periods ended September 30, 2017 , respectively.

11. Commitments and Contingencies

Litigation - The Company may be subject to legal proceedings and claims which arise in the ordinary course of its business. In the Company's opinion, the ultimate resolution of these matters is not expected to have a material effect on its consolidated financial statements. The Company records a liability in its consolidated financial statements for these matters when a loss is known or considered probable and the amount can be reasonably estimated. The Company reviews these estimates each accounting period as additional information is known and adjusts the loss provision when appropriate. If a matter is both probable to result in a liability and the amounts of loss can be reasonably estimated, the Company estimates and discloses the possible loss or range of loss to the extent necessary to make the consolidated financial statements not misleading. If the loss is not probable or cannot be reasonably estimated, a liability is not recorded in its consolidated financial statements.

In November 2016, the Company received notice that in October 2016, Ipsen had initiated arbitration proceedings against the Company in the International Chamber of Commerce's International Court of Arbitration. Ipsen's Request for Arbitration alleged that the Company breached various provisions of the License Agreement concerning abaloparatide, including regarding Ipsen's right to co-promote abaloparatide in France and a license from the Company with respect to Japan. Ipsen is seeking

declaratory relief, compliance with the License Agreement, damages, costs and fees as a result of the purported breaches, and has alleged that the monetary value of these claims is approximately €50 million .

In January 2017, the Company submitted an Answer denying Ipsen's claims and alleging counterclaims against Ipsen for breach of the License Agreement and other declaratory judgment. The Company asserted, among other things, that Ipsen's claimed rights to co-promote abaloparatide in France and to a license from the Company with respect to Japan have permanently expired, and that Ipsen has breached the License Agreement by, among other things, allowing certain patents to expire and by purporting to license to a third party certain manufacturing and other rights that the Company contends Ipsen exclusively licensed to the Company. The Company is seeking dismissal of Ipsen's claims, as well as declaratory relief, compliance with the License Agreement, and other damages, costs and fees to be determined by the Arbitral Tribunal.

In February 2017, Ipsen submitted a Reply denying the Company's counterclaims and alleging that the Company is precluded from asserting them. Following a preliminary hearing before the Arbitral Tribunal to determine certain jurisdictional and contractual defenses asserted by Ipsen in its Reply, on July 17, 2017, the Arbitral Tribunal issued a decision finding it has jurisdiction to decide the Company's counterclaims and that the Company's counterclaims are not contractually barred.

On July 31, 2017, Ipsen submitted its Statement of Claim to the Arbitral Tribunal and on September 14, 2017, Radius submitted its Statement of Defense and Counterclaims. Subsequently, on October 20, 2017, Ipsen submitted its Reply and Statement of Defense to Radius's Counterclaims to the Arbitral Tribunal. The arbitration proceeding is continuing and, following additional briefing, a hearing on the merits is anticipated to be held in December 2017. Given that this matter is at a preliminary stage, the Company cannot predict or assess the likely outcome of these proceedings.

Manufacturing Agreements - In June 2016, the Company entered into a supply agreement with Ypsomed AG ("Ypsomed"), pursuant to which Ypsomed agreed to supply commercial and clinical supplies of a disposable pen injection device (the "Device") customized for subcutaneous injection of TYMLOS. The Company agreed to purchase a minimum number of Devices at prices per Device that decrease with an increase in quantity supplied. In addition, the Company agreed to make milestone payments for Ypsomed's capital developments regarding the initiation of the commercial supply of the Device and to pay a one-time capacity fee. All costs and payments under the agreement are delineated in Swiss Francs. The agreement has an initial term of three years from the earlier of the date of delivery of the first commercial Devices for regulatory approval and June 1, 2017, after which it automatically renews for two -year terms until terminated. The Company agreed to purchase the Device subject to certain minimum annual quantity requirements under the agreement. During the initial term of the agreement, the Company estimates that it will be obligated to make total minimum payments to Ypsomed of approximately CHF 3.9 million ($ 4.0 million) in the aggregate, including the milestone payments and one-time capacity fee.

In June 2016, the Company entered into a commercial supply agreement with Vetter Pharma International, GmbH ("Vetter"), pursuant to which Vetter agreed to formulate the finished TYMLOS drug product containing the active pharmaceutical ingredient ("API") of TYMLOS, to fill cartridges with the drug product, to assemble the pen delivery device, and to package and label the pen for commercial distribution. The Company agreed to purchase the cartridges and pens in specified batch sizes at a price per unit. For labeling and packaging services, the Company agreed to pay a per-unit price dependent upon the number of pens loaded with cartridges that are labeled and packaged. These prices are subject to an annual price adjustment. The agreement has an initial term of five years, which began on January 1, 2016, after which, it automatically renews for two -year terms unless either party provides notice of non-renewal two years before the end of the then current term. There are no minimum purchase requirements under the terms of this contract.

In July 2016, the Company entered into a manufacturing services agreement with Polypeptide Laboratories Holding AB ("PPL"), as successor-in-interest to Lonza Group Ltd., pursuant to which PPL agreed to manufacture the commercial and clinical supplies of the API for TYMLOS. The Company agreed to purchase the API in batches at a price per gram in euros, subject to an annual increase by PPL. The Company also agreed to purchase a minimum number of batches annually. The agreement has an initial term of six years, after which, it automatically renews for three -year terms unless either party provides notice of non-renewal 24 months before the end of the then-current term.

12. Inventory

Inventory consists of the following at September 30, 2017 (in thousands):

	September 30, 2017	December 31, 2016
Raw materials	$ 2,724	$ —
Work in process	273	—
Finished goods	77	—
Total inventories	$ 3,074	$ —

Inventory acquired prior to receipt of the marketing approval for TYMLOS, totaling approximately $1.6 million , was expensed as research and development expense as incurred. The Company began to capitalize the costs associated with the production of TYMLOS upon receipt of FDA approval on April 28, 2017.

13. Product Revenue Reserves and Allowances

To date, the Company's only source of product revenue has been from the U.S. sales of TYMLOS, which it began shipping to Customers in May 2017. The following table summarizes activity in each of the product revenue allowance and reserve categories for the nine months ended September 30, 2017 (in thousands):

	Chargebacks, Discounts, and Fees	Government and other rebates	Returns	Total
Beginning balance at December 31, 2016	$ —	$ —	$ —	$ —
Provision related to sales in the current year, net of credits and payments	688	459	296	$ 1,443
Ending balance at September 30, 2017	$ 688	$ 459	$ 296	$ 1,443

Chargebacks, discounts, fees, and returns are recorded as reductions of trade receivables, net on the condensed consolidated balance sheets. Government and other rebates are recoded as a component of accrued expenses and other current liabilities on the condensed consolidated balance sheets. Credits and payments for the nine months ended September 30, 2017 are not significant.

14. Intangible Assets

The following table presents intangible assets as of September 30, 2017 (in thousands):

	September 30, 2017	Estimated useful life
Acquired and in-licensed rights	$ 8,712	11 Years
Less: accumulated amortization	(332)	
Total intangible asset, net	$ 8,380	

The increase in acquired and in-licensed rights as of September 30, 2017 was due to the milestone of €8.0 million (approximately $8.7 million) paid to Ipsen, which was triggered by the FDA approval of TYMLOS on April 28, 2017.

The Company recorded approximately $0.2 million and $0.3 million in amortization expense related to intangible assets, using the straight-line methodology, during the three and nine months ended September 30, 2017 . Estimated future amortization expense for intangible assets as of September 30, 2017 is approximately $0.2 million for the remainder of 2017 , and approximately $0.8 million per year thereafter.

15. Convertible Notes Payable

On August 14, 2017, in a registered underwritten public offering, the Company issued $300 million aggregate principal amount of the Convertible Notes. In addition, on September 12, 2017, the Company issued an additional $5.0 million principal amount of Convertible Notes pursuant to the exercise of an over-allotment option granted to the underwriters in the offering. In accordance with accounting guidance for debt with conversion and other options, the Company separately accounted for the Liability and Equity Components of the Convertible Notes by allocating the proceeds between the Liability Component and the Equity Component, due to the Company's ability to settle the Convertible Notes in cash, common stock or a combination of cash and common stock, at its option. In connection with the issuance of the Convertible Notes, the Company incurred

approximately $9.4 million of debt issuance costs, which primarily consisted of underwriting, legal and other professional fees, and allocated these costs to the Liability and Equity Components based on the allocation of the proceeds. Of the total $9.4 million of debt issuance costs, $4.3 million was allocated to the Equity Component and recorded as a reduction to additional paid-in capital and $5.1 million was allocated to the liability component and is now recorded as a reduction of the Convertible Notes in the Company's condensed consolidated balance sheet. The portion allocated to the liability component is amortized to interest expense using the effective interest method over seven years.

The Convertible Notes are senior unsecured obligations of the Company and bear interest at a rate of 3.00% per annum, payable semi-annually in arrears on March 1 and September 1, beginning on March 1, 2018. Upon conversion, the Convertible Notes will be convertible into cash, shares of the Company's common stock or a combination of cash and shares of the Company's common stock, at the Company's election. Prior to December 31, 2017, the Convertible Notes were not convertible except in connection with a make whole fundamental change, as defined in the respective indentures. The Convertible Notes will be subject to redemption at our option, on or after September 1, 2021, in whole or in part, if the conditions described below are satisfied. The Convertible Notes will mature on September 1, 2024, unless earlier converted, redeemed or repurchased in accordance with their terms. Subject to satisfaction of certain conditions and during the periods described below, the Convertible Notes may be converted at an initial conversion rate of 20.4891 shares of common stock per $1,000 principal amount of the Convertible Notes (equivalent to an initial conversion price of approximately $48.81 per share of common stock).

Holders of the Convertible Notes may convert all or any portion of their notes, in multiples of $1,000 principal amount, at their option at any time prior to the close of business on the business day immediately preceding June 1, 2024 only under the following circumstances:

(1) during any calendar quarter commencing after the calendar quarter ending on December 31, 2017 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether consecutive or not) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

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

(3) if the Company calls the Convertible Notes for redemption, until the close of business on the business day immediately preceding the redemption date; or

(4) upon the occurrence of specified corporate events.

Prior to September 1, 2021, the Company may not redeem the Convertible Notes. On or after September 1, 2021, the Company may redeem for cash all or part of the Convertible Notes if the last reported sale price of the Company's common stock equals or exceeds 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 -consecutive trading day period ending within five trading days prior to the date on which the Company provides notice of the redemption. The redemption price will be the principal amount of the Convertible Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. In addition, calling any Convertible Note for redemption will constitute a make-whole fundamental change with respect to that Convertible Note, in which case the conversion rate applicable to the conversion of that Convertible Note, if it is converted in connection with the redemption, will be increased in certain circumstances.

In accordance with accounting guidance for debt with conversion and other options, the Company separately accounted for the liability and equity components of the Convertible Notes by allocating the proceeds between the liability component and the embedded conversion option (the "Equity Component") due to the Company's ability to settle the Convertible Notes in cash, common stock or a combination of cash and common stock, at its option. The carrying amount of the Liability Component of $166.3 million was calculated by measuring the fair value of a similar liability that does not have an associated convertible feature. The allocation was performed in a manner that reflected the Company's non-convertible debt borrowing rate for similar debt. The Equity Component of the Convertible Notes of $138.7 million was recognized as a debt discount and represents the difference between the proceeds from the issuance of the Convertible Notes of $305.0 million and the fair value of the liability of the Convertible Notes of approximately $305.0 million on their respective dates of issuance. The excess of the principal amount of the liability component over its carrying amount (the "Debt Discount") is amortized to interest expense using the effective interest method over seven years. The Equity Component is not remeasured as long as it continues to meet the conditions for equity classification. In connection with issuance of the Convertible Notes, the Company also incurred certain

offering costs directly attributable to the offering. Such costs are deferred and amortized over the term of the debt to interest expense using the effective interest method. A portion of the deferred financing costs incurred in connection with the Convertible Notes was deemed to relate to the Equity Component and was allocated to additional paid-in capital.

The outstanding balances of the Convertible Notes as of September 30, 2017 consisted of the following (in thousands):

	2024 Convertible Notes
Liability component:	
Principal	$ 305,000
Less: debt discount and issuance costs, net	(142,241)
Net carrying amount	$ 162,759
Equity component:	$ 134,450

The Company determined the expected life of the Convertible Notes was equal to its seven year term. The effective interest rate on the Liability Components of the Convertible Notes for the period from the date of issuance through September 30, 2017 was 12.91% . As of September 30, 2017 , the "if-converted value" did not exceed the remaining principal amount of the Convertible Notes. The fair values of the 3% Convertible Senior Notes due September 1, 2024 are based on data from readily available pricing sources which utilize market observable inputs and other characteristics for similar types of instruments, and, therefore, these convertible senior notes are classified within Level 2 in the fair value hierarchy. The fair value of the Convertible Notes, which differs from their carrying value, is influenced by interest rates, the Company’s stock price and stock price volatility. The estimated fair value of the Convertible Notes as of September 30, 2017 was approximately $308.5 million .

The following table sets forth total interest expense recognized related to the Convertible Notes during the three and nine months ended September 30, 2017 and 2016 (in thousands):

	Three and Nine Months Ended September 30,	
	2017	2016
Contractual interest expense	$ 1,195	$ —
Amortization of debt discount	1,568	—
Total interest expense	$ 2,763	$ —

Future minimum payments on our long-term debt as of September 30, 2017 were as follows (in thousands):

Years ended December 31,	Future Minimum Payments
2017	$ —
2018	9,582
2019	9,150
2020	9,150
2021	9,150
2022 and Thereafter	332,450
Total minimum payments	$ 369,482
Less: interest	(64,482)
Less: unamortized discount	(142,241)
Less: current portion	—

Long Term Debt	$	162,759

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

Cautionary Statement

This Quarterly Report on Form 10-Q, including the information incorporated by reference herein, contains, in addition to historical information, forward-looking statements. We may, in some cases, use words such as "project," "believe," "anticipate," "plan," "expect," "estimate," "intend," "continue," "should," "would," "could," "potentially," "will," "may" or similar words and expressions that convey uncertainty of future events or outcomes to identify these forward-looking statements. Forward-looking statements in this Quarterly Report on Form 10-Q may include, among other things, statements about:

- *our expectations regarding commercialization of TYMLOS in the U.S. and our ability to successfully commercialize TYMLOS in the U.S.;*
- *the therapeutic benefits and effectiveness of TYMLOS and our investigational product candidates;*
- *our ability to obtain U.S. and foreign regulatory approval for our product candidates, and the timing thereof;*
- *our ability to compete with other companies that are or may be developing or selling products that are competitive with TYMLOS or our investigational product candidates;*
- *anticipated trends and challenges in the market in which TYMLOS will compete and in other potential markets in which we may compete;*
- *our plans with respect to collaborations and licenses related to the development, manufacture or sale of TYMLOS and our investigational product candidates;*
- *the progress of, timing of and amount of expenses associated with our research, development and commercialization activities;*
- *the safety profile and related adverse events of TYMLOS and our investigational product candidates;*
- *the ability of our investigational product candidates to meet existing or future regulatory standards;*
- *our expectations regarding federal, state and foreign regulatory requirements;*
- *the success of our clinical studies for our investigational product candidates;*
- *our expectations as to future financial performance, expense levels, future payment obligations and liquidity sources;*
- *our ability to attract, motivate, and retain key personnel; and*
- *other factors discussed elsewhere in this report.*

The outcome of the events described in these forward-looking statements is subject to known and unknown risks, uncertainties and other important factors that could cause actual results to differ materially from the results anticipated by these forward-looking statements. These important factors include our financial performance, the uncertainties inherent in the launch of any new pharmaceutical product or the execution and completion of clinical trials, uncertainties surrounding the timing of availability of data from our clinical trials, ongoing discussions with and actions by regulatory authorities, our ability to attract and retain customers, our development activities and those other factors we discuss under the caption "Risk Factors" in Item 1A of this Quarterly Report on Form 10-Q. You should read these factors and the other cautionary statements made in this Quarterly Report on Form 10-Q as being applicable to all related forward-looking statements wherever they appear in this Quarterly Report on Form 10-Q. These important factors are not exhaustive and other sections of this Quarterly Report on Form 10-Q may include additional factors which could adversely impact our business and financial performance.

You should read the following discussion of our financial condition and results of operations in conjunction with our financial statements and related notes set forth in this report. Unless the context otherwise requires, "we," "our," "us" and similar expressions used in this Management's Discussion and Analysis of Financial Condition and Results of Operations section refer to Radius Health, Inc. and our consolidated entities.

Executive Overview

We are a science-driven fully integrated biopharmaceutical company that is committed to developing and commercializing innovative therapeutics in the areas of osteoporosis, oncology and endocrine diseases. On April 28, 2017, our first commercial product, TYMLOS (abaloparatide) injection, was approved by the U.S. Food and Drug Administration ("FDA") for the treatment of postmenopausal women with osteoporosis at high risk for fracture defined as history of osteoporotic fracture, multiple risk factors for fracture, or patients who have failed or are intolerant to other available osteoporosis therapy. We commenced U.S. commercial sales of TYMLOS during the second quarter of 2017. In May 2017, we announced positive top-line results from our completed 24-month ACTIVExtend clinical trial for TYMLOS, which met all of its primary and secondary endpoints. In July 2017, we entered into a license and development agreement with Teijin Limited ("Teijin") for abaloparatide for subcutaneous injection ("abaloparatide-SC") in Japan. Under this agreement, we received an upfront payment of $10.0 million and are entitled to receive additional milestone payments upon the achievement of certain regulatory and sales milestones, and a fixed low double-digit royalty based on net sales of abaloparatide-SC in Japan during the royalty term. In addition, we have an option to negotiate for a co-promotion agreement with Teijin for abaloparatide-SC in Japan. Our European Marketing Authorisation Application ("MAA") for abaloparatide-SC is under review by the Committee for Medicinal Products for Human Use ("CHMP") of the European Medicines Agency ("EMA") and we expect an opinion from the CHMP regarding the MAA prior to the end of 2017.

Our clinical pipeline includes an abaloparatide transdermal patch, or abaloparatide-TD, for potential use in the treatment of women with postmenopausal osteoporosis. We have scheduled a meeting with the FDA in January 2018 to align on a regulatory pathway for a pivotal study (e.g. bioequivalence or BMD) for abaloparatide-TD that will be initiated following completion of activities related to manufacturing scale-up, production, and other activities required for the initiation of that study. We are also discussing manufacturing arrangements with 3M Company related to potential commercial supplies of abaloparatide-TD . In addition, we are evaluating our investigational product candidate, elacestrant (RAD1901), a selective estrogen receptor degrader ("SERD"), for potential use in the treatment of hormone-receptor positive breast cancer, as well as for potential use in the treatment of vasomotor symptoms in postmenopausal women. We have completed enrollment in our ongoing dose escalation Part A, and dose expansion Part B and C, and in the ^{18}F fluoroestradiol positron emission tomography ("FES-PET") imaging Phase 1 studies of elacestrant in advanced metastatic breast cancer. In June 2017, we discussed the data from these ongoing Phase 1 studies with the FDA to gain alignment on defining the next steps for our elacestrant breast cancer program, including the design of a Phase 2 trial. Following this discussion, the FDA agreed that a single-arm monotherapy Phase 2 study of under 200 patients is appropriate and provided additional feedback on the proposed clinical protocol, including confirmation that the primary endpoint will be objective response rate ("ORR"), coupled with durability of response ("DOR"). The FDA indicated that, depending on the study results, which must demonstrate an improvement over then available therapies, the single-arm Phase 2 trial could be considered a pivotal study for accelerated approval as long as a confirmatory study is ongoing at the time of our New Drug Application ("NDA") submission. We plan to provide further study details when the Phase 2 study is started, which we expect will be in early 2018. In October 2017, the FDA granted Fast Track designation for our elacestrant breast cancer program. We are reviewing our elacestrant vasomotor development program and expect to provide an update by the end of 2017.

We are also developing our internally discovered investigational product candidate, RAD140, a non-steroidal selective androgen receptor modulator ("SARM") for potential use in the treatment of hormone-receptor positive breast cancer. In September 2017, we initiated a Phase 1 study of RAD140 in patients with locally advanced or metastatic breast cancer.

Abaloparatide

On April 28, 2017, the FDA approved TYMLOS for the treatment of postmenopausal women with osteoporosis at high risk for fracture defined as history of osteoporotic fracture, multiple risk factors for fracture, or patients who have failed or are intolerant to other available osteoporosis therapy. We are developing two formulations of abaloparatide: abaloparatide-SC and abaloparatide-TD.

Abaloparatide-SC

TYMLOS was approved in the United States in April 2017 for the treatment of postmenopausal women with osteoporosis at high risk for fracture. The first commercial sales of TYMLOS in the United States occurred in the second quarter of 2017. We are commercializing TYMLOS in the United States through our commercial organization. We hold worldwide commercialization rights to abaloparatide-SC, except for Japan, where we have an option to negotiate a co-promotion agreement with Teijin for abaloparatide-SC. In December 2014, we announced positive 18-month top-line data from our Phase 3 ACTIVE clinical trial. These results were published in the Journal of the American Medical Association ("JAMA") in August 2016. In June 2015, we announced the positive top-line data from the first six months of the ACTIVExtend clinical trial of TYMLOS and the 25-month combined fracture data from the ACTIVE and ACTIVExtend clinical trials. These data were published in the Mayo Clinic Proceedings in February 2017.

The combined 25-month fracture data from our Phase 3 clinical trial program for TYMLOS formed the basis of our regulatory submissions in the United States and Europe. In November 2015, we submitted an MAA for abaloparatide-SC to the EMA, which was validated and is currently undergoing active regulatory assessment by the CHMP. In July 2017, the CHMP issued a second Day-180 List of Outstanding Issues and requested additional data analyses related to the safety and efficacy of abaloparatide-SC in the process of their ongoing regulatory review. We expect that the CHMP may adopt an opinion regarding our MAA prior to the end of 2017. Assuming regulatory success, we intend to enter into one or more collaborations for the commercialization of abaloparatide-SC outside of the United States prior to commercial launch in the European Union.

In May 2017, we announced positive top-line results from the completed 24-month ACTIVExtend clinical trial of TYMLOS, which met all of its primary and secondary endpoints. In ACTIVExtend, patients who had completed 18 months of TYMLOS (abaloparatide) injections or placebo in the ACTIVE Phase 3 trial were transitioned to receive 24 additional months of open-label alendronate. For the subset of ACTIVE trial patients (n=1139) that enrolled in the ACTIVExtend trial, the previous TYMLOS-treated patients had a significant 84% relative risk reduction ($p<0.0001$) in the incidence of new vertebral fractures compared with patients who received placebo followed by alendronate. They also demonstrated a 39% risk reduction in nonvertebral fractures ($p=0.038$), a 34% risk reduction clinical fractures ($p=0.045$) and a 50% risk reduction in major osteoporotic fractures ($p=0.011$) compared with patients who received placebo followed by alendronate. At the 43-month timepoint, for all patients (n=1645) that enrolled in the ACTIVE trial, TYMLOS-treated patients had a statistically significant

risk reduction in new vertebral fractures ($p<0.0001$), nonvertebral fractures ($p=0.038$), clinical fractures ($p=0.045$), and major osteoporotic fractures ($p<0.001$), compared with patients who received placebo followed by alendronate. While not a pre-specified endpoint, there was also a statistically significant risk reduction in hip fractures ($p=0.027$) at the 43-month time point in the TYMLOS-treated patients, compared with patients who received placebo followed by alendronate. The adverse events reported during the alendronate treatment period were similar between the previous TYMLOS-treated patients and the previous placebo group. The incidences of cardiovascular adverse events including serious adverse events were similar between groups. There have been no cases of osteonecrosis of the jaw or atypical femoral fracture in the entire TYMLOS development program. The results from the completed ACTIVExtend trial were presented at a major scientific meeting in September 2017 and we plan to submit a labeling supplement in connection with this data to the FDA prior to the end of 2017.

In July 2017, we entered into a license and development agreement with Teijin for abaloparatide-SC in Japan. Pursuant to the agreement, we received an upfront payment of $10 million and we may receive additional milestone payments upon the achievement of certain regulatory and sales milestones, and a fixed low double-digit royalty based on net sales of abaloparatide-SC in Japan during the royalty term. In addition, we have an option to negotiate for a co-promotion agreement with Teijin for abaloparatide-SC in Japan.

We recently gained agreement with the FDA on the design of a clinical trial in men with osteoporosis which, if successful, will form the basis of a supplemental NDA seeking to expand the use of TYMLOS to treat men with osteoporosis at high risk for fracture. The study will be a randomized, double-blind, placebo-controlled trial that will enroll approximately 225 men with osteoporosis. The primary endpoint is change in spine bone mineral density (“BMD”) at 12 months compared with placebo. TYMLOS has demonstrated in previous clinical trials that it increases BMD in postmenopausal women. The study will include specialized high-resolution imaging of bone structure in a subset of the study participants. We expect to initiate the trial in the first quarter of 2018.

Abaloparatide-TD

We are also developing abaloparatide-transdermal, which we refer to as abaloparatide-TD, based on 3M’s patented Microstructured Transdermal System technology for potential use as a short wear-time transdermal patch. We hold worldwide commercialization rights to the abaloparatide-TD technology. We are developing abaloparatide-TD toward future global regulatory submissions to build upon the potential success of TYMLOS. We commenced a human replicative clinical evaluation of the optimized abaloparatide-TD patch in December 2015, with the goal of achieving comparability to TYMLOS. In September 2016, we presented results from this evaluation, which showed that the pharmacokinetic profile of an optimized abaloparatide-TD patch with respect to Tmax, T1/2, and AUC was successfully modified so as to improve comparability to TYMLOS. We have schedule a meeting with the FDA in January 2018 to align on a regulatory pathway for a pivotal study (e.g. bioequivalence or BMD) for abaloparatide-TD that will be initiated following completion of activities related to manufacturing scale-up, production, and other activities required for the initiation of that study. We are also discussing manufacturing arrangements with 3M Company related to potential commercial supplies of abaloparatide-TD.

Commercial, Medical and Compliance Organizations

We are commercializing TYMLOS in the United States through our field-based sales organization of more than 200 regional sales managers and clinical sales specialists who are experienced in launching specialty pharmaceutical products, including many with osteoporosis sales experience.

After receiving regulatory approval of TYMLOS in the United States in April 2017 for the treatment of postmenopausal women at high risk of osteoporotic fracture, we have focused commercial efforts on increasing access to, and utilization of, TYMLOS. We have a commercialization team that includes experienced professionals in marketing, communications, professional education, patient education, reimbursement and market access, trade, distribution and call centers, commercial operations, commercial analytics, market research, and forecasting.

We also have a distribution network of well-established distributors and specialty pharmacies for TYMLOS in the United States. Under our distribution model, both the distributors and specialty pharmacies take physical delivery of TYMLOS and the specialty pharmacies dispense TYMLOS directly to patients.

Our medical organization is comprised of approximately 40 professionals, many field-based, with clinical and scientific experience within academic medical centers, clinical medical practice, research institutions, and industry. Our team is organized by key functions, including medical affairs, pharmacovigilance, medical information, publications, and health economics outcomes research.

Under the leadership of our Chief Compliance Officer, we have implemented a compliance program in support of a strong culture of compliance and good corporate governance. Our leadership, managers and staff have devoted substantial amounts of time to compliance initiatives, including establishing and maintaining effective disclosure and financial controls and corporate

governance practices, as required by the Sarbanes-Oxley Act of 2002, as amended, and rules subsequently implemented by the Securities and Exchange Commission ("SEC") and NASDAQ.

Elacestrant (RAD1901)

Elacestrant (RAD1901) is a SERD that has potential for use as a once daily oral treatment for hormone-receptor positive breast cancer. We hold worldwide commercialization rights to elacestrant. Elacestrant is currently being investigated in women with advanced estrogen receptor positive, or ER-positive, and HER2-negative, or human epidermal receptor 2 negative, breast cancer, the most common subtype of the disease. Studies completed to date indicate that the compound has the potential for use as a single agent or in combination with other therapies for the treatment of breast cancer. In April 2017, we presented new preclinical data on the impact of elacestrant in preclinical models of endocrine sensitive/resistant breast cancer. In October 2017, the FDA granted Fast Track designation for elacestrant - a process the FDA designed to facilitate the development and expedite the review of new therapies to treat serious conditions and fill unmet medical needs.

Phase 1 - Dose-Escalation and Expansion Study

In December 2014, we commenced a Phase 1, multicenter, open-label, multiple-part, dose-escalation study of elacestrant in postmenopausal women with ER-positive and HER2-negative advanced breast cancer in the United States to determine the recommended dose for a Phase 2 clinical trial and to make a preliminary evaluation of the potential anti-tumor effect of elacestrant. Part A of this Phase 1 study was designed to evaluate escalating doses of elacestrant. The Part B expansion cohort was initiated at 400-mg daily dosing in March 2016 to allow for an evaluation of additional safety, tolerability and preliminary efficacy. The patients enrolled in this study are heavily pretreated ER-positive, HER2-negative advanced breast cancer patients who have received a median of 3 prior lines of therapy including fulvestrant and CDK4/6 inhibitors, and about 50% of the patients had ESR1 mutations. We have completed enrollment in the ongoing dose-escalation Part A and expansion study parts B and C. We have recently opened a Part D cohort in this study to provide additional data on a more homogeneous and genetically defined patient population to support our overall elacestrant clinical development program and anticipated regulatory submissions.

In December 2016, we reported positive results from this ongoing Phase 1 dose-escalation and expansion study. These results showed that elacestrant was well-tolerated with the most commonly reported adverse events being low grade nausea and dyspepsia. Enrollment in the Part C tablet dosage form cohort was completed in November 2016.

In June 2017, we reported additional positive data from this ongoing Phase 1 dose-escalation and expansion study. As of the study cut-off date of April 28, 2017, the elacestrant single agent ORR, was 23% with five confirmed partial responses in heavily pre-treated patients with advanced ER-positive breast cancer. In the 400-mg patient group of 26 patients with mature data, the median progression free survival was 4.5 months. These results showed that elacestrant was well-tolerated with the most commonly reported adverse events being low grade nausea and dyspepsia.

Phase 1 - FES-PET Study

In December 2015, we commenced a Phase 1 FES-PET study in patients with metastatic breast cancer in the European Union which includes the use of FES-PET imaging to assess estrogen receptor occupancy in tumor lesions following elacestrant treatment. We have completed patient enrollment in the European Phase I FES-PET study.

In December 2016, we reported positive results from the ongoing Phase 1 FES-PET study. The first three enrolled patients dosed at the 400-mg cohort had a tumor FES-PET signal intensity reduction ranging from 79% to 91% at day 14 compared to baseline. The most commonly reported adverse events reported to date in this study have been grade 1 and 2 nausea and dyspepsia. We enrolled 5 additional patients in the 400-mg daily oral cohort, followed by 8 patients in the 200-mg daily oral cohort.

Phase 1 - Recent Progress

To date, no dose limiting toxicities have been reported in the elacestrant program. We have completed enrollment in our ongoing FES-PET imaging study and dose-escalation Part A and expansion study parts B and C Phase 1 breast cancer trials. In June 2017, we discussed the data from the ongoing Phase 1 studies with the FDA to gain alignment on defining the next steps for our elacestrant breast cancer program, including the design of a Phase 2 trial. Following this discussion, the FDA agreed that a single-arm monotherapy Phase 2 study of under 200 patients is appropriate and provided additional feedback on the proposed clinical protocol, including confirmation that the primary endpoint will be ORR, coupled with DOR. The FDA indicated that, depending on the study results, which must demonstrate an improvement over then available therapies, the single-arm Phase 2 trial could be considered a pivotal study for accelerated approval as long as a confirmatory study is ongoing at the time of our NDA submission. We plan to provide further study details when the Phase 2 study is started, which we expect will be in early 2018.

Potential for use in Combination Therapy

In July 2015, we announced that early but promising preclinical data showed that our investigational drug elacestrant, in combination with Pfizer's palbociclib, a cyclin-dependent kinase, or CDK 4/6 inhibitor, or Novartis' everolimus, an mTOR inhibitor, was effective in shrinking tumors. In preclinical patient-derived xenograft breast cancer models with either wild type or mutant ESR1, treatment with elacestrant resulted in marked tumor growth inhibition, and the combination of elacestrant with either agent, palbociclib or everolimus, showed anti-tumor activity that was significantly greater than either agent alone. We believe that this preclinical data suggests that elacestrant has the potential to overcome endocrine resistance, is well-tolerated, and has a profile that is well suited for use in combination therapy.

Collaborations

In July 2016, we entered into a preclinical collaboration with Takeda Pharmaceutical Company Limited to evaluate the combination of our investigational drug elacestrant with Takeda's investigational drug TAK-228, an oral mTORC 1/2 inhibitor in Phase 2b development for the treatment of breast, endometrial and renal cancer, with the goal of potentially exploring such combination in a clinical study.

In January 2016, we entered into a worldwide clinical collaboration with Novartis Pharmaceuticals to evaluate the safety and efficacy of combining our investigational drug elacestrant, with Novartis' investigational agent LEE011 (ribociclib), a CDK 4/6 inhibitor, and BYL719 (alpelisib), an investigational phosphoinositide 3-kinase inhibitor. We expect the results from these studies will be presented at an upcoming scientific meeting.

Vasomotor Symptoms

Elacestrant is also being evaluated at low doses as an estrogen receptor ligand for the potential relief of the frequency and severity of moderate to severe hot flashes in postmenopausal women with vasomotor symptoms. We are currently reviewing our elacestrant vasomotor development program and plan to provide an update by the end of 2017.

RAD140

RAD140 is an internally discovered SARM. The androgen receptor, or AR, is highly expressed in many ER-positive, ER-negative, and triple-negative receptor breast cancers. Due to its receptor and tissue selectivity, potent activity, oral bioavailability, and long half-life, we believe RAD140 could have clinical potential in the treatment of breast cancer. We hold worldwide commercialization rights to RAD140.

In September 2017, we initiated a Phase 1 study of RAD140 in patients with locally advanced or metastatic breast cancer. The clinical trial is designed to evaluate the safety and maximum tolerated dose of RAD140 in approximately 40 patients. Primary safety outcomes from the trial include rate of dose-limiting toxicities, adverse events related to treatment, and tolerability as measured by dose interruptions or adjustments. In addition, pharmacokinetics, pharmacodynamics and tumor response will also be evaluated.

In July 2016, we reported that RAD140 in preclinical xenograft models of breast cancer demonstrated potent tumor growth inhibition when administered alone or in combinations with CDK4/6 inhibitors. It is estimated that 77% of breast cancers show expression of the androgen receptor. Our data suggest that RAD140 activity at the androgen receptor leads to activation of AR signaling pathways including an AR-specific tumor suppressor and suppression of ER signaling. In April 2017, we presented these RAD140 preclinical results at a major scientific congress.

Financial Overview

Product Revenue

Product revenue is derived from sales of our product, TYMLOS ™, in the United States.

Research and Development Expenses

Research and development expenses consist primarily of clinical testing costs made to contract research organizations ("CROs"), salaries and related personnel costs, fees paid to consultants and outside service providers for regulatory and quality assurance support, licensing of drug compounds and other expenses relating to the manufacture, development, testing and enhancement of our product candidates. We expense our research and development costs as they are incurred.

None of the research and development expenses, in relation to our investigational product candidates, are currently borne by third parties. TYMLOS (abaloparatide) historically has represented the largest portion of our research and development expenses for our development programs. We began tracking program expenses for TYMLOS (abaloparatide) in 2005, and program expenses from inception to September 30, 2017 were approximately $ 213.5 million . We began tracking program

expenses for abaloparatide-TD in 2007, and program expenses from inception to September 30, 2017 were approximately $ 41.4 million . We began tracking program expenses for elacestrant (RAD1901) in 2006, and program expenses from inception to September 30, 2017 were approximately $ 62.5 million . We began tracking program expenses for RAD140 in 2008, and program expenses from inception to September 30, 2017 were approximately $ 10.5 million . These expenses relate primarily to external costs associated with manufacturing, preclinical studies and clinical trial costs.

Costs related to facilities, depreciation, stock-based compensation, and research and development support services are not directly charged to programs as they benefit multiple research programs that share resources.

The following table sets forth our research and development expenses that are directly attributable to the programs listed below for the three and nine months ended September 30, 2017 and 2016 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Abaloparatide-SC*	$ 311	$ 2,358	$ 608	$ 14,748
Abaloparatide-TD	1,308	855	2,340	4,545
Elacestrant (RAD1901)	4,083	8,605	6,990	21,865
RAD140	245	699	1,566	1,826

**2017 expenses were net of the FDA's refund of NDA fees of $2.4 million previously paid and expensed in the first quarter of 2016.*

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of salaries and related expenses for pre-launch and post-launch commercial operations, executive, finance and other administrative personnel, professional fees, business insurance, rent, general legal activities, including the cost of maintaining our intellectual property portfolio, and other corporate expenses.

Our results also include stock-based compensation expense, including as a result of the issuance of stock option grants to our employees, directors and consultants. The stock-based compensation expense is included in the respective categories of expense in the statement of operations and comprehensive loss (i.e., research and development or general and administrative expenses).

Interest Income and Other Income

Interest income reflects interest earned on our cash, cash equivalents and marketable securities. Other income for the first half of 2017 reflects a portion of the Massachusetts Life Science Center awards recognized as income for certain taxes paid.

Interest Expense

Interest expense consists of interest expense related to the Convertible Notes. A portion of the interest expense on the Convertible Notes is non-cash expense relating to accretion of the debt discount and amortization of issuance costs.

Critical Accounting Policies and Estimates

Our management’s discussion and analysis of financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission ("SEC"), and generally accepted accounting principles in the United States ("U.S. GAAP"). The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses, as well as related disclosures. We evaluate our policies and estimates on an ongoing basis, including those related to revenue recognition, accrued clinical expenses, research and development expenses, stock-based compensation and fair value measures, which we discussed in our Annual Report on Form 10-K for the year ended December 31, 2016 . We base our estimates on historical experience and various other assumptions that we believe are reasonable under the circumstances. Our actual results may differ from these estimates under different assumptions or conditions.

We have reviewed our policies and estimates to determine our critical accounting policies for the three and nine months ended September 30, 2017 . There were no changes to significant accounting policies during the nine months ended September 30, 2017 , except for the adoption of two Accounting Standards Updates issued by the Financial Accounting Standards Board, as well as significant accounting policies over revenue, inventory, and intangibles, each of which is detailed below, except intangibles, which is not considered a critical accounting policy and estimate by management.

Stock-based Compensation - In March 2016, the FASB issued Accounting Standards Update No. 2016-09, *Improvements to Employee Share-Based Payment Accounting* ("ASU 2016-09"). This revised standard affects the accounting for forfeitures, cash flow presentation and income taxes. Specifically, this standard provides an accounting policy election to account for forfeitures as they occur, requires all excess tax benefits and deficiencies on share-based payment awards to be recognized as income tax expense or benefit in the statement of operations, requires the tax effects of exercised or vested awards should be treated as discrete items in the reporting period in which they occur, and requires that excess tax benefits to be classified with other income tax cash flows as an operating activity. The standard permits early adoption in any annual or interim period and will be applied by means of a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption.

Historically, the Company recognized stock-based compensation net of estimated forfeitures over the vesting period of the respective grant. Effective January 1, 2017, the Company adopted ASU 2016-09 and changed its accounting policy to recognize forfeitures as they occur. The new forfeiture policy election was adopted using a modified retrospective approach with a cumulative effect adjustment of approximately $0.5 million to retained earnings as of January 1, 2017. In addition, the Company recognized $6.1 million of accumulated excess tax benefits as deferred tax assets that under the previous guidance could not be recognized until the benefits were realized through a reduction in cash taxes paid. This part of the guidance was applied using a modified retrospective method with a cumulative-effect adjustment to the accumulated deficit for the excess tax benefits not previously recognized. However, given the full valuation allowance placed on the additional $6.1 million of deferred tax assets, the recognition upon adoption had no impact to our accumulated deficit as of January 1, 2016. The adoption of ASU 2016-09 effective January 1, 2017 had no other material impacts on the Company's results of operations, financial position or cash flows.

Revenue Recognition — On April 28, 2017, the FDA approved TYMLOS in the U.S. Subsequent to receiving FDA approval, the Company entered into a limited number of arrangements with wholesalers in the U.S. (collectively, its "Customers") to distribute TYMLOS. These arrangements are the Company's initial contracts with customers and, as a result, the Company adopted Accounting Standards Codification ("ASC") Topic 606 - *Revenue from Contracts with Customers* ("Topic 606"). There is no transition to Topic 606 because the Company has no historical revenue. This standard applies to all contracts with customers, except for contracts that are within the scope of other standards, such as leases, insurance, collaboration arrangements, and financial instruments. Under Topic 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to be entitled in exchange for those goods or services.

To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with a customer, (ii) identify the performance obligations in the contract, (iii) determine the transaction price, (iv) allocate the transaction price to the performance obligations in the contract, and (v) recognize revenue when (or as) the entity satisfies a performance obligation. The Company only applies the five-step model to arrangements that meet the definition of a contract under Topic 606, including when it is probable that the entity will collect the consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, once the contract is determined to be within the scope of Topic 606, the Company assesses the goods or services promised within each contract and determines those that are performance obligations, and assesses whether each promised good or service is distinct. The Company then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Product Revenue, Net — The Company sells TYMLOS to a limited number of wholesalers in the U.S (collectively, its "Customers"). These Customers subsequently resell the Company's products to specialty pharmacy providers, as well as other retail pharmacies and certain medical centers or hospitals. In addition to distribution agreements with Customers, the Company enters into arrangements with health care providers and payors that provide for government mandated and/or privately negotiated rebates, chargebacks, and discounts with respect to the purchase of the Company's products.

The Company recognizes revenue on product sales when the Customer obtains control of the Company's product, which occurs at a point in time (upon delivery). Product revenues are recorded net of applicable reserves for variable consideration, including discounts and allowances.

If taxes should be collected from Customers relating to product sales and remitted to governmental authorities, they will be excluded from revenue. The Company expenses incremental costs of obtaining a contract when incurred, if the expected amortization period of the asset that the Company would have recognized is one year or less. However, no such costs were incurred during the three and nine months ended September 30, 2017 .

Reserves for Variable Consideration — Revenues from product sales are recorded at the net sales price (transaction price), which includes estimates of variable consideration for which reserves are established. Components of variable consideration include trade discounts and allowances, product returns, provider chargebacks and discounts, government rebates, payor

rebates, and other incentives, such as voluntary patient assistance, and other allowances that are offered within contracts between the Company and its Customers, payors, and other indirect customers relating to the Company's sale of its products. These reserves, as detailed below, are based on the amounts earned, or to be claimed on the related sales, and are classified as reductions of accounts receivable (if the amount is payable to the Customer) or a current liability (if the amount is payable to a party other than a Customer). These estimates take into consideration a range of possible outcomes which are probability-weighted in accordance with the expected value method in Topic 606 for relevant factors such as current contractual and statutory requirements, specific known market events and trends, industry data, and forecasted customer buying and payment patterns. Overall, these reserves reflect the Company's best estimates of the amount of consideration to which it is entitled based on the terms of the respective underlying contracts.

The amount of variable consideration which is included in the transaction price may be constrained, and is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized under the contract will not occur in a future period. The Company's analyses also contemplated application of the constraint in accordance with the guidance, under which it determined a material reversal of revenue would not occur in a future period for the estimates detailed below as of September 30, 2017 and, therefore, the transaction price was not reduced further during the three and nine months ended September 30, 2017 . Actual amounts of consideration ultimately received may differ from the Company's estimates. If actual results in the future vary from the Company's estimates, the Company will adjust these estimates, which would affect net product revenue and earnings in the period such variances become known.

Trade Discounts and Allowances — The Company generally provides Customers with discounts which include incentive fees that are explicitly stated in the Company's contracts and are recorded as a reduction of revenue in the period the related product revenue is recognized. In addition, the Company compensates (through trade discounts and allowances) its Customers for sales order management, data, and distribution services. However, the Company has determined such services received to date are not distinct from the Company's sale of products to the Customer and, therefore, these payments have been recorded as a reduction of revenue within the statement of operations and comprehensive loss through September 30, 2017 , as well as a reduction to trade receivables, net on the condensed consolidated balance sheets.

Product Returns — Consistent with industry practice, the Company generally offers Customers a limited right of return for product that has been purchased from the Company based on the product's expiration date, which lapses upon shipment to a patient. The Company estimates the amount of its product sales that may be returned by its Customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized, as well as reductions to trade receivables, net on the condensed consolidated balance sheets. The Company currently estimates product return liabilities using available industry data and its own sales information, including its visibility into the inventory remaining in the distribution channel. The Company has received an immaterial amount of returns to date and believes that returns of product in future periods will be minimal.

Provider Chargebacks and Discounts — Chargebacks for fees and discounts to providers represent the estimated obligations resulting from contractual commitments to sell products to qualified healthcare providers at prices lower than the list prices charged to Customers who directly purchase the product from the Company. Customers charge the Company for the difference between what they pay for the product and the ultimate selling price to the qualified healthcare providers. These reserves are established in the same period that the related revenue is recognized, resulting in a reduction of product revenue and trade receivables, net. Chargeback amounts are generally determined at the time of resale to the qualified healthcare provider by Customers, and the Company generally issues credits for such amounts within a few weeks of the Customer's notification to the Company of the resale. Reserves for chargebacks consist of credits that the Company expects to issue for units that remain in the distribution channel inventories at each reporting period-end that the Company expects will be sold to qualified healthcare providers, and chargebacks that Customers have claimed, but for which the Company has not yet issued a credit.

Government Rebates — The Company is subject to discount obligations under state Medicaid programs and Medicare. These reserves are recorded in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability which is included in accrued expenses and other current liabilities on the condensed consolidated balance sheets. For Medicare, the Company also estimates the number of patients in the prescription drug coverage gap for whom the Company will owe an additional liability under the Medicare Part D program. The Company's liability for these rebates consists of invoices received for claims from prior quarters that have not been paid or for which an invoice has not yet been received, estimates of claims for the current quarter, and estimated future claims that will be made for product that has been recognized as revenue, but which remains in the distribution channel inventories at the end of each reporting period.

Payor Rebates — The Company contracts with certain private payor organizations, primarily insurance companies and pharmacy benefit managers, for the payment of rebates with respect to utilization of its products. The Company estimates these rebates and records such estimates in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability.

Other Incentives — Other incentives which the Company offers include voluntary patient assistance programs, such as the Company's co-pay assistance program, which are intended to provide financial assistance to qualified commercially-insured patients with prescription drug co-payments required by payors. The calculation of the accrual for co-pay assistance is based on an estimate of claims and the cost per claim that the Company expects to receive associated with product that has been recognized as revenue, but remains in the distribution channel inventories at the end of each reporting period. The adjustments are recorded in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability which is included as a component of accrued expenses and other current liabilities on the condensed consolidated balance sheets.

Collaboration Revenues — The Company enters into out-licensing agreements which are within the scope of Topic 606, under which it licenses certain rights to its product candidates to third parties. The terms of these arrangements typically include payment to the Company of one or more of the following: non-refundable, up-front license fees; development, regulatory, and commercial milestone payments; payments for manufacturing supply services the Company provides through its contract manufacturers; and royalties on net sales of licensed products. Each of these payments may result in license, collaboration, or other revenue, except revenue from royalties on net sales of licensed products, which would be classified as royalty revenue.

In determining the appropriate amount of revenue to be recognized as it fulfills its obligations under each of its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the stand-alone selling price for each performance obligation identified in the contract. The Company uses key assumptions to determine the stand-alone selling price, which may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates, and probabilities of technical and regulatory success.

Licenses of Intellectual Property — If the license to the Company’s intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue from non-refundable, up-front fees allocated to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. The Company will evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition.

Milestone Payments — At the inception of each arrangement that includes development milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the control of the Company or the customer, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis, for which the Company recognizes revenue as, or when, the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, the Company will re-evaluate the probability of achievement of such development milestones and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect license, collaboration, other revenue, and earnings in the period of adjustment.

Manufacturing Supply Services — Arrangements that include a promise for future supply of drug substance or drug product for either clinical development or commercial supply, at the customer’s discretion, are generally considered as options. The Company assesses if these options provide a material right to the licensee and, if so, they are accounted for as separate performance obligations. If the Company is entitled to additional payments when the licensee exercises these options, any additional payments are recorded in license, collaboration, or other revenue when the customer obtains control of the goods, which is upon delivery.

Royalties — For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from its out-licensing arrangement.

Product Revenue Reserves and Allowances — Chargebacks, discounts, fees, and returns are recorded as reductions of trade receivables, net on the condensed consolidated balance sheets. Government and other rebates are recoded as a component of accrued expenses and other current liabilities on the condensed consolidated balance sheets.

Inventory — The Company values its inventories at the lower of cost or estimated net realizable value. The Company determines the cost of its inventories, which includes amounts related to materials and manufacturing overhead, on a first-in, first-out basis. The Company performs an assessment of the recoverability of capitalized inventory during each reporting period, and it writes down any excess and obsolete inventories to their estimated realizable value in the period in which the impairment is first identified. Such impairment charges, should they occur, are recorded within cost of product revenues. The determination of whether inventory costs will be realizable requires estimates by management. If actual market conditions are less favorable than projected by management, additional write-downs of inventory may be required, which would be recorded as a cost of product sales in the consolidated statements of operations and comprehensive loss.

The Company capitalizes inventory costs associated with the Company's products after regulatory approval when, based on management's judgment, future commercialization is considered probable and the future economic benefit is expected to be realized. Inventory acquired prior to receipt of marketing approval of a product candidate is expensed as research and development expense as incurred. Inventory that can be used in either the production of clinical or commercial product is expensed as research and development expense when selected for use in a clinical manufacturing campaign.

Shipping and handling costs for product shipments are recorded as incurred in cost of product revenues along with costs associated with manufacturing the product, and any inventory write-downs.

Results of Operations

Three Months Ended September 30, 2017 and 2016 (in thousands, except percentages)

	Three Months Ended September 30,		Change	
	2017	2016	$	%
Revenues:				
Product revenue, net	$ 3,469	$ —	$ 3,469	100 %
License revenue	10,000	—	10,000	100 %
Operating expenses:				
Cost of sales - product	253	—	253	100 %
Cost of sales - intangible amortization	200	—	200	100 %
Research and development	20,997	27,453	(6,456)	(24)%
Selling, general and administrative	47,723	19,240	28,483	148 %
Loss from operations	(55,704)	(46,693)	9,011	19 %
Other (expense) income:				
Other expense, net	(195)	(78)	117	150 %
Interest expense	(2,763)	—	2,763	100 %
Interest income	819	585	234	40 %
Net loss	$ (57,843)	$ (46,186)	$ 11,657	25 %

Product revenue — We began commercial sales of TYMLOS within the United States in May 2017, following receipt of FDA marketing approval on April 28, 2017. For the three months ended September 30, 2017 we recorded approximately $3.5 million of net product revenue. For further discussion regarding our revenue recognition policy, see Note 2, "Basis of Presentation and Significant Accounting Policies", in the Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Cost of sales — Cost of sales of $0.5 million for the three months ended September 30, 2017 , consisted of costs associated with the manufacturing of TYMLOS, royalties owed to our licensor for such sales, and certain period costs. Based on our policy to expense costs associated with the manufacture of our products prior to regulatory approval, certain of the costs of TYMLOS units recognized as revenue during the three months ended September 30, 2017 were expensed prior to the April 2017 FDA approval and, therefore, are not included in cost of sales during this period. We expect cost of sales to increase in relation to product revenues as we deplete these inventories.

Research and development expenses — For the three months ended September 30, 2017 , research and development expense was $ 21.0 million compared to $ 27.5 million for the three months ended September 30, 2016 , a decrease of $ 6.5 million , or 24% . This decrease was primarily driven by a $3.4 million decrease in vasomotor project related spending, a $2.0 million decrease in abaloparatide-SC project costs, and a $1.1 million decrease in RAD1901 oncology project costs. Additionally, there was an increase in headcount from 101 research and development employees as of September 30, 2016 to 105 research and development employees as of September 30, 2017 .

Selling, general and administrative expenses — For the three months ended September 30, 2017 , selling, general and administrative expense was $ 47.7 million compared to $ 19.2 million for the three months ended September 30, 2016 , an increase of $ 28.5 million , or 148% . This increase was primarily the result of an increase of approximately $10.1 million in professional fees and support costs during the three months ended September 30, 2017 , including the costs associated with increasing headcount and preparing for the commercialization of TYMLOS in the United States. This increase was also driven by a $15.2 million increase in compensation expense, including stock-based compensation, due to an increase in headcount from 90 general and administrative employees as of September 30, 2016 to 65 general and administrative employees and 296 selling related personnel as of September 30, 2017 .

Interest income —For the three months ended September 30, 2017 , interest income was approximately $ 0.8 million compared to $ 0.6 million for the three months ended September 30, 2016 , an increase of $ 0.2 million , or 40% . This decrease was primarily due to the combined effects of a decrease in the balance of our investments coupled with an increase in the rate of return on investments in the three months ended September 30, 2017 as compared to those of the three months ended September 30, 2016 .

Interest expense —For the three months ended September 30, 2017 , interest expense was approximately $ 2.8 million compared to $ 0 for the three months ended September 30, 2016 , an increase of $ 2.8 million , or 100% . This increase was the result of the issuance of the Convertible Notes during the three months ended September 30, 2017 , while there was no debt outstanding for the three months ended September 30, 2016 .

Nine Months Ended September 30, 2017 and 2016 (in thousands, except percentages)

	Nine Months Ended September 30,		Change	
	2017	2016	$	%
Revenues:				
Product revenue, net	$ 4,449	$ —	$ 4,449	100 %
License revenue	10,000	—	10,000	100 %
Operating expenses:				
Cost of sales - product	358	—	358	100 %
Cost of sales - intangible amortization	200	—	200	100 %
Research and development	60,176	81,827	(21,651)	(26)%
Selling, general and administrative	135,943	50,079	85,864	171 %
Loss from operations	(182,228)	(131,906)	50,322	38 %
Other (expense) income:				
Other expense, net	(212)	(174)	38	22 %
Interest expense	(2,763)	—	2,763	100 %
Interest income	1,983	1,996	(13)	(1)%
Net loss	$ (183,220)	$ (130,084)	$ 53,136	41 %

Product revenue — We began commercial sales of TYMLOS within the United States in May 2017, following receipt of FDA marketing approval on April 28, 2017. For the nine months ended September 30, 2017 we recorded approximately $4.4 million of net product revenue. For further discussion regarding our revenue recognition policy, see Note 2, “Basis of Presentation and Significant Accounting Policies”, in the Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Cost of sales — Cost of sales of $0.6 million for the nine months ended September 30, 2017 , consisted of costs associated with the manufacturing of TYMLOS, royalties owed to our licensor for such sales, and certain period costs. Based on our policy to expense costs associated with the manufacture of our products prior to regulatory approval, certain of the costs of TYMLOS

units recognized as revenue during the nine months ended September 30, 2017 were expensed prior to the April 2017 FDA approval and, therefore, are not included in cost of sales during this period. We expect cost of sales to increase in relation to product revenues as we deplete these inventories.

Research and development expenses — For the nine months ended September 30, 2017 , research and development expense was $ 60.2 million compared to $81.8 million for the nine months ended September 30, 2016 , a decrease of $ 21.7 million , or 26% . This decrease was primarily driven by a $14.9 million decrease in RAD1901 project costs, a $14.1 million decrease in abaloparatide-SC project costs, and a $2.2 million decrease in development costs associated with abaloparatide-TD. This decrease was partially offset by a $9.7 million increase in compensation expense, including stock-based compensation, due to an increase in headcount from 101 research and development employees as of September 30, 2016 to 105 research and development employees as of September 30, 2017 .

Selling, general and administrative expenses — For the nine months ended September 30, 2017 , selling, general and administrative expense was $ 135.9 million compared to $ 50.1 million for the nine months ended September 30, 2016 , an increase of $ 85.9 million , or 171% . This increase was primarily the result of an increase of approximately $27.9 million in professional fees and support costs during the nine months ended September 30, 2017 , including the costs associated with increasing headcount and preparing for the commercialization of TYMLOS in the United States. This increase was also driven by a $49.4 million increase in compensation expense, including stock-based compensation, due to an increase in headcount from 90 general and administrative employees as of September 30, 2016 to 65 general and administrative employees and 296 selling related personnel as of September 30, 2017 .

Interest income —For the nine months ended September 30, 2017 , interest income was approximately $ 2.0 million compared to $ 2.0 million for the nine months ended September 30, 2016 , a decrease of $ 13.0 thousand , or 1% . This decrease was primarily due to the combined effects of a decrease in the balance of our investments coupled with an increase in the rate of return on investments in the nine months ended September 30, 2017 as compared to those of the nine months ended September 30, 2016 .

Interest expense —For the nine months ended September 30, 2017 , interest expense was approximately $ 2.8 million compared to $ 0 for the nine months ended September 30, 2016 , an increase of $ 2.8 million , or 100% . This increase was the result of the issuance of the Convertible Notes during the nine months ended September 30, 2017 , while there was no debt outstanding for the nine months ended September 30, 2016 .

Liquidity and Capital Resources

From inception to September 30, 2017 , we have incurred an accumulated deficit of $ 811.3 million , primarily as a result of expenses incurred through a combination of research and development activities related to our various product candidates and expenses supporting those activities. Our total cash, cash equivalents and short-term marketable securities balance as of September 30, 2017 was $ 468.1 million . We have financed our operations since inception primarily through the public offerings of our common stock, issuance of convertible debt, private sales of preferred stock, and borrowings under credit facilities, and following our commercial launch of TYMLOS in the United States, we have recently begun financing a portion of our operations through product revenue.

Based upon our cash, cash equivalents and marketable securities balance, we believe that, prior to the consideration of proceeds from partnering and/or collaboration activities, we have sufficient capital to fund our development plans, U.S. commercial and other operational activities for not less than twelve months from the date of this filing. We expect to finance the future U.S. commercial activities and development costs of our clinical product portfolio with our existing cash, cash equivalents and marketable securities, or through strategic financing opportunities, that could include, but are not limited to partnering or other collaboration agreements, future offerings of equity, royalty-based financing arrangements, or the incurrence of additional debt or other alternative financing arrangements.

There is no guarantee that any of these financing opportunities will be available to us on favorable terms, and some could be dilutive to existing stockholders. Our future capital requirements will depend on many factors, including the scope and progress made in our research and development and commercialization activities, the results of our clinical trials, and the review and potential approval of our products by the FDA and the EMA. The successful development of our investigational product candidates is subject to numerous risks and uncertainties associated with developing drugs, which could have a significant impact on the cost and timing associated with the development of our product candidates. If we fail to obtain additional future capital, we may be unable to complete our planned preclinical and clinical trials and obtain approval of any investigational product candidates from the FDA and foreign regulatory authorities.

TYMLOS is our only approved product and our business currently depends heavily on its successful commercialization. Successful commercialization of an approved product is an expensive and uncertain process. See “Risk Factors — Risks Related to the Discovery, Development and Commercialization of Our Product Candidates” set forth under Item 1A.

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

	Nine Months Ended September 30,		Change	
	2017	2016	$	%
Net cash (used in) provided by:				
Operating activities	$ (167,091)	$ (103,074)	$ (64,017)	(62)%
Investing activities	41,105	139,519	(98,414)	(71)%
Financing activities	314,357	2,442	311,915	12,773 %
Net decrease in cash and cash equivalents	$ 188,371	$ 38,887	149,484	384 %

Cash Flows from Operating Activities

Net cash used in operating activities during the nine months ended September 30, 2017 was $ 167.1 million , which was primarily the result of a net loss of $ 183.2 million , partially offset by $ 31.6 million of net non-cash adjustments to reconcile net loss to net cash used in operations and net changes in working capital of $ 14.8 million . The $ 183.2 million net loss was primarily due to abaloparatide-SC and elacestrant program development expenses along with employee compensation and consulting costs incurred to support regulatory submissions and preparation for the commercial launch of TYMLOS in the United States. The $ 31.6 million net non-cash adjustments to reconcile net loss to net cash used in operations included stock-based compensation expense of $ 28.8 million , amortization of debt discount of $1.6 million , and depreciation of $ 1.4 million .

Net cash used in operating activities during the nine months ended September 30, 2016 was $ 103.1 million , which was primarily the result of a net loss of $ 130.1 million , partially offset by $ 19.9 million of net non-cash adjustments to reconcile net loss to net cash used in operations and net changes in working capital of $ 6.6 million . The $ 130.1 million net loss was primarily due to abaloparatide-SC program development expenses, including clinical and manufacturing costs, along with employee compensation and consulting costs incurred to support regulatory submissions and preparation for the commercial launch of TYMLOS in the United States. The $ 19.9 million net non-cash adjustments to reconcile net loss to net cash used in operations included stock-based compensation expense of $ 18.7 million , amortization of premiums on marketable securities of $ 0.8 million and depreciation of $ 0.4 million .

Cash Flows from Investing Activities

Net cash provided by investing activities during the nine months ended September 30, 2017 was $ 41.1 million , which was primarily the result of $ 117.4 million of purchases of marketable securities and $8.7 million payments for capitalized milestones. These activities were partially offset by $ 170.2 million of net proceeds received from the sale or maturity of marketable securities.

Net cash provided by investing activities during the nine months ended September 30, 2016 was $ 139.5 million , which was primarily the result of $367.1 million of net proceeds received from the sale or maturity of marketable securities partially offset by $225.5 million of purchases of marketable securities.

Our investing cash flows will be impacted by the timing of purchases and sales of marketable securities. Because our marketable securities are primarily short-term in duration, we would not expect our operational results or cash flows to be significantly affected by a change in market interest rates.

Cash Flows from Financing Activities

Net cash provided by financing activities during the nine months ended September 30, 2017 was $ 314.4 million , which primarily consisted of $ 295.6 million of proceeds from our 3% Convertible Senior Notes due 2024, $ 16.2 million of proceeds received from exercises of stock options and $ 2.6 million received upon issuance of common stock under the Radius Health, Inc. 2016 Employee Stock Purchase Plan.

Net cash provided by financing activities during the nine months ended September 30, 2016 consisted of $2.4 million of proceeds received from the exercise of stock options.

Borrowings and Other Liabilities

In August 2017, we issued $300.0 million aggregate principal amount of Convertible Notes, as discussed in more detail in Note 15, “Convertible Notes Payable,” to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q. We received net proceeds of approximately $290.8 million from the sale of the Convertible Notes, after deducting fees and expenses of $9.2 million . In addition, on September 12, 2017, we issued an additional $5.0 million aggregate principal amount of the Convertible Notes pursuant to the exercise of an over-allotment option granted to the underwriters in the offering. We received net proceeds of approximately $4.8 million from the sale of the over-allotment option, after deducting fees and expenses of $0.2 million .

Future minimum payments on our long-term debt as of September 30, 2017 were as follows (in thousands):

Years ended December 31,		Future Minimum Payments
2017	$	—
2018		9,582
2019		9,150
2020		9,150
2021		9,150
2022 and Thereafter	$	332,450
Total minimum payments	$	369,482
Less: interest		(64,482)
Less: unamortized discount		(142,241)
Less: current portion		—
Long Term Debt	$	162,759

Contractual Obligations

Supply and Manufacturing Agreements

In June 2016, we entered into a supply agreement with Ypsomed AG ("Ypsomed"), pursuant to which Ypsomed agreed to supply commercial and clinical supplies of a disposable pen injection device ("Device"), customized for subcutaneous injection of TYMLOS. We agreed to purchase a minimum number of Devices at prices per Device that decrease with an increase in quantity supplied. In addition, we agreed to make milestone payments for Ypsomed’s capital developments in connection with the initiation of the commercial supply of the Device and to pay a one-time capacity fee. All costs and payments under the agreement are delineated in Swiss Francs. The agreement has an initial term of three years from the earlier of the date of delivery of the first commercial Devices for regulatory approval and June 1, 2017, after which, it automatically renews for two-year terms until terminated. During the initial term of the agreement, we estimate that we will be obligated to make total minimum payments to Ypsomed of approximately CHF 3.9 million ($ 4.0 million) in the aggregate, including the milestone payments and one-time capacity fee.

In June 2016, we entered into a commercial supply agreement with Vetter Pharma International, GmbH ("Vetter"), pursuant to which Vetter agreed to formulate the finished TYMLOS drug product containing the active pharmaceutical ingredient ("API"), of TYMLOS, to fill cartridges with the drug product, to assemble the pen delivery device, and to package and label the pen for commercial distribution. We agreed to purchase the cartridges and pens in specified batch sizes at a price per unit. For labeling and packaging services, we agreed to pay a per unit price dependent upon the number of pens loaded with cartridges that are labeled and packaged. These prices are subject to an annual price adjustment. The agreement has an initial term of five years, which began on January 1, 2016, after which, it automatically renews for two-year terms unless either party provides notice of non-renewal two years before the end of the then-current term. There are no minimum purchase requirements under the terms of this contract.

In July 2016, we entered into a manufacturing services agreement with Polypeptide Laboratories Holding AB ("PPL"), as successor-in-interest to Lonza Group Ltd., pursuant to which PPL agreed to manufacture the commercial and clinical supplies of the API for TYMLOS. We agreed to purchase the API in batches at a price per gram in euros, subject to an annual increase by PPL. We also agreed to purchase a minimum number of batches annually. The agreement has an initial term of a six years, after which, it automatically renews for three-year terms unless either party provides notice of non-renewal 24 months before the end of the then-current term.

Research and Development Agreements

Abaloparatide-SC Phase 3 Clinical Trial

In February 2013, we contracted with Nordic Bioscience Clinical Development VII A/S ("Nordic"), to conduct our Phase 3 clinical trial of abaloparatide-SC, or the Phase 3 Clinical Trial. Nordic also agreed to perform an extension study to evaluate six months of standard-of-care osteoporosis management following the completion of the Phase 3 Clinical Trial ("Extension Study"), and, upon completion of this initial six months, an additional period of 18 months of standard-of-care osteoporosis management ("Second Extension").

In April 2015, we contracted with Nordic to perform additional services, including monitoring of patients enrolled in the Second Extension. Payments in cash to be made to Nordic for these additional services are denominated in euro and total up to approximately € 4.1 million (approximately $ 4.3 million).

Payments in cash to be made to Nordic for the services related to the Extension Study and the Second Extension are denominated in both euros and U.S. dollars and total up to € 11.9 million (approximately $ 12.5 million) and $ 1.1 million , respectively. As of December 31, 2016 , the last patient's final visit in the Second Extension had occurred and all obligations due to Nordic in relation to the Extension Study have been paid.

License Agreement Obligations

TYMLOS (abaloparatide)

In September 2005, we entered into a license agreement with Ipsen, as amended, or the License Agreement, under which we exclusively licensed certain Ipsen compound technology and related patents covering abaloparatide to research, develop, manufacture and commercialize certain compounds and related products in all countries, except Japan (where we have an option to negotiate a co-promotion agreement for abaloparatide-SC with Teijin) and France (where our commercialization rights were subject to certain co-marketing and co-promotion rights exercisable by Ipsen, provided that certain conditions included in the License Agreement were met). We believe that Ipsen's co-marketing and co-promotion rights in France have permanently expired. Ipsen also granted us an exclusive right and license under the Ipsen compound technology and related patents to make and have made compounds or product in Japan. Ipsen further granted us an exclusive right and license under certain Ipsen formulation technology and related patents solely for purposes of enabling us to develop, manufacture and commercialize compounds and products covered by the compound technology license in all countries, except Japan and France (as discussed above).

In consideration for the rights to abaloparatide and in recognition of certain milestones having been met to date, we have paid to Ipsen an aggregate amount of $13.0 million . The License Agreement further requires us to make payments upon the achievement of certain future regulatory and commercial milestones. Total additional milestone payments that could be payable under the agreement are € 24.0 million (approximately $28.4 million). In connection with the FDA's approval of TYMLOS in April 2017, we paid Ipsen a milestone of €8.0 million (approximately $8.7 million) under the License Agreement, which we have recorded as an intangible asset and will amortize over the remaining patent life or the estimated useful life of the underlying product, whichever is shorter. The agreement also provides that we will pay to Ipsen a fixed five percent royalty based on net sales of the product by us or our sublicensees on a country-by-country basis until the later of the last to expire of the licensed patents or for a period of 10 years after the first commercial sale in such country. The date of the last to expire of the abaloparatide patents licensed from or co-owned with Ipsen, barring any extension thereof, is expected to be March 26, 2028.

If we sublicense abaloparatide to a third party, the agreement provides that we would pay a percentage of certain payments received from such sublicensee (in lieu of milestone payments not achieved at the time of such sublicense). The applicable percentage is in the low double-digit range. In addition, if we or our sublicensees commercialize a product that includes a compound discovered by us based on or derived from confidential Ipsen know-how, the agreement provides that we would pay to Ipsen a fixed low single digit royalty on net sales of such product on a country-by-country basis until the later of the last to expire of our patents that cover such product or for a period of 10 years after the first commercial sale of such product in such country.

The License Agreement expires on a country-by-country basis on the later of (1) the date the last remaining valid claim in the licensed patents expires in that country, or (2) a period of 10 years after the first commercial sale of the licensed products in such country, unless it is sooner terminated in accordance with its terms.

Prior to executing the License Agreement for abaloparatide with Radius, Ipsen licensed the Japanese rights for abaloparatide to Teijin. Teijin has initiated a Phase 3 clinical study of abaloparatide-SC in Japan for the treatment of postmenopausal osteoporosis. We have an option to negotiate a co-promotion agreement with Teijin for abaloparatide-SC in Japan and we maintain full global rights to our development program for abaloparatide-TD.

We are currently in arbitration proceedings with Ipsen in connection with the License Agreement. See “Legal Proceedings” for more information.

Elacestrant (RAD1901)

In June 2006, we entered into a license agreement ("Eisai Agreement"), with Eisai Co. Ltd. ("Eisai"). Under the Eisai Agreement, Eisai granted to us an exclusive right and license to research, develop, manufacture and commercialize elacestrant (RAD1901) and related products from Eisai in all countries, except Japan. In consideration for the rights to elacestrant, we paid Eisai an initial license fee of $0.5 million, which was expensed during 2006. In March 2015, we entered into an amendment to the Eisai Agreement, or the "Eisai Amendment," in which Eisai granted to us the exclusive right and license to research, develop, manufacture and commercialize elacestrant in Japan. In consideration for the rights to elacestrant in Japan, we paid Eisai an initial license fee of $ 0.4 million upon execution of the Eisai Amendment, which was recognized as research and development expense in 2015. The Eisai Amendment, as amended, also provides for additional payments of up to $ 22.3 million , payable upon the achievement of certain future clinical and regulatory milestones.

Under the Eisai Agreement, as amended, should a product covered by the licensed technology be commercialized, we will be obligated to pay to Eisai royalties in a variable mid-single digit range based on net sales of the product on a country-by-country basis. The royalty rate will be reduced, on a country-by-country basis, at such time as the last remaining valid claim in the licensed patents expires, lapses or is invalidated and the product is not covered by data protection clauses. In addition, the royalty rate will be reduced, on a country-by-country basis, if, in addition to the conditions specified in the previous sentence, sales of lawful generic versions of such product account for more than a specified minimum percentage of the total sales of all products that contain the licensed compound during a calendar quarter. The latest licensed patent is expected to expire, barring any extension thereof, on August 18, 2026.

The Eisai Agreement, as amended, also grants us the right to grant sublicenses with prior written approval from Eisai. If we sublicense the licensed technology to a third party, we will be obligated to pay Eisai, in addition to the milestones referenced above, a fixed low double-digit percentage of certain fees received from such sublicensee and royalties in the low single digit range based on net sales of the sublicensee. The Eisai Agreement expires on a country-by-country basis on the later of (1) the date the last remaining valid claim in the licensed patents expires, lapses or is invalidated in that country, the product is not covered by data protection clauses, and the sales of lawful generic versions of the product account for more than a specified percentage of the total sales of all pharmaceutical products containing the licensed compound in that country; or (2) a period of 10 years after the first commercial sale of the licensed products in such country, unless it is sooner terminated.

Teijin Limited

In July 2017, we entered into a license and development agreement with Teijin for abaloparatide-SC in Japan. Teijin is developing abaloparatide-SC in Japan under an agreement with Ipsen and has initiated a Phase 3 trial in Japanese patients with osteoporosis. Pursuant to the Teijin Agreement, we granted Teijin (i) an exclusive payment bearing license under certain of our intellectual property to develop and commercialize abaloparatide-SC in Japan, (ii) a non-exclusive payment bearing license under certain of our intellectual property to manufacture abaloparatide-SC for commercial supply in Japan, (iii) a right of reference to certain of our regulatory data related to abaloparatide-SC for purposes of developing, manufacturing and commercializing abaloparatide-SC in Japan, (iv) a manufacture transfer package, upon Teijin’s request, consisting of information and the Company’s know-how that is necessary for the manufacture of active pharmaceutical ingredient and abaloparatide-SC, (v) an obligation, at Teijin’s request, to manufacture (or arrange for a third party to manufacture) and supply (or arrange for a third party to supply) the active pharmaceutical ingredient for the clinical supply of abaloparatide-SC in sufficient quantities to enable Teijin to conduct its clinical trials in Japan, and (vi) an obligation, at Teijin’s request, to arrange for Teijin to directly enter into commercial supply agreements with the Company’s existing contract manufacturers on the same pricing terms and on substantially similar commercial terms to those set forth in the Company’s existing agreements with such contract manufacturers.

In consideration for these rights, we received an upfront payment of $10.0 million . The Teijin Agreement also provides for additional payments to us of up to an aggregate of $40.0 million upon the achievement of certain regulatory and sales milestones, and requires Teijin to pay us a fixed low double-digit royalty based on net sales of abaloparatide-SC in Japan during the royalty term, as defined below. In addition, we have an option to negotiate a co-promotion agreement with Teijin for abaloparatide-SC in Japan.

Teijin granted us (i) an exclusive license under certain of Teijin’s intellectual property to develop, manufacture and commercialize abaloparatide-SC outside Japan and (ii) a right of reference to certain of Teijin’s regulatory data related to abaloparatide-SC for purposes of developing, manufacturing and commercializing abaloparatide-SC outside Japan. We maintain full global rights to its development program for abaloparatide-TD, which is not part of the Teijin Agreement. Pursuant to the Teijin Agreement, the parties may further collaborate on new indications for abaloparatide-SC.

Unless earlier terminated, the Teijin Agreement expires on the later of the (i) date on which the use, sale or importation of abaloparatide-SC is no longer covered by a valid claim under our patent rights licensed to Teijin in Japan, (ii) expiration of marketing or data exclusivity for abaloparatide-SC in Japan, or (iii) 10 th anniversary of the first commercial sale of abaloparatide-SC in Japan.

Net Operating Loss Carryforwards

As of December 31, 2016 , we had federal and state net operating loss carryforwards of approximately $ 526.7 million and $ 385.3 million , respectively, subject to limitation, as described below. If not utilized, the net operating loss carryforwards will expire at various dates through 2036.

Under Section 382 of the Internal Revenue Code of 1986, or Section 382, substantial changes in our ownership may limit the amount of net operating loss carryforwards that could be used annually in the future to offset taxable income. We have completed studies through December 31, 2015, to determine whether any ownership change has occurred since our formation and have determined that transactions have resulted in two ownership changes, as defined under Section 382. There could be additional ownership changes in the future that could further limit the amount of net operating loss and tax credit carryforwards that we can utilize.

A full valuation allowance has been recorded against our net operating loss carryforwards and other deferred tax assets, as the realization of the deferred tax asset is uncertain. As a result, we have not recorded any federal or state income tax benefit in our statement of operations.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements or any relationships with unconsolidated entities of financial partnerships, such as entities often referred to as structured finance or special purpose entities.

New Accounting Standards

See Note 2 - *Basis of Presentation and Significant Accounting Policies - Accounting Standards Updates* in the accompanying unaudited condensed consolidated financial statements in this Quarterly Report for a discussion of new accounting standards.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

We are exposed to market risk related to changes in the dollar/euro and dollar/Swiss franc exchange rates because a portion of our development and costs of goods expenses are denominated in foreign currencies. We do not hedge our foreign currency exchange rate risk. However, an immediate 10% adverse change in the dollar/euro or dollar/Swiss Franc exchange rate would not have a material effect on our financial results.

We are exposed to market risk related to changes in interest rates. As of September 30, 2017 , we had cash, cash equivalents and short-term marketable securities of $ 468.1 million , consisting of cash, money market funds, domestic corporate debt securities, domestic corporate commercial paper, and asset-backed securities. This exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our investments are in marketable securities. Because our marketable securities are short-term in duration, and have a low risk profile, an immediate 10% change in interest rates would not have a material effect on the fair market value of our portfolio. We generally 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 a change in market interest rates on our investments. We carry our investments based on publicly available information. As of September 30, 2017 , we do not have any hard-to-value investment securities or securities for which a market is not readily available or active.

We are not subject to significant credit risk as this risk does not have the potential to materially impact the value of our assets and liabilities.

Item 4. Controls and Procedures.

Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective as of September 30, 2017 .

Changes in Internal Control over Financial Reporting

We consider the accounting for our net product revenue from sales of TYMLOS in the United States to be material to the results of operations for the three months ended September 30, 2017 , and believe that the additional internal controls and procedures relating to the accounting for net product revenues, as well as adoption of Topic 606 in connection therewith, and related commercial inventory, have a material effect on our internal control over financial reporting. During the quarter ended September 30, 2017, there were no further changes in our internal controls over financial reporting. See Note 2, "Basis of Presentation and Significant Accounting Policies" to our unaudited condensed consolidated financial statements contained in this Quarterly Report on Form 10-Q for further details.

PART II— OTHER INFORMATION

Item 1. Legal Proceedings.

In November 2016, we received notice that in October 2016, Ipsen had initiated arbitration proceedings against us in the International Chamber of Commerce's International Court of Arbitration. Ipsen's Request for Arbitration alleged that we breached various provisions of the License Agreement concerning abaloparatide, including with regard to Ipsen's right to co-promote abaloparatide in France and a license from us with respect to Japan. Ipsen is seeking declaratory relief, compliance with the License Agreement, damages, costs and fees as a result of the purported breaches, and has alleged the monetary value of these claims is approximately €50 million.

In January 2017, we submitted an Answer denying Ipsen's claims and alleging counterclaims against Ipsen for breach of the License Agreement and other declaratory judgment. We asserted, among other things, that Ipsen's claimed rights to co-promote abaloparatide in France and to a license from us with respect to Japan have permanently expired, and that Ipsen has breached the License Agreement by, among other things, allowing certain patents to expire and by purporting to license to a third party certain manufacturing and other rights that we contend Ipsen exclusively licensed to us. We are seeking dismissal of Ipsen's claims, as well as declaratory relief, compliance with the License Agreement, and other damages, costs and fees to be determined by the Arbitral Tribunal.

In February 2017, Ipsen submitted a Reply denying our counterclaims and alleging that we are precluded from asserting them. Following a preliminary hearing before the Arbitral Tribunal to determine certain jurisdictional and contractual defenses asserted by Ipsen in its Reply, on July 17, 2017, the Arbitral Tribunal issued a decision finding it has jurisdiction to decide our counterclaims and that our counterclaims are not contractually barred.

On July 31, 2017, Ipsen submitted its Statement of Claim to the Arbitral Tribunal and on September 14, 2017 Radius submitted its Statement of Defense and Counterclaims. Subsequently, on October 20, 2017, Ipsen submitted its Reply and Statement of Defense to Radius's Counterclaims to the Arbitral Tribunal. The arbitration proceeding is continuing and following additional briefing a hearing on the merits is anticipated to be held in December 2017. Given that this matter is at a preliminary stage, we cannot predict or assess the likely outcome of these proceedings.

Item 1A. Risk Factors.

Our business faces significant risks and uncertainties. Certain important factors may have a material adverse effect on our business prospects, financial condition and results of operations, and you should carefully consider them. Accordingly, in evaluating our business, we encourage you to carefully consider the discussion of risk factors in Part II, "Item 1A. Risk Factors" in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, which could materially affect our business, financial condition or future results, in addition to other information contained in or incorporated by reference into this Quarterly Report on Form 10-Q and our other public filings with the Securities and Exchange Commission, or the SEC.

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

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

None.

Item 5. Other Information.

None.

Item 6. Exhibits.

A list of exhibits is set forth on the Exhibit Index immediately following the signature page of this Quarterly Report on Form 10-Q, and 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.

RADIUS HEALTH, INC.

By: /s/ Jesper Høiland

Jesper Høiland

President and Chief Executive Officer
(Principal Executive Officer)

Date: November 2, 2017

By: /s/ Jose Carmona

Jose Carmona
Chief Financial Officer
(Principal Accounting and Financial Officer)

Date: November 2, 2017

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed/ Furnished Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Restated Certificate of Incorporation, filed on June 11, 2014	8-K	001-35726	3.1	6/13/2014	
3.2	Amended and Restated By-Laws	8-K	001-35726	3.2	6/13/2014	
10.1 †	License and Development Agreement, dated July 13, 2017, between the Company and Teijin Limited					*
10.2	Agreement and General Release, dated July 16, 2017, between the Company and Robert Ward	8-K	001-35726	10.3	7/17/2017	
10.3	Employment Inducement Stock Option Agreement, dated July 17, 2017, between the Company and Jesper Høiland	8-K	001-35726	10.2	7/17/2017	
10.4	Amended and Restated First Amendment to Sublease, dated August 1, 2017, between the Company and Rovi Corporation					*
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a)/15d-14(a)					*
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rule 13a-14(a)/15d-14(a)					*
32.1	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					**
101.INS	XBRL Instance Document					*
101.SCH	XBRL Taxonomy Extension Schema Document					*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					*

* Filed herewith.

** Furnished herewith.

† Confidential treatment has been requested with respect to certain portions of this exhibit, which portions have been filed separately with the Securities and Exchange Commission.

Execution Copy **Exhibit 10.1**

CONFIDENTIAL TREATMENT REQUESTED BY RADIUS HEALTH, INC.

LICENSE AND DEVELOPMENT AGREEMENT

DATED AS OF July 13, 2017

BY AND BETWEEN

RADIUS HEALTH , INC.

AND

TEIJIN LIMITED

[*] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

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TABLE OF CONTENTS
(continued)

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LICENSE AND DEVELOPMENT AGREEMENT

This License and Development Agreement (this **"Agreement"**), dated as of July 13, 2017 (the **"Effective Date"**), is made by and between Radius Health, Inc., a Delaware corporation (**"Radius"**), and Teijin Limited, a company organized and existing under the laws of Japan (**"Teijin"**). Radius and Teijin are sometimes referred to herein individually as a **"Party"** and collectively as the **"Parties** . **"**

RECITALS

WHEREAS , SOCIETE DE CONSEILS, DE RECHERCHES ET D'APPLICATIONS SCIENTIFIQUES, a company organised and existing under the laws of France, having its registered office at 42, rue du Docteur Blanche, 75016 PARIS and Teijin entered into the Collaboration and Development Agreement in Japan on July 1, 2003 (the " **Original Teijin Agreement** "), under which Teijin obtained, among other things, the exclusive rights to market, sell, distribute and promote abaloparatide in Japan;

WHEREAS , Teijin Pharma Limited (" **Teijin Pharma** "), a wholly owned subsidiary of Teijin, succeeded to Teijin's medical and pharmaceutical business and all rights and obligations undertaken by Teijin under the Original Teijin Agreement on October 1, 2003;

WHEREAS , Ipsen Pharma S.A.S. (formerly known as "SCRAS SAS"), a company organized and existing under the laws of France, having its registered office at 65 Quai Georges Gorse 92100 Boulogne Billancourt (" **Ipsen** "), and Radius entered the License Agreement on September 27, 2005, as amended (the " **Existing Radius Agreement** "), under which Radius obtained, among other things, the exclusive rights to develop, manufacture and commercialize Licensed Compound and Licensed Product (as such terms are defined in the Existing Radius Agreement) for all countries excluding Japan, as well as exclusive manufacturing rights within Japan;

WHEREAS , Ipsen and Teijin Pharma entered into the Second Collaboration and Development Agreement in Japan on January 5, 2011, as amended (the " **Existing Teijin Agreement** "), replacing the Original Teijin Agreement;

WHEREAS , due to an internal reorganization within the Teijin group of companies, Teijin Pharma assigned the Existing Teijin Agreement to Teijin as of October 1, 2012, with the written consent of Ipsen;

WHEREAS , Teijin sublicensed its rights under the Existing Teijin Agreement to Teijin Pharma so that Teijin Pharma may continue to perform and fulfill its obligations under the Existing Teijin Agreement;

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WHEREAS , Radius has developed and is currently further developing Abalo-SC for the treatment of postmenopausal women with osteoporosis (the **"Existing Indication"**);

WHEREAS , Radius's NDA Filing for Abalo-SC was approved by the FDA on April 28, 2017;

WHEREAS , Radius has the exclusive rights under the Existing Radius Agreement to, among other things, develop, manufacture and distribute Abalo-SC outside Japan;

WHEREAS , Teijin has the exclusive rights under the Existing Teijin Agreement to, among other things, market, sell, distribute and promote Abalo-SC in Japan;

WHEREAS , Teijin has completed a phase 2 clinical trial of Abalo-SC in Japan and desires to conduct a phase 3 clinical trial of Abalo-SC utilizing Radius Know-How and Radius Patent Rights with the goal of seeking and obtaining Regulatory Approval for Abalo-SC in Japan; and

WHEREAS , Radius and Teijin desire, among other things, to establish a collaborative framework for the further development and commercialization of Abalo-SC by Radius outside Japan and by Teijin in Japan.

NOW THEREFORE , in consideration of the foregoing premises and the mutual promises, covenants and conditions contained in this Agreement, the Parties agree as follows:

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Article 1
DEFINITIONS

As used in this Agreement, the following initially capitalized terms shall have the meanings set forth in this Article 1 or as otherwise defined elsewhere in this Agreement. The Recitals above are incorporated herein by reference:

1.1 " **Abalo-SC** " means a Licensed Product in a subcutaneous formulation utilizing an injector pen.

1.2 **"Affiliate"** means any Person directly or indirectly controlled by, controlling or under common control with, a Party, but only for so long as such control shall continue. For purposes of this definition, "control" (including, with correlative meanings, "controlled by", "controlling" and "under common control with") shall exist with respect to a Person in the event of the possession, direct or indirect, of (i) the power to direct or cause the direction of the management and policies of such Person (whether through ownership of securities, by contract or otherwise), or (ii) at least fifty percent (50%) of the voting securities or other comparable equity interests. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and that in such case, such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct or cause the direction of the management and policies of such Person. For the avoidance of doubt, neither of the Parties shall be deemed to be an "Affiliate" of the other.

1.3 **"Commercialize", "Commercializing"** or **"Commercialization"** means all activities directed to the marketing, promotion, selling or offering for sale of a product for an indication, including planning, market research, Pre-Marketing, advertising, educating, marketing, promoting, importing, exporting, distributing and post-marketing safety surveillance and reporting. For clarity, "Commercialization" shall not include any activities related to Manufacturing or Development of such product.

1.4 **"Control"** means, when used in reference to intellectual property, other intangible property, or materials that a Party owns or has a license or sublicense to such intellectual property, other intangible property or materials, and has the ability to grant a license or sublicense or other right to use such intellectual property, other intangible property or materials, as applicable, as provided for herein, without (i) requiring the consent of a Third Party or (ii) violating the terms of any agreement or other arrangement with any Third Party.

1.5 **"Cover(ed)"** means, with respect to any Patent and the subject matter at issue, that, but for a license granted under a Valid Claim of such Patent, the manufacture, development, use, sale, offer for sale or importation of the subject matter at issue would infringe such Valid Claim, or, in the case of a Patent that is a patent application, would infringe a Valid Claim in such patent application if it were to issue as a patent.

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1.6 "Develop" , " **Developing"** or **"Development"** means all activities relating to research, non-clinical, preclinical and clinical trials, toxicology testing, statistical analysis and reporting, preparation and submission of applications for Regulatory Approval of a product, necessary or reasonably useful for or otherwise requested or required by a Regulatory Authority as a condition of or in support of obtaining or maintaining Regulatory Approvals for such product.

1.7 "Development Activities" means those Development activities undertaken by or on behalf of Teijin or its Affiliates with respect to Abalo-SC consistent with Teijin's rights and obligations under this Agreement and the Existing Teijin Agreement.

1.8 " **Development Results** " has the meaning ascribed in the Existing Teijin Agreement.

1.9 "Dollar" means a U.S. dollar, and "$" shall be interpreted accordingly.

1.10 "EMA" means the European Medicines Agency or any successor agency.

1.11 " **Existing Indication** " has the meaning ascribed in the Recitals to this Agreement.

1.12 "FDA" means the United States of America Food and Drug Administration or any successor agency.

1.13 "FD&C Act" means the U.S. Federal Food, Drug and Cosmetic Act, as amended, and the regulations promulgated thereunder.

1.14 " **Field** " means, as the context requires, (a) with respect to Radius, the treatment in humans of [*] and (b) with respect to Teijin, the treatment in humans of [*] and any new Indication that the Parties have jointly Developed pursuant to Section 4.1.1.

1.15 "First Commercial Sale" means, with respect to Abalo-SC, the first sale of such Licensed Product in (a) Japan by or on behalf of Teijin, its Affiliates or sublicensees to a Third Party, after receipt of Regulatory Approval (including Pricing Approval, to the extent required for sale of Abalo-SC in Japan, and any necessary labeling negotiations that may be required after Regulatory Approval and such Pricing Approval) for Abalo-SC in Japan and (b) any given country or regulatory jurisdiction outside Japan by or on behalf of Radius, its Affiliates or sublicensees to a Third Party, after receipt of Regulatory Approval (including Pricing Approval, to the extent required for sale of Abalo-SC outside Japan, and any necessary labeling negotiations that may be required after Regulatory Approval and such Pricing Approval) for Abalo-SC in such country or regulatory jurisdiction.

1.16 "Fiscal Year" means the period of twelve consecutive months from April 1 st until the following March 31 st .

1.17 " **Force Majeure** " means circumstances beyond the reasonable control of either Party, including acts of God, fires, explosions, earthquakes, floods, droughts, epidemics, riots, acts of terrorism, wars, civil disturbances, sabotage, cyber-attacks, accidents, strikes or other

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labor disputes, unforeseen material shortages or supplier failures, substantial changes in applicable Laws promulgated by any applicable Governmental Authority or Regulatory Authority which significantly adversely affect the performance of a Party's obligations under this Agreement or any other event or circumstance of the like of different character to the foregoing beyond the reasonable control and without the fault or negligence of a Party.

1.18 " **FTE"** means a full time equivalent person year (consisting of a total of one thousand eight hundred (1800) hours per year).

1.19 **"Generic Licensed Product"** means, with respect to Abalo-SC, any pharmaceutical product sold by a Third Party, other than as a sublicensee to this Agreement, that is approved by the Regulatory Authority in Japan as a substitutable generic for Abalo-SC and contains the active ingredients in Abalo-SC.

1.20 **"Global Pharmaceutical Company"** means a pharmaceutical company (i) ranked within the top [*] ([*]) pharmaceutical companies in [*] or ranked within the top [*] ([*]) pharmaceutical companies in [*] and (ii) having a commercial infrastructure in Japan in existence at the time of inquiry.

1.21 **"GMP"** means all applicable Good Manufacturing Practices including, (i) the applicable part of quality assurance to ensure that products are consistently produced and controlled in accordance with the quality standards appropriate for their intended use, as defined in European Commission Directive 2003/94/EC laying down the principals and guidelines of good manufacturing practice, (ii) the principles detailed in the U.S. Current Good Manufacturing Practices, 21 C.F.R. Sections 210, 211, 601 and 610, (iii) the Rules Governing Medicinal Products in the European Community, Volume IV Good Manufacturing Practice for Medicinal Products, (iv) the principles detailed the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use Q7A guidelines, (v) the Ministerial Ordinance Concerning the Standards for Manufacturing and Quality Control of Drugs and Quasi-Drugs (Ordinance of Ministry of Health, Labour and Welfare No.179, December 24, 2004) in Japan and (vi) other equivalent Laws in any relevant country, each as may be amended and applicable from time to time.

1.22 **"Governmental Authority"** means any multinational, federal, state, local, municipal or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal), including the FDA, EMA, Japanese Ministry of Health, Labour and Welfare (the " **MHLW** ") and, the PMDA, in each case, having jurisdiction over the applicable subject matter.

1.23 **"IND"** means an Investigational New Drug Application or equivalent application to FDA or an equivalent agency outside Japan or in Japan, as applicable, such as a clinical trial application or a clinical trial exemption, the filing of which is necessary to commence or conduct clinical testing of a pharmaceutical product in humans in such jurisdiction.

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1.24 **"Indication"** means a separate indication other than the Existing Indication.

1.25 " **Japanese Development Plan** " means that revised Phase 3 study protocol for Abalo-SC sent by Teijin to Radius on December 8, 2016 and the Development timelines for conduct of the study and submission for Regulatory Approval prepared by Teijin dated June 23, 2017 (**"Existing Japanese Development Plan"**) and any amended or updated version of such document.

1.26 **"Joint Commercialization Committee"** or **"JCC"** means the joint commercialization committee formed by the Parties as described in Section 3.7.

1.27 **"Joint Steering Committee"** or **"JSC"** means the joint steering committee formed by the Parties as described in Section 3.1.

1.28 **"Know-How"** means technical and other information, including information comprising or relating to concepts, discoveries, data, designs, formulae, ideas, inventions, methods, models, assays, research plans, procedures, designs for experiments and tests and results of experimentation and testing (including results of Development or other developments), formulations, processes (including manufacturing processes, specifications and techniques), laboratory records, chemical, pharmacological, toxicological, clinical, analytical and quality control data, trial data, case report forms, data analyses, reports, manufacturing data, pre-clinical data and summaries and information contained in submissions to, and information from, ethical committees and Regulatory Authorities, including documents containing any of the above.

1.29 **"Laws"** means all laws, statutes, rules, regulations, directives, decisions, ordinances, guidelines and other pronouncements of any Governmental Authority.

1.30 " **Licensed Compound** " means (i) abaloparatide (formerly known as BIM-44058) or (ii) any analog of abaloparatide.

1.31 " **Licensed Product** " means all formulations, dosage forms, and presentations (including vials and pre-filled syringes) of a product or pharmaceutical composition containing a Licensed Compound as a pharmaceutically active agent.

1.32 **"Licensed Product Approval"** means the approval of a Governmental Authority necessary for the marketing and sale of product in any given country or regulatory jurisdiction (but shall not include any Pricing Approvals).

1.33 **"Manufacture"** or **"Manufacturing"** means all activities related to the manufacturing of a product, or any ingredient thereof, including manufacturing for clinical use or commercial sale, in-process and product testing, release of product, quality control and assurance activities related to manufacturing and release of product, handling and storage of product and ongoing stability tests and regulatory activities, final labeling and packaging of product (whether in commercial or clinical packaging presentation), including insertion of materials such as patient inserts, patient medication guides, professional inserts and any other written, printed or

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graphic materials accompanying product, considered to be part of the finished product, and any other activities related to any of the foregoing.

1.34 "NDA Filing" means the New Drug Application filed on March 30, 2016 as a result of activities under the Existing Radius Agreement with the FDA, or the equivalent application to the equivalent Government Authority in any other country or regulatory jurisdiction, the filing of which is necessary to market and sell Abalo-SC, including all amendments and supplements to any of the foregoing.

1.35 "Net Sales" means the gross amount invoiced by or on behalf of Teijin or any of its Affiliates or sublicensees on account of sales of Abalo-SC, less the following deductions related to Abalo-SC, to the extent such deductions are actually paid or incurred, and are reasonable and customary:

(a) credits, refunds, or allowances for returned Abalo-SC;

(b) discounts, including cash, volume, quantity, and other trade discounts, charge-back payments, and rebates and allowances actually granted, incurred, or allowed in the ordinary course of business;

(c) excise, sales, consumption and other related taxes and customs duties to the extent included in the price and separately itemized on the invoice price (but specifically excluding, for clarity, any income taxes assessed against the income arising from such sale);

(d) outbound freight, shipment, storage, other transportation and insurance costs to the extent included in the price and separately itemized; and

(e) compulsory payments and rebates directly related to the sale of Abalo-SC paid to a Governmental Authority pursuant to governmental regulations by reason of any national or local health insurance program or similar program.

Any of the items set forth above that would otherwise be deducted from the invoice price in the calculation of Net Sales but which are separately charged to and paid by Third Parties shall not be deducted from the invoice price in the calculation of Net Sales.

For clarity, (i) Net Sales shall not be reduced by the amount of any commissions paid to individuals, whether they are associated with independent sales agencies or regularly employed by Teijin (or any agent, distributee, or designee thereof), or for a cost of collection or any other amount not specifically set forth in (a) through (e) above, and (ii) the amount of any discounts, rebates or allowances granted or taken with respect to the total sales to a customer for multiple products of Teijin (or any agent, distributee, or designee thereof) including Abalo-SC shall be deducted based on the proportion that the sales of such Abalo-SC bears to the total sales of all such Teijin products. In the case of any sale of Abalo-SC for value other than in an arm's length transaction exclusively for cash, such as barter or counter-trade, Net Sales shall be determined by

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referencing Net Sales at which substantially similar quantities of Abalo-SC are sold in an arm's length transaction for cash.

Teijin, its Affiliates and its sublicensees will sell Abalo-SC as a stand-alone product and will not sell Abalo-SC as part of a bundle with other products or offer package deals to customers that include Abalo-SC, except to the extent required to obtain sales contracts with government entities, and in such case, the price of Abalo-SC relevant for the calculation of Net Sales will be the [*] in the then current fiscal half year of Abalo-SC sold separately less the [*] of all prescription pharmaceutical products sold as part of the package.

Net Sales shall be determined from the books and records of Teijin and its Affiliates maintained in accordance with generally accepted accounting principles in Japan, consistently applied.

1.36 "Patents" means patents and patent applications and all substitutions, divisions, continuations, continuations-in-part, any patent issued with respect to any such patent applications, any reissue, reexamination, utility models or designs, renewal or extension (including any supplementary protection certificate) of any such patent, and any confirmation patent or registration patent or patent of addition based on any such patent, and all counterparts thereof in any country.

1.37 "Patent Rights" means all rights under any Patents in any country of the world.

1.38 " **Person** " means any corporation, limited or general partnership, limited liability company, joint venture, trust, unincorporated association, governmental body, authority, bureau or agency, any other entity or body, or an individual.

1.39 " **PMDA** " means the Pharmaceuticals and Medical Devices Agency, or any successor agency.

1.40 " **Pre-Marketing** " means all sales and marketing activities undertaken prior to and in preparation for the launch of a product in any country or regulatory jurisdiction, and shall include market research, key opinion leader development, advisory boards, medical education, disease-related public relations, health care economic studies, sales force training and other pre-launch activities prior to the First Commercial Sale of such product in such country or regulatory jurisdiction.

1.41 "Pricing Approval" means the first approval, agreement, determination or decision from a Governmental Authority establishing the price and/or reimbursement for a product for sale in any given country or regulatory jurisdiction, as required by applicable Law in such country or regulatory jurisdiction prior to the sale of such product in such country or regulatory jurisdiction.

1.42 " **Publication** " means any publication in a scientific journal, any abstract to be presented to any scientific audience, any presentation at any scientific conference, including slides and texts of oral or other public presentations, any other scientific presentation and any

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other oral, written or electronic disclosure or such other public disclosure directed to a scientific audience which pertains to Abalo-SC or the use of Abalo-SC.

1.43 "Radius Know-How" means all Know-How, existing as of the Effective Date, (A) that is Controlled by Radius, but not including any Know-How licensed to Radius by Ipsen under the Existing Radius Agreement, and (B) that is necessary or useful to the Development, Manufacture, Commercialization or use of Abalo-SC.

1.44 "Radius Patent Rights" means the issued Patent Rights, existing as of the Effective Date, that are (A) Controlled by Radius and (B) (i) necessary or useful for the Development or Commercialization of Abalo-SC in Japan and listed on Section A of Schedule 1.44 or (ii) necessary or useful for the Manufacture of Abalo-SC anywhere in the world for purposes of Development or Commercialization of Abalo-SC in Japan and listed on Section B of Schedule 1.44 .

1.45 "Regulatory Approvals" means all necessary approvals (including INDs, Licensed Product Approvals for Abalo-SC, Pricing Approvals and, in each case any supplements and amendments thereto), licenses, registrations or authorizations of any Regulatory Authority or Governmental Authority necessary for the manufacture, distribution, use, promotion and sale of Abalo-SC in any given country or regulatory jurisdiction.

1.46 "Regulatory Authority" means any applicable Governmental Authority involved in granting Regulatory Approval in any country or regulatory jurisdiction.

1.47 "Regulatory Data" means any and all research data, pharmacology data, chemistry, manufacturing and control data, preclinical data, clinical data and all other documentation submitted, or required to be submitted, to Regulatory Authorities in association with regulatory filings for Abalo-SC (including any applicable Drug Master Files, Chemistry, Manufacturing and Control data, or similar documentation).

1.48 "Regulatory Exclusivity" means any exclusive marketing rights or data exclusivity rights conferred by any Governmental Authority in Japan with respect to Abalo-SC other than a Patent Right.

1.49 "Regulatory Materials" means regulatory applications, submissions, notifications, communications, correspondence, registrations, Regulatory Approvals and/or other filings made to, received from or otherwise conducted with a Regulatory Authority that are necessary in order to Develop, Manufacture, market, sell or otherwise Commercialize Abalo-SC in any given country or regulatory jurisdiction. Regulatory Materials include INDs, NDA Filings, presentations, responses, and applications for Licensed Product Approvals of Abalo-SC.

1.50 "Royalty Term" means, with respect to the Commercialization of Abalo-SC in Japan, the period of time beginning on the First Commercial Sale of Abalo-SC in Japan and ending upon the later to occur of: (i) the date on which the use, sale, offer for sale, or importation of Abalo-SC is no longer Covered by a Valid Claim in Japan, (ii) the expiration of all Regulatory

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Exclusivity in Japan, or (iii) the tenth (10 th) anniversary of the First Commercial Sale of Abalo-SC in Japan.

1.51 " **Safety Agreement** " means that certain Safety Agreement by and between Radius (on behalf of Ipsen) and Teijin dated November 30, 2007, as amended.

1.52 **"Teijin Know-How"** means all Know-How (A) that is Controlled by Teijin and (B) that is necessary or useful to the Development, Manufacture, Commercialization or use of Abalo-SC.

1.53 **"Teijin Patent Rights"** means all issued Patent Rights existing as of the Effective Date that are (A) Controlled by Teijin and (B) necessary or useful to the Development, Manufacture, Commercialization or use of Abalo-SC.

1.54 **"Third Party"** means any Person other than Radius or Teijin or their respective Affiliates.

1.55 **"U.S."** means the United States of America and its possessions and territories.

1.56 **"Valid Claim"** means a claim of the Radius Patent Right that Covers Abalo-SC that (i) has not been rejected, revoked or held to be invalid or unenforceable by a court or other authority of competent jurisdiction, from which decision no appeal can be further taken or (ii) has not been finally abandoned, disclaimed or admitted to be invalid or unenforceable through reissue or disclaimer.

Interpretation. Except where expressly stated otherwise in this Agreement, the following rules of interpretation apply to this Agreement: (a) "include", "includes" and "including" are not limiting; (b) "hereof", "hereto", "herein" and "hereunder" and words of similar import when used in this Agreement refer to this Agreement as a whole and not to any particular provision of this Agreement; (c) words of one gender include the other gender; (d) words using the singular or plural number also include the plural or singular number, respectively; (e) references to a contract or other agreement mean such contract or other agreement as from time to time amended, modified or supplemented; (f) references to a Person are also to its permitted successors and assigns; (g) references to an "Article", "Section", "Exhibit" or "Schedule" refer to an Article or Section of, or an Exhibit or Schedule to, this Agreement, unless expressly stated otherwise; and (h) references to a law include any amendment or modification to such law and any rules and regulations issued thereunder, whether such amendment or modification is made, or issuance of such rules and regulations occurs, before or after the date of this Agreement.

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

Term	Section
"Abandoned Joint Inventions"	7.2.3(a)

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"Abandoned Joint Patent Rights"	7.2.3(a)
"Agreement"	Preamble
"Anticipated RA Date"	2.2.3(a)
"API"	5.1
"Audit"	6.9
"Breaching Party"	11.2
"CD Notice"	4.1.1
"Co-Development Proposal"	4.1.1
"Co-Promotion Right"	2.2.3(a)
"Committee"	3.6
"Confidential Information"	10.1
"Disclosing Party"	10.1
"Effective Date"	Preamble
"Executive Officer"	13.2
"Existing Japanese Development Plan"	1.25
"Existing Radius Agreement"	Recitals
"Existing Teijin Agreement"	Recitals
"Generic Entry"	6.3.2
"ICC"	13.3
"Indemnification Claim Notice"	9.3.1
"Indemnified Party"	9.3.1
"Indemnifying Party"	9.3.1
"Indemnitee" and "Indemnitees"	9.3.1
"Information Package"	4.1.1
"Ipsen"	Recitals
"Joint Development Committee" or "JDC"	3.8
"Joint Inventions"	7.1.2
"Joint Patent Rights"	7.1.2
"Losses"	9.1
"MHLW"	1.22
"Original Teijin Agreement"	Recitals
"Party" or "Parties"	Preamble
"Proposing Party"	4.1.1
"Radius"	Preamble
"Receiving Party"	10.1
"Recovery"	7.3.4(c)(iii)
"Redacted Agreement"	10.5.2
" **Rejected Proposal** "	4.1.1
"Royalty Payments	6.3.1
"Sole Inventions"	7.1.2
"Sole Patent Rights"	7.1.2
"Supplier Agreements"	8.2.2
"Supply Cost"	5.1

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"Teijin"	Preamble
"Term"	11.1
"Third Party Claim"	9.1
"Upfront Payment"	6.1
"VAT"	6.5.1(a)

ARTICLE 2
LICENSES

2.1 Grant to Teijin.

2.1.1 General Grant to Teijin. Subject to the terms and conditions of this Agreement, Radius hereby grants to Teijin during the Term an exclusive (even as to Radius), payment-bearing license or sublicense, as applicable, under the Radius Know-How and Radius Patent Rights, to Develop and, subject to Section 2.2.3, Commercialize Abalo-SC in the Field in Japan.

2.1.2 Additional Grant to Teijin. Subject to the terms and conditions of this Agreement and the Existing Radius Agreement, Radius hereby grants to Teijin during the Term a non-exclusive, payment-bearing license or sublicense, as applicable, under the Radius Know-How and Radius Patent Rights, to Manufacture and have Manufactured anywhere in the world the commercial supply of API and Abalo-SC for the Field in Japan.

2.1.3 Teijin Right of Reference. Radius hereby grants Teijin (and its Affiliates and designees) a right of reference to all Regulatory Data and Regulatory Materials that are (a) (i) existing as of the Effective Date and relied upon by Radius to obtain the first Regulatory Approval of Abalo-SC in the first Indication in the Field by the FDA on April 28, 2017, (ii) existing as of the Effective Date and relied upon by Radius to obtain the first Regulatory Approval of Abalo-SC in the first Indication in the Field by the EMA, or (iii) generated in a preclinical or clinical trial by Radius after the Effective Date if such first Regulatory Approval in the first Indication in the Field by the FDA or the EMA was conditioned on or required the generation of such Regulatory Data and Regulatory Materials post-such Regulatory Approval (regardless of whether Radius is required to submit such Regulatory Data or Regulatory Materials to the EMA or FDA), and (b) Controlled by Radius (directly or indirectly), to Develop, Manufacture and Commercialize Abalo-SC in the Field in Japan.

2.1.4 Transfer of Manufacturing Know-How. Upon Teijin's request, Radius shall provide to Teijin a manufacture transfer package consisting of information and Radius Know-How in Radius' Control and possession that is necessary for the Manufacture of API and Abalo-SC as it is Manufactured in accordance with the first Regulatory Approval of Abalo-SC in the Field by the FDA. While the details concerning the specific Radius Know-How and information to be transferred from Radius to Teijin or Teijin's designated manufacturer as part of the manufacture transfer package will be discussed and agreed to through the JSC, in principle Radius will transfer to Teijin or Teijin's designated contract manufacturer(s) such Radius Know-How and information that Radius provided to the parties to the Supplier Agreements as of the Effective Date to enable such parties to Manufacture API and Abalo-SC for supply to Radius.

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2.1.5 Teijin Level of Efforts. Teijin shall use commercially reasonable efforts to Develop and Commercialize Abalo-SC in the Field in Japan. In order to fulfill its obligations Teijin shall have the right to determine the strategy for obtaining Regulatory Approvals for Abalo-SC in Japan in accordance with the Japanese Development Plan.

2.1.6 Conduct of Activities. Teijin acknowledges and agrees that it shall be responsible for all costs, payments and expenses related to the Development, Manufacture and Commercialization of Abalo-SC in Japan, including the costs, payments and expenses related to the performance of any other activities or obligations undertaken in accordance with the Existing Teijin Agreement. In the course of the Development and Commercialization of Abalo-SC in Japan, Teijin shall not use any employee that is debarred by the FDA under the Generic Drug Enforcement Act of 1992 (or by any analogous agency or under any analogous Law in Japan).

2.2 Grant to Radius.

2.2.1 General Grant to Radius. Subject to the terms and conditions of this Agreement, Teijin hereby grants to Radius during the Term an exclusive (even as to Teijin), royalty-free license or sublicense, as applicable, under the Teijin Know-How and Teijin Patent Rights, to Develop, Manufacture and Commercialize Abalo-SC in the Field, in all countries of the world other than Japan.

2.2.2 Radius Right of Reference. Teijin hereby grants Radius (and its Affiliates and designees) a right of reference to all Regulatory Data and Regulatory Materials that are (a) (i) relied upon by Teijin to obtain Regulatory Approval of Abalo-SC in the Field in Japan or (ii) generated in a preclinical or clinical trial by Teijin if such Regulatory Approval was conditioned on or required the generation of such Regulatory Data and Regulatory Materials post-such Regulatory Approval (regardless of whether Teijin is required to submit such Regulatory Data or Regulatory Materials to the PMDA or MHLW) and (b) Controlled by Teijin (directly or indirectly) to Develop, Manufacture and Commercialize Abalo-SC in the Field in all countries in the world other than Japan.

2.2.3 Grant of Co-Promotion Right to Radius.

(a) Teijin shall provide Radius with written notification of its good faith estimate of the anticipated date of Regulatory Approval of Abalo-SC in Japan (the **"Anticipated RA Date** ") at least [*] ([*]) months prior to such date and shall notify Radius in writing of any delays to the Anticipated RA Date. Upon written notification to Teijin at any time during the Term prior to the date that is [*] ([*]) months prior to the Anticipated RA Date plus the length of any extensions if the Anticipated RA Date is delayed and provided that Radius or its Affiliate will have, prior to commencement of co-promotion, either (i) established commercial capabilities in Japan [*] or delivered to Teijin a written plan at the same time as such notification setting forth in reasonable detail the commercial capabilities, including [*], that Radius intends to establish in Japan taking into consideration information provided by Teijin or discussions of the Parties as of that date or (ii) entered into a collaboration or license agreement or similar agreement with a Global Pharmaceutical Company pursuant to which such Global Pharmaceutical Company would perform co-promotion activities in Japan for Abalo-SC in the

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Field in Japan, Radius and Teijin shall negotiate in good faith the terms of a definitive agreement pursuant to which Teijin, together with its Affiliates, would grant to Radius (or its Affiliate or a Global Pharmaceutical Company) during the Term a co-exclusive, royalty-free, right and license to co-promote Abalo-SC with Teijin (or its Affiliate or a Third Party engaged by Teijin to provide medical representatives) in the Field in Japan (the " **Co-Promotion Right** "). The allocation of co-promotion responsibilities to such Global Pharmaceutical Company, if they are to be carried out by the Global Pharmaceutical Company, will reflect the Global Pharmaceutical Company's commercial presence in Japan and the allocation of co-promotion responsibilities to Radius, if Radius is to carry out co-promotion in Japan, will reflect the commercial capabilities that Radius will commit to establishing in accordance with the plan delivered to Teijin. For clarity, (A) any agreement that Radius may enter into with a Global Pharmaceutical Company regarding the Co-Promotion Right shall clearly provide that the Global Pharmaceutical Company will have no Co-Promotion Right or rights related thereto until Radius and Teijin enter into a definitive agreement regarding the Co-Promotion Right and any such rights that the Global Pharmaceutical Company may have will be subject to such definitive agreement, and (B) Radius may carry out co-promotion activities in accordance with such definitive agreement itself, through its Japanese Affiliate or through its Global Pharmaceutical Company designee.

(b) Upon receipt by Teijin of the notice sent by Radius pursuant to Section 2.2.3(a), the Parties shall meet within [*] ([*]) days to negotiate in good faith the terms and conditions of a definitive agreement regarding the Co-Promotion Right, including the manner in which each Party will be compensated for such efforts and any resulting changes to the terms and conditions of this Agreement. If, despite using good faith efforts, the Parties are unable to reach a definitive agreement regarding such terms and conditions with respect to the Co-Promotion Right [*] ([*]) days from the date Teijin receives notice from Radius, neither Party shall have any further rights or obligations with respect to the Co-Promotion Right and this Agreement shall continue in full force and effect. Assuming the Parties reach a definitive agreement regarding the terms and conditions of a definitive agreement regarding the Co-Promotion Right, the JCC shall oversee the operational aspects of such agreement.

2.3 No Rights to Injector Pens. Notwithstanding anything herein to the contrary, each Party acknowledges and agrees that, with respect to the injector pen utilized in the administration of Abalo-SC by such Party, no rights or licenses have been granted by such Party to the other Party under this Agreement or by implication.

2.4 No Rights to Trademarks. Each Party acknowledges and agrees that, with respect to trademarks, trade names or trade dress for Abalo-SC, no rights or licenses have been granted by either Party to the other Party under this Agreement or by implication.

2.5 Performance by Affiliates, Subcontractors and Sublicensees.

2.5.1 Performance by Affiliates. The Parties recognize that each may perform some or all of its obligations under this Agreement through Affiliates; provided, however, that each Party shall remain responsible for and be guarantor of the performance by its Affiliates and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance. Each Party hereby expressly waives any requirement that the other Party exhaust

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any right, power or remedy, or proceed against an Affiliate, for any obligation or performance hereunder prior to proceeding directly against such Party. Wherever in this Agreement the Parties delegate duties to Affiliates, the Parties agree that such entities shall not make decisions, and the Parties shall cause such entities not to make decisions, inconsistent with this Agreement, amend the terms of this Agreement or act contrary to its terms in any way, provided, however, that notwithstanding the foregoing, Teijin may delegate decision making authority with respect to this Agreement to Teijin Pharma.

2.5.2 Subcontractors. Teijin shall ensure that each of its subcontractors accepts and complies with all of the terms and conditions of this Agreement (including Section 2.5.3), and shall guarantee its subcontractors' performance under this Agreement. For the avoidance of doubt, Teijin will remain directly responsible for all amounts owed to Radius under this Agreement. Teijin hereby expressly waives any requirement that Radius exhaust any right, power or remedy, or proceed against a subcontractor, for any obligation or performance hereunder prior to proceeding directly against Teijin. Radius shall ensure that each of its subcontractors performing activities under this Agreement with respect to the rights granted to Radius by Teijin pursuant to this Agreement accepts and complies with all of the terms and conditions of this Agreement (including Section 2.5.3), and shall guarantee such subcontractors' performance under this Agreement. For the avoidance of doubt, Radius will remain directly responsible for all amounts owed to Teijin under this Agreement. Radius hereby expressly waives any requirement that Teijin exhaust any right, power or remedy, or proceed against such a subcontractor, for any obligation or performance hereunder prior to proceeding directly against Radius.

2.5.3 Sublicensees. Each Party shall have the right to grant sublicenses to any sublicensee under all of its rights under the licenses granted pursuant to Sections 2.1 and 2.2 (as applicable) at any given time during the Term; provided, however, that, with respect to each such sublicense granted by Teijin, (i) Teijin shall notify Radius in writing at least twenty (20) business days in advance of the grant (including a description of the rights to be granted and the identity of the sublicensee), and shall obtain the prior written consent of Radius, such consent not to be unreasonably withheld, (ii) Teijin shall ensure that each of its sublicensees shall accept and comply with all applicable terms and conditions of this Agreement and Teijin shall remain responsible for, and shall guarantee, such compliance and the performance of its sublicensees hereunder, and (iii) any such sublicense shall (a) be subject and subordinate to the terms and conditions of this Agreement, (b) contain terms and conditions which are consistent with the terms and conditions of this Agreement, (c) not in any way diminish, reduce or eliminate any obligations of Teijin under this Agreement, and (d) impose on the sublicensee all applicable obligations under the terms of this Agreement or necessary to effectuate the terms of this Agreement, including the reporting, audit, inspection and confidentiality provisions hereunder, as well as a provision prohibiting such sublicensee from further sublicensing. For the avoidance of doubt, Teijin shall remain directly responsible for all amounts owed to Radius under this Agreement. Each Party hereby expressly waives any requirement that the other Party exhaust any right, power or remedy, or proceed against a sublicensee or subcontractor, for any obligation or performance hereunder before such other Party initiates a proceeding directly against a Party.

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2.6 Restrictive Covenants.

2.6.1 Ex-Japan Activities. Teijin hereby covenants and agrees that it shall not (and shall cause its Affiliates, sublicensees and subcontractors not to), either directly or indirectly, market, distribute or sell Abalo-SC into countries outside of Japan. Without limiting the generality of the foregoing, with respect to such countries outside of Japan, Teijin shall not (i) engage in any advertising activities relating to Abalo-SC directed solely to customers located in such countries or (ii) solicit, accept or satisfy orders for Abalo-SC from any prospective purchaser located in such countries.

2.6.2 Activities by Radius. Radius hereby covenants and agrees that it shall not (and shall cause its Affiliates, sublicensees and subcontractors not to), either directly or indirectly, market, distribute or sell Abalo-SC in Japan other than as may be agreed and set forth in a definitive agreement regarding the Co-Promotion Right. Without limiting the generality of the foregoing, Radius shall not (i) engage in any advertising activities relating to Abalo-SC directed solely to customers located in Japan or (ii) solicit, accept or satisfy orders for Abalo-SC from any prospective purchaser located in Japan.

2.6.3 Teijin Contracts. In the event that Teijin (or any of its Affiliates) enters into any agreements with a subcontractor (including, any distributors or wholesalers) or a sublicensee for Abalo-SC, it shall include in any and all such agreements provisions substantially similar to those set forth in Sections 2.6.1, such that such subcontractor or sublicensee, as applicable, shall only be authorized to market, distribute and sell Abalo-SC within Japan, and shall be prohibited from marketing, distributing or selling Abalo-SC outside Japan.

2.6.4 Radius Contracts. In the event that Radius (or any of its Affiliates) enters into any agreements with a subcontractor (including, any distributors or wholesalers) or a sublicensee for Abalo-SC, it shall include in any and all such agreements provisions substantially similar to those set forth in Sections 2.6.2, such that such subcontractor or sublicensee, as applicable, shall only be authorized to market, distribute and sell Abalo-SC outside Japan, and shall be prohibited from marketing, distributing or selling Abalo-SC within Japan.

2.6.5 Jurisdictional Compliance. It is the desire and intent of the Parties that the restrictive covenants contained in this Section 2.6 be enforced to the fullest extent permissible under the Laws and public policies applied in each jurisdiction in which enforcement is sought. Radius and Teijin believe that the restrictive covenants in this Section 2.6 are valid and enforceable and necessary to the grant of rights and obligations set forth hereunder. However, if any restrictive covenant should for any reason become or be declared by a competent court or competition authority to be invalid or unenforceable in any jurisdiction, such restrictive covenant shall be deemed to have been amended to the extent necessary in order that such restrictive covenant be valid and enforceable, and such amendment shall apply only with respect to the operation of such restrictive covenant under this Section 2.6 in the particular jurisdiction in which such declaration is made.

ARTICLE 3
GOVERNANCE

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3.1 Joint Steering Committee. The Parties shall establish the JSC within thirty (30) days after the Effective Date. The JSC shall perform the following functions:

3.1.1 General oversight of the administration of and performance under this Agreement and the activities carried out hereunder by the Parties;

3.1.2 Review Teijin's strategy for Regulatory Approval of Abalo-SC in Japan;

3.1.3 Review and discuss any matters related to the Development Activities conducted by Teijin after the Effective Date in Japan;

3.1.4 Establish a forum for the exchange of information between the Parties, (i) in the case of Radius to Teijin, all such information necessary or useful to give full effect to and enable Teijin to exploit the rights and licenses granted to it by Radius under Section 2.1 and (ii) in the case of Teijin to Radius, all such information necessary or useful to give full effect to and enable Radius to exploit the rights and licenses granted to it by Teijin under Section 2.2.

3.1.5 Review the progress of the other Committees;

3.1.6 Review, discuss and resolve any dispute and other matters referred to the JSC by any other Committee; and

3.1.7 Have such other responsibilities as may be assigned to the JSC pursuant to this Agreement or as may be mutually agreed upon by the Parties in writing from time to time.

3.2 Joint Steering Committee Membership. Radius and Teijin shall each designate three (3) representatives of appropriate seniority and experience to serve on the JSC by written notice to the other Party. Either Party may designate substitutes for its representatives if one (1) or more of such Party's designated representatives are unable to be present at a meeting. From time to time each Party may replace its representatives by written notice to the other Party specifying the prior representative(s) and their replacement(s). The JSC shall be chaired by a representative of [*]. One member of the JSC shall serve as secretary of the JSC at each Committee meeting, and the secretary shall alternate from meeting to meeting between a Teijin Committee member and a Radius Committee member. The chairperson shall be responsible for (i) calling meetings, (ii) preparing and issuing minutes of each such meeting within thirty (30) days thereafter, and (iii) preparing and circulating an agenda for the upcoming meeting; provided that the chairperson shall consider including any agenda items proposed by either Party no less than five (5) days prior to the next scheduled JSC meeting.

3.3 Joint Steering Committee Meetings. The JSC shall hold at least two (2) meetings per calendar year at such times during such calendar year as it elects to do so until Regulatory Approval of Abalo-SC in Japan, and thereafter, once per year; provided, that the JSC shall meet more or less frequently as the Parties may mutually agree. Meetings of the JSC shall be effective only if at least one (1) representative of each Party is present or participating. The JSC may meet either (i) in person at either Party's facilities or at such locations as the Parties may otherwise agree or (ii) by audio or video teleconference; provided, that no less than one (1)

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meeting of the JSC during each calendar year shall be conducted in person. Other representatives of each Party involved with Abalo-SC may attend meetings as non-voting participants, subject to the confidentiality provisions set forth in Article 10. Additional meetings of the JSC may also be held, as required to resolve disputes, disagreements or deadlocks in the other Committees or as otherwise required under this Agreement. Each Party shall be responsible for all of its own expenses incurred in connection with participating in the JSC meetings or any of the other Committee meetings.

3.4 Decision-Making. The JSC may make decisions with respect to any subject matter that is subject to the JSC's decision making authority and functions as set forth in Section 3.1. All decisions of the JSC shall be made by unanimous vote or written consent, with Teijin and Radius each having, collectively, among its respective members, one (1) vote in all decisions. The JSC shall use commercially reasonable efforts to resolve the matters within its roles and functions or otherwise referred to it. If the JSC cannot reach consensus on a matter within ten (10) business days after such matter has been brought to the JSC's attention, then [*] shall have final decision making authority with respect to any such matter; provided, that [*] shall retain final decision making authority over any matter relating to the [*] (i) to the extent such matter does not adversely affect the [*] and (ii) except as otherwise set forth in a definitive agreement covering the grant of the Co-Promotion Right in accordance with Section 2.2.3.

3.5 Limits on JSC and Committee Authority . The JSC and any other Committee shall have only the powers assigned expressly to it in this Article 3 and elsewhere in this Agreement, and shall not have any power to amend, modify or waive compliance with this Agreement. In furtherance thereof, each Party shall retain the rights, powers and discretion granted to it under this Agreement and no such rights, powers or discretion shall be delegated or vested in the JSC and any other Committee unless such delegation or vesting of rights is expressly provided for in this Agreement or the Parties expressly so agree in writing.

3.6 Committees. From time to time, the JSC may establish and delegate duties to other sub-committees or directed teams (each, a " **Committee** ") to oversee particular projects or activities. Subject to Sections 3.7 and 3.8, each such Committee shall be constituted in accordance with Sections 3.2 and 3.4 (as applicable) and shall operate as the JSC determines. Committees may be established on an ad hoc basis for purposes of a specific project, or on such other basis as the JSC may determine. Each Committee and its activities shall be subject to the oversight, review and approval of, and shall report to, the JSC. In no event shall the authority of a Committee exceed that of the JSC. Without limiting the foregoing, the Parties agree to initially establish the Committee described in Section 3.8. Any matter in dispute in which the Committee cannot reach consensus within ten (10) days after such matter has been brought to the Committee's attention shall be referred on the eleventh (11th) day to the JSC for resolution.

3.7 Joint Commercialization Committee. If the Parties enter into a definitive agreement regarding the Co-Promotion Right as set forth in Section 2.2.3, the Parties shall establish a JCC, which shall consist of up to six (6) members (or such other number as may be agreed by the Parties in writing), three (3) of whom shall be representatives designated by Teijin, and three (3) of whom shall be representatives designated by Radius or its designee. Each of

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Teijin and Radius may replace any or all of its representatives on the JCC at any time upon written notice to the other Party. Such representatives shall include individuals who have commercial experience and expertise in pharmaceutical drug pre-launch, launch and other Commercialization activities. A Party may designate a substitute to temporarily attend and perform the functions of such Party's designee at any meeting of the JCC.

3.8 Joint Development Committee. Within thirty (30) days after the Effective Date, the Parties shall establish a joint development committee (the " **Joint Development Committee** " or " **JDC** "), which shall consist of up to six (6) members (or such other number as may be agreed by the Parties in writing), three (3) of whom shall be representatives designated by Teijin, and three (3) of whom shall be representatives designated by Radius. Each of Teijin and Radius may replace any or all of its representatives on the JDC at any time upon written notice to the other Party. Such representatives shall include individuals who have clinical trial and regulatory experience and expertise in pharmaceutical drug development. A Party may designate a substitute to temporarily attend and perform the functions of such Party's designee at any meeting of the JDC. Meetings of the JDC shall commence at a time to be mutually agreed upon by the Parties and the JDC shall meet in person twice every calendar year, and in any case more or less frequently as Teijin and Radius deem appropriate or as reasonably requested by either such Party, on such dates and at such places and times as the Parties shall agree. Meetings of the JDC that are held in person shall alternate between the offices of Teijin and Radius, or such other place as the Parties may agree. The members of the JDC also may convene or be polled or consulted from time to time by means of telecommunications, video conferences, electronic mail or correspondence, as deemed necessary or appropriate. Teijin and Radius each may, on advance notice to the other Party, invite non-member employees of such Party to attend meetings of the JDC. The JDC may make decisions with respect to any subject matter that is subject to the JDC's decision making authority and functions as set forth in this Section 3.8. All decisions of the JDC shall be made by unanimous vote or written consent, with Teijin and Radius each having collectively, among its respective members, one (1) vote in all decisions. If the JDC cannot reach consensus within ten (10) days after it has first met and attempted to reach such consensus, the disputed matter shall be referred on the eleventh (11th) day to the JSC for resolution. The JDC shall perform the following function:

3.8.1 Discuss and approve any changes to the Japanese Development Plan and any amendments thereto; and

3.8.2 Establish a forum for the Parties to discuss any proposals for the co-Development of a new Indication for Abalo-SC in Japan or outside Japan in accordance with Section 4.1.

3.9 Actions. In developing strategies, making decisions and exercising its rights under this Agreement (including acting through its representatives on any of the Committees), each Party shall act in good faith.

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3.10 Minutes of Committee Meetings. Definitive minutes of all Committee meetings shall be finalized no later than thirty (30) days after the meeting to which the minutes pertain as follows:

3.10.1 Within ten (10) days after a Committee meeting, the secretary of such Committee shall prepare and distribute to all members of such committee draft minutes of the meeting. Such minutes shall provide a list of any issues yet to be resolved, either within such Committee or through the relevant resolution process.

3.10.2 The members of each Committee shall then have ten (10) days after receiving such draft minutes to collect comments thereon and provide them to the secretary of such Committee.

3.10.3 Upon the expiration of such second ten (10) day period, the Parties shall have an additional ten (10) days to discuss each other's comments and finalize the minutes. The secretary and chairperson of such Committee shall each sign and date the final minutes. The signature of such secretary and chairperson upon the final minutes shall indicate each Party's assent to the minutes.

ARTICLE 4
CO-DEVELOPMENT RIGHTS AND COLLABORATION ON INJECTOR PENS

4.1 Co-Development Rights.

4.1.1 Co-Development of a New Indication or New Studies for Abalo-SC. If at any time during the Term, either Party (the " **Proposing Party** ") desires to pursue the Development of a new Indication or further Development of Abalo-SC through the conduct of a new clinical trial (i.e., any clinical trial commenced after the Effective Date) for Abalo-SC, in Japan or outside Japan (as applicable), and to share the Development costs in connection therewith (as applicable), which shall be borne [*] percent ([*]%) by Radius and [*] percent ([*]%) by Teijin, the Proposing Party may propose such opportunity to the JDC and present all relevant scientific, regulatory, commercial and financial information as is reasonably necessary or requested by the JDC (the " **Information Package** ") in order that the non-Proposing Party's representatives of the JDC may evaluate the merits of such proposal (the " **Co-Development Proposal** "). The non-Proposing Party shall have [*] ([*]) days from its receipt of the Information Package to notify the Proposing Party in writing of its interest in entering into negotiations on the terms of the Co-Development Proposal. In the event that the non-Proposing Party determines (in its sole discretion) to enter into such negotiations related to the Co-Development Proposal, it shall provide written notification thereof within such [*] ([*]) day period to the Proposing Party (the " **CD Notice** ") and thereafter the Parties shall negotiate in good faith, and on an exclusive basis, in order to agree upon a mutually acceptable definitive agreement for the rights contained in the Co-Development Proposal within [*] ([*]) days of the date of receipt by the Proposing Party of such CD Notice. If the non-Proposing Party notifies the Proposing Party that it is not interested in initiating or entering into negotiations on the terms of the Co-Development Proposal or if the Proposing Party does not timely receive the CD Notice

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from the non-Proposing Party (a " **Rejected Proposal** "), the rights of the non-Proposing Party to enter into negotiations for the Co-Development Proposal shall expire but only to the extent of the specific subject matter contained in the Information Package related to such Co-Development Proposal. Subject to the foregoing, the Proposing Party may proceed with the Development of the new Indication or the conduct of a new clinical trial for Abalo-SC in its respective territory (i.e., outside Japan in the case of Radius, and in Japan in the case of Teijin) as set forth in the Co-Development Proposal which was the subject of this Section 4.1.1. Notwithstanding the foregoing, in the event of a Rejected Proposal, if, following completion of all clinical trials related to such Co-Development Proposal, the non-Proposing Party desires to acquire such right or license to such new Indication or new clinical trial which was the subject of such Rejected Proposal, the non-Proposing Party shall have the right to acquire such right or license from the Proposing Party subject to the non-Proposing Party reimbursing the Proposing Party in an amount equal to [*] for such new Indication or new clinical trial (as applicable). In addition, notwithstanding the foregoing, with respect to any Co-Development Proposal of a new Indication or the new clinical trial (as applicable) for Abalo-SC, if the non-Proposing Party notifies the Proposing Party (i) of any objections to the relevant scientific or regulatory information contained in the Information Package or related publication rights, or (ii) of its good faith belief that the Development for such new Indication or the conduct of a new clinical trial (as applicable) for Abalo-SC may have an adverse effect on the non-Proposing Party's territory, then, in each case of (i) and (ii), the Proposing Party shall, in good faith, consider such objection or good faith belief of the non-Proposing Party but, in all cases, the Proposing Party shall have the sole discretion and right to proceed with the Development of such new Indication or new clinical trial (as applicable) for Abalo-SC which was the subject of such Co-Development Proposal.

4.1.2 Collaboration on Injector Pens. If, at any time during the Term, either Party desires to obtain a right or license from the other Party or to collaborate with the other Party on the development of the injector pen utilized in the administration of Abalo-SC, then the Parties shall discuss the terms of such right, license or collaboration in good faith but neither Party shall have an obligation to grant any such right or license or enter into any such collaboration with such other Party.

ARTICLE 5
SUPPLY

5.1 Clinical Supply of API . Upon Teijin's request, Radius shall use commercially reasonable efforts to (i) Manufacture (or arrange for a Third Party to Manufacture) and supply (or arrange for a Third Party to supply) the active pharmaceutical ingredient (" **API** ") for the clinical supply of Abalo-SC in sufficient quantities to enable Teijin to conduct its clinical trials of Abalo-SC in the Field in Japan in accordance with the Japanese Development Plan, and (ii) ship or transport (or have shipped or transported) such clinical supply of API in accordance with the reasonable written instructions received from Teijin; provided, that the Incoterms related to such shipment or transport shall be mutually agreed to by the Parties. Radius shall invoice Teijin for such clinical supply of API at Radius' [*] cost to Manufacture (or have Manufactured) and supply (or have supplied) such API to Teijin (or its designee) [*] (the " **Supply Cost** "). Radius

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shall invoice Teijin for the Supply Cost and Teijin shall pay such cost in accordance with the terms of and within [*] ([*]) days of receipt of such invoice. All API for the clinical supply of Abalo-SC to Teijin Manufactured by, or under authority of, Radius shall be handled, stored and shipped by Radius, in accordance with, and shall conform to, all applicable Laws, including GMPs. In the course of the Manufacture of the clinical supply to Teijin of Abalo-SC by, or under the authority of, Radius, Radius shall not use any employee that is debarred by the FDA under the Generic Drug Enforcement Act of 1992.

5.2 Commercial Supply of API and Abalo-SC . Teijin shall be responsible for the commercial supply of API and Abalo-SC in the Field in Japan, provided, that Radius has used commercially reasonable efforts to arrange for Teijin to directly enter into API and drug product supply agreements with Radius' existing (as of the Effective Date) contract manufacturers [*]; provided, further, that Teijin shall use commercially reasonable efforts to enter into such API and drug product supply agreements with such contract manufacturers. Notwithstanding the foregoing, nothing herein shall operate as a guarantee that [*], in which case Teijin shall use commercially reasonable efforts to Manufacture (or arrange for a Third Party to Manufacture) and supply (or arrange for a Third Party to supply) the API for the commercial supply of Abalo-SC in sufficient quantities to enable Teijin to conduct its commercial operations with respect to Abalo-SC in the Field in Japan.

ARTICLE 6
PAYMENTS

6.1 Upfront Payment. Within thirty (30) days after the Effective Date, in partial reimbursement of Radius' investment in the Regulatory Data and Regulatory Materials related to Abalo-SC, Teijin shall pay to Radius a one-time upfront amount equal to Ten Million Dollars ($10,000,000) (the **"Upfront Payment"**) by wire transfer of immediately available funds into an account designated in writing by Radius. Such Upfront Payment shall be non-refundable and non-creditable against any other payments due hereunder.

6.2 Milestone Payments. In partial reimbursement of Radius' investment in the Regulatory Data and Regulatory Materials related to Abalo-SC, Teijin shall pay Radius the milestone payments set forth in this Section 6.2.

6.2.1 Regulatory Milestone. Teijin shall pay to Radius a milestone payment equal to [*] Dollars ($[*]) within thirty (30) days after the achievement (first occurrence) by Teijin of the [*]. Teijin shall promptly notify Radius in writing, but in no event later than fifteen (15) days after achievement of this regulatory milestone event; provided, however, that in no event shall Teijin's failure to notify Radius of the achievement of the regulatory milestone relieve Teijin of its obligation to pay Radius the regulatory milestone payment described in this Section 6.2.1.

6.2.2 Sales Milestones. Teijin shall make one-time milestone payments to Radius after annual Net Sales of Abalo-SC in Japan first meet or exceed the thresholds set forth below:

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Annual Net Sales Threshold	*Milestone Payment*
Annual Fiscal Year Net Sales equal to [*] Dollars ($[*])	$[*]
Annual Fiscal Year Net Sales equal to [*] Dollars ($[*])	$[*]

Teijin shall pay Radius the sales milestone payments set forth in this Section 6.2.2 within sixty (60) days after the end of the first Fiscal Year in which Teijin achieves the applicable sales milestone.

6.2.3 Payment Procedures. Teijin shall pay Radius the regulatory milestone payment and sales milestone payments by wire transfer of immediately available funds into an account designated by Radius. Each such payment is non-refundable and non-creditable against any other payments due hereunder.

6.3 Royalty Payments.

6.3.1 Royalty Payments. As further consideration for the rights granted to Teijin under this Agreement, and in addition to any milestone payments, Teijin shall pay to Radius royalty payments (**"Royalty Payments"**) based on half Fiscal Year Net Sales of Abalo-SC in Japan for all or any portion of a half Fiscal Year falling within the Royalty Term at a rate of [*] percent ([*]%).

6.3.2 Reduction of Royalty due to Generic Licensed Product. If a Generic Licensed Product becomes commercially available in Japan during any half Fiscal Year during the Term and such Generic Licensed Product achieves a market share of at least [*]percent ([*]%), with market share being calculated by using the fraction Y/(X+Y), where X is the unit sales of Abalo-SC and Y is the unit sales of Generic Licensed Product in the half Fiscal Year in which any Generic Licensed Product was first commercially available in Japan or any subsequent half Fiscal Year thereafter, " **Generic Entry** " shall be deemed to have occurred with respect to Abalo-SC in Japan. If it is determined that Generic Entry has occurred in Japan, the royalty rate set forth in Section 6.3.1 shall be reduced by [*] percent ([*]%) during the half Fiscal Year during which Generic Entry occurred and any subsequent half Fiscal Year during which Generic Entry continues. For clarity, (a) the market share of Generic Licensed Product for a given half Fiscal Year shall be calculated based on the total sales of all Generic Licensed Products commercially available in such a half Fiscal Year in Japan and (b) if Generic Entry occurs and thereafter ceases, the foregoing royalty rate reduction shall not apply unless the price of Abalo-SC, if reduced following Generic Entry, [*].

6.4 Royalty Payments and Reports.

6.4.1 General. Teijin shall calculate all Royalty Payments payable to Radius pursuant to Section 6.3 with respect to Net Sales at the end of each half Fiscal Year. Teijin shall pay to Radius the Royalty Payment due for Net Sales during a given half Fiscal Year within sixty (60) days after the end of such half Fiscal Year. Each Royalty Payment due to Radius shall be accompanied by (i) a statement of the amount of gross sales of Abalo-SC in Japan during the applicable half Fiscal Year (including such amounts expressed in local currency and as converted

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to Dollars), (ii) an itemized calculation of Net Sales in Japan showing deductions provided for in the definition of "Net Sales" during such half Fiscal Year and (iii) a calculation of the amount of the Royalty Payment due on such Net Sales for such half Fiscal Year. In addition, within thirty (30) days after the end of each calendar quarter, Teijin shall provide to Radius a good faith estimate of the amount of gross sales and Net Sales of Abalo-SC in Japan during the applicable calendar quarter. Without limiting the generality of the foregoing, Teijin shall require its Affiliates and sublicensees to account for its Net Sales and to provide such reports with respect thereto as if such sales were made by Teijin. Such reporting shall be in addition to Radius' right to information and to Audit as set forth in this Agreement.

6.5 Taxes and Withholding.

(a) **VAT.** The Parties agree to cooperate with one another and use reasonable efforts to ensure that value added tax or similar payment (" **VAT** ") in respect of any payments made by Teijin to Radius under this Agreement does not represent an unnecessary cost in respect of payments made under this Agreement. For purposes of clarity, all sums payable under this Agreement shall be exclusive of VAT.

(b) **Withholding Tax Matters.** If Teijin is required to make a payment to Radius subject to a deduction of tax or withholding tax, the sum payable by Teijin (in respect of which such deduction or withholding is required to be made) shall be made to Radius after deduction of the amount required to be so deducted or withheld, which deducted or withheld amount shall be remitted in accordance with applicable Law; provided that Teijin shall provide Radius with at least fifteen (15) business days written notice prior to making any such deduction or withholding and shall consider in good faith any Radius comments regarding the applicability of the requirement to deduct or withhold. Any such withholding taxes required under applicable Law to be paid or withheld shall be an expense of, and borne solely by Radius, subject to Section 6.5.1(a), if applicable, and the obligation of Teijin to assume the responsibility of such expense in the event that such expense arises as a result of any action taken by Teijin (or another Teijin-related entity or Affiliate) solely for a reason not specifically related to any of Teijin's obligations under this Agreement, including any change in Teijin's domicile or payment through a non-Japan based Affiliate; provided, however, that, notwithstanding the foregoing in this Section 6.5 (b), Teijin shall only be obligated to bear the withholding tax pursuant to this Section 6.5 (b) if, and to the extent that Radius shall reasonably demonstrate in written summary that Radius cannot offset otherwise payable taxes of Radius by successfully claiming a current credit for amounts withheld by Teijin on the applicable tax return for the tax period corresponding to the period in which withholding was required.

(c) **Tax Cooperation.** To the extent Teijin is required to deduct and withhold taxes on any payments to Radius, Teijin shall pay the amounts of such taxes to the proper Governmental Authority in a timely manner and promptly transmit to Radius, within forty five (45) days after such withholding taxes are remitted to the proper Governmental Authority, an official tax certificate or other evidence of such withholding sufficient to enable Radius to claim such payments of taxes. Radius shall provide to Teijin any tax forms that may be reasonably necessary in order for Teijin not to withhold tax or to withhold tax at a reduced rate under an

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applicable bilateral income tax treaty. Each Party shall provide the other with reasonable assistance to enable the recovery, as permitted by Law, of withholding taxes, VAT, or similar obligations resulting from payments made under this Agreement, such recovery to be for the benefit of the Party bearing such withholding tax or VAT.

6.6 Currency Conversion. All payments hereunder shall be made in U.S. Dollars. For the purpose of calculating any sums due under, or otherwise reimbursable pursuant to, this Agreement (including the calculation of Net Sales expressed in Japanese Yen), any amount expressed in Japanese Yen shall be converted into U.S. Dollars in a manner consistent with such Party's normal practices used to prepare its audited financial statements for external reporting purposes, provided that such practices use a widely accepted source of published exchange rates. As of the Effective Date, Teijin converts Japanese Yen into U.S. Dollars by using the average of the TTS and TTB Japanese Yen – U.S. Dollar exchange rates quoted by Mitsubishi UFJ Bank, or its successor, on the 25 th day of the month (or the previous business day if the 25 th is not a business day) prior to the month in which payment is due or reimbursable pursuant to this Agreement, which exchange rate is currently published at the following url: (http://www.murc.jp/english).

6.7 General Payment Procedures. With the exception of the Upfront Payment payable pursuant to Section 6.1, the milestone payments payable pursuant to Section 6.2, Royalty Payments payable pursuant to Section 6.4, or other amounts expressly payable in certain time frames set forth in this Agreement, the receiving Party shall invoice the paying Party for all amounts due to such receiving Party under this Agreement, and such payments shall be made within thirty (30) days following the receipt by the paying Party of an invoice from the receiving Party specifying the amount due.

6.8 Late Payments. Any amount required to be paid by a Party hereunder which is not paid on the date due shall bear interest at a rate equal to the thirty (30) day U.S. dollar LIBOR rate effective for the date that payment was first due as reported by *The Wall Street Journal* plus [*] percent ([*]%). Such interest shall be computed on the basis of a year of 360 days for the actual number of days payment is delinquent.

6.9 Records; Audits. Teijin and its Affiliates and its sublicensees and subcontractors shall keep full, true and accurate records and books of account containing all particulars that may be necessary for the purpose of confirming the accuracy of, and calculating, as applicable, all Royalty Payments and other amounts payable to Radius hereunder (including records of Net Sales), and any other records reasonably required to be maintained with respect to Teijin's obligations under this Agreement for a minimum period of [*] ([*]) years or such longer period as required by applicable Law. Radius shall have a right to request an audit of Teijin in order to confirm the accuracy of any of the foregoing (an **"Audit"**); provided, however, that Radius shall only have the right to request such Audit of Teijin [*] during any given calendar year. Upon the written request by Radius to Audit Teijin, Radius shall have the right to engage an independent, internationally recognized accounting firm to perform a review as is reasonably necessary to enable such accounting firm to calculate or otherwise confirm the accuracy of any of the foregoing for the calendar year(s) requested by the Radius; provided, that (i) such accountants

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shall be given access to, and shall be permitted to examine and copy such books and records of Teijin upon thirty (30) days' prior written notice to Teijin, and at all reasonable times on such business days, (ii) prior to any such examination taking place, such accountants shall enter into a confidentiality agreement with Teijin reasonably acceptable to Teijin in order to keep all information and data contained in such books and records strictly confidential and shall not disclose such information or copies of such books and records to any third person including Radius, but shall only use the same for the purpose of the reviews and/or calculations which they need to perform in order to determine any amounts being reviewed, and (iii) such accountants shall use reasonable efforts to minimize any disruption to Teijin's business. Teijin shall make personnel reasonably available during regular business hours to answer queries on all such books and records required for the purpose of the Audit. The accountants shall deliver a copy of their findings to each of the Parties within fifteen (15) days of the completion of the review, and, in the absence of fraud or manifest error, the findings of such accountant shall be final and binding on each of the Parties. Any underpayments by Teijin shall be paid to Radius within thirty (30) days of notification of the results of such inspection. Any overpayments made by Teijin shall be refunded by Radius within thirty (30) days of notification of the results of such inspection. The cost of the accountants shall be the responsibility of Radius unless the accountants' calculation shows that the actual Royalty Payments, Net Sales, and/or any such other amount Audited hereunder to be different, by more than [*] percent ([*]%), than the amounts as previously calculated by Teijin in a manner unfavorable to Radius, in which case the reasonable costs of such inspection shall be borne by Teijin.

ARTICLE 7
INTELLECTUAL PROPERTY MATTERS

7.1 Ownership of Intellectual Property.

7.1.1 Pre-existing Intellectual Property. Subject to the rights and licenses expressly granted under this Agreement, each Party shall retain all rights, title and interests in, to and under any and all intellectual property that is Controlled by such Party prior to the Effective Date or independent of this Agreement.

7.1.2 New Intellectual Property. Inventorship of any invention or discovery, whether or not patentable, made, discovered, conceived or reduced to practice under this Agreement shall be determined in accordance with applicable Laws relating to inventorship set forth in the patent Laws of the United States (Title 35, United States Code). As between the Parties, each Party shall own (a) any such invention or discovery that is made, discovered, conceived or reduced to practice solely by such Party or its Affiliates and their employees and agents (" **Sole Inventions** ") and (b) any Patent Rights thereon (" **Sole Patent Rights** "). As between the Parties, the Parties shall each own an equal, undivided interest in (i) any such invention or discovery that is made, discovered, conceived of or reduced to practice by both Parties and their employees and agents (" **Joint Inventions** ") and (ii) any Patent Rights thereon (" **Joint Patent Rights** "). Each Party shall promptly disclose to the other Party in writing, and shall cause its Affiliates to so disclose, the making, discovery, conception or reduction to practice of any Joint Inventions. Subject to the licenses and rights of reference granted under Article 2

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and the Parties' respective restrictive covenants, each Party shall have the right to Develop, Commercialize and otherwise exploit the Joint Inventions without a duty of seeking consent or accounting to the other Party.

7.2 Patent Filings, Prosecution and Maintenance.

7.2.1 Radius Patent Rights . Radius has the sole right (but not the obligation) to file, prosecute, and maintain its Sole Patent Rights and the Radius Patent Rights. If Radius decides not to maintain or to otherwise abandon any of the Radius Patent Rights in Japan, Radius shall promptly inform Teijin in writing and Teijin shall have the option, exercisable by sending written notice to Radius within fifteen (15) days thereafter, to pay the costs for maintaining such Radius Patent Rights. Upon Teijin's exercise of such option, (a) Radius shall continue to maintain such Radius Patent Rights and (b) Teijin shall reimburse Radius for the costs of maintaining such Radius Patent Right within thirty (30) days of invoicing by Radius. Teijin may credit the amount of such reimbursement against Royalty Payments made under this Agreement.

7.2.2 Teijin Patent Rights . Teijin has the sole right (but not the obligation) to file, prosecute, and maintain its Sole Patent Rights and the Teijin Patent Rights.

7.2.3 Joint Patent Rights. The filing, prosecution, and maintenance of the Joint Patent Rights shall be handled as follows:

(a) Subject to, and without limiting any express rights granted to Teijin hereunder, [*] shall have the first right to prepare, file, prosecute and maintain Joint Patent Rights at its own cost and expense. [*] shall keep [*] informed of the status of Joint Patent Rights and will provide [*] with copies of all material documentation submitted to, or received from, the patent offices or its patent agents, attorneys or lawyers in connection therewith. With respect to any material submissions that [*] is required to or otherwise intends to submit to a patent office with respect to a Joint Patent Right, [*] shall provide a draft of such submission to [*] at least [*] ([*]) days (or such time as is possible) prior to the deadline for, or the intended filing date of, such submission, whichever is earlier (or as soon as reasonably possible if [*] has less than [*] ([*]) days' notice of a deadline for submission). [*] shall have the right to review and comment upon any such submission by [*] to a patent office, and will provide such comments within [*] ([*]) days after receiving such submission (provided, that if no comments are received within such [*] ([*]) day period, then [*] may proceed with such submission). [*] shall consider in good faith any suggestions or recommendations of [*] concerning the preparation, filing, prosecution and maintenance thereof, for which [*] is solely responsible at its own cost and expense. The Parties shall cooperate reasonably in the prosecution of all Joint Patent Rights and shall share all material information relating thereto promptly after receipt of such information. If, during the Term, [*] (i) intends to allow any Joint Patent Right to expire or intends to otherwise abandon any such Joint Patent Right in [*] (" **Abandoned Joint Patent Rights** "), or (ii) decides not to prepare or file patent applications covering Joint Inventions in [*] (" **Abandoned Joint Inventions** "), [*] shall notify [*] of such intention or decision at least [*] ([*]) days (or as soon as possible if less than [*] ([*]) days) prior to any filing or payment due date, or any other date that requires action, in connection with such Abandoned Joint Patent

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Rights or Abandoned Joint Inventions, and [*] shall thereupon have the right, but not the obligation, to assume responsibility for the preparation, filing, prosecution or maintenance thereof at its sole cost and expense, without the consent of [*], and, if [*] exercises the foregoing right and the Abandoned Joint Patent Rights have issued, [*] shall assign to [*] all of its rights, title and interest in and to such Abandoned Joint Patent Rights and Abandoned Joint Inventions.

(b) The Parties agree to cooperate in the preparation, filing, prosecution and maintenance of all Joint Patent Rights under this Section 7.2.3(a) at the sole cost and expense of the Party which has the right to prepare, file, prosecute and maintain Joint Patent Rights, including obtaining and executing necessary powers of attorney and assignments by the named inventors, providing relevant technical reports to the filing Party concerning the Joint Inventions disclosed in such Joint Patent Rights, obtaining execution of such other documents which are needed in the filing and prosecution of such Joint Patent Rights, and, as requested by a Party, updating each other regarding the status of such Joint Patent Rights, and shall cooperate with the other Party so far as reasonably necessary with respect to furnishing all information and data in its possession reasonably necessary to obtain or maintain such Joint Patent Rights.

7.3 Defense and Enforcement of Patent Rights.

7.3.1 Notification . If either Party (i) receives notice of any patent nullity actions, any declaratory judgment actions or any alleged or threatened infringement of patents or patent applications or misappropriation of intellectual property comprising the Joint Inventions, or Joint Patent Rights or, solely with respect to Japan, the Radius Patent Rights or Radius Know-How or, solely with respect to any country in the world other than Japan, the Teijin Patent Rights or Teijin Know-How, or (ii) learns that a Third Party is infringing or allegedly infringing any Patent within the Joint Patent Rights or, solely with respect to Japan, the Radius Patent Rights, or, solely with respect to any country in the world other than Japan, the Teijin Patent Rights, or if any Third Party claims that any such Patent is invalid or unenforceable, it will promptly notify the other Party thereof in writing, including providing evidence of infringement or the claim of invalidity or unenforceability reasonably available to such Party.

7.3.2 Radius Patent Rights. As between the Parties, Radius has the sole right (but not the obligation) to defend and enforce its Sole Patent Rights, the Radius Patent Rights and the Radius Know-How. If Radius elects not to enforce or defend any Radius Patent Right in Japan against infringement by a Third Party and the joint owner of the Radius Patent Rights also elects not to undertake such enforcement or defense, Radius will not object to Teijin entering into an arrangement with such joint owner pursuant to which Teijin would have the right to undertake such enforcement or defense and to exercising its rights in connection with such arrangement and agrees to provide reasonable cooperation in the course of such enforcement or defense by Teijin and/or the joint owner, if and to the extent Radius is required, as the other joint owner of the Radius Patent Rights, by applicable Law.

7.3.3 Teijin Patent Rights. As between the Parties, Teijin has the sole right (but not the obligation) to defend and enforce Sole Patent Rights, the Teijin Patent Rights and the Teijin Know-How.

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7.3.4 Joint Patent Rights.

(a) As between Radius and Teijin, [*] will have the first right (but not the obligation) to take the appropriate steps to enforce or defend any Patent within the Joint Patent Rights against infringement by a Third Party. [*] may take steps including the initiation, prosecution and control of any suit, proceeding or other legal action by counsel of its own choice. [*] shall bear the costs of such enforcement or defense, as applicable. Notwithstanding the foregoing, [*] will have the right, at its own expense, to be represented in any such action by counsel of its own choice.

(b) If, pursuant to Section 7.3.4(a), [*] fails to institute such litigation or otherwise take steps to remedy the infringement of a Joint Patent Right within [*] ([*]) days of the date one Party has provided notice to the other Party pursuant to Section 7.3.1 of such infringement or claim, then [*] will have the right (but not the obligation), at its own expense, to bring any such suit, action or proceeding by counsel of its own choice and [*] will have the right, at its own expense, to be represented in any such action by counsel of its own choice.

(c) If one Party brings any suit, action or proceeding under Sections 7.3.4(a) or 7.3.4(b), the other Party agrees to be joined as party plaintiff if necessary to prosecute the suit, action or proceeding and to give the first Party reasonable authority to file and prosecute the suit, action or proceeding; provided, however, that neither Party will be required to transfer any right, title or interest in or to any property to the other Party or any other party to confer standing on a Party hereunder.

(i) The Party not pursuing the suit, action or proceeding hereunder will provide reasonable assistance to the other Party, including by providing access to relevant documents and other evidence and making its employees available, subject to the other Party's reimbursement of any out of pocket costs incurred by the non-enforcing or defending Party in providing such assistance.

(ii) Neither Party shall, without the prior written consent of the other Party (in its sole discretion), enter into any compromise or settlement relating to any claim, suit or action that it brought under Section 7.3.4(a) or 7.3.4(b) involving a Joint Patent Right, that admits the invalidity or unenforceability of any Joint Patent Right, or requires the other Party to pay any sum of money, or otherwise adversely affects the rights of the other Party with respect to such Joint Patent Rights, Abalo-SC or the other Party's rights hereunder (including the rights to receive payments).

(iii) Any settlements, damages or other monetary awards (a " **Recovery** ") recovered pursuant to a suit, action or proceeding brought pursuant to Sections 7.3.4(a) or 7.3.4(b) will be allocated first to the costs and expenses of the Party taking such action, and second, to the costs and expenses (if any) of the other Party, with any remaining amounts (if any) to be allocated to the Parties as follows: (1) if such Recovery is a payment for lost sales of Abalo-SC by Radius outside Japan, then the remaining amounts will allocated in full to Radius, (2) if such Recovery is a payment for lost sales of Abalo-SC by Teijin in Japan, then the remaining amounts will be allocated in full to Teijin; provided that Radius shall be paid a

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Royalty Payment on such amounts in accordance with Section 6.3.1, (3) if such Recovery is a payment for lost sales of Abalo-SC by both Radius and Teijin, then Radius and Teijin shall receive [*] in which the applicable suit, action or proceeding is brought under Sections 7.3.4(a) or 7.3.4(b); provided that Radius shall be paid a Royalty Payment on such amounts allocated to Teijin in accordance with Section 6.3.1 and (4) any amounts not covered by the foregoing clauses (1), (2) and (3) shall be retained by the Party taking such action.

(d) Teijin and Radius shall consult with respect to any term extensions, supplemental protection certificates, regulatory exclusivity and equivalents thereof offering Patent protection beyond the initial term with respect to any issued Joint Patent Rights available under applicable Law in any country or regulatory jurisdiction. Radius and Teijin shall cooperate in connection with all such activities. Each Party will give due consideration to all suggestions and comments of the other Party regarding any such activities, but in the event of a disagreement between the Parties, Radius will have final decision making authority with respect to the Patent protection of such Joint Patent Rights in any such country or regulatory jurisdiction outside Japan and Teijin will have the final decision making authority with respect to the Patent protection of such Joint Patent Rights in Japan.

ARTICLE 8
REPRESENTATIONS, WARRANTIES AND COVENANTS

8.1 Mutual Representations and Warranties. Each Party hereby represents and warrants (as applicable) to the other Party as follows, as of the Effective Date:

8.1.1 Corporate Existence and Power. It is a company or corporation duly organized, validly existing, and, with respect to Radius only, is in good standing under the laws of the jurisdiction in which it is incorporated, and has full corporate power and authority and the legal right to own and operate its property and assets and to carry on its business as it is now being conducted and as contemplated in this Agreement, including the right to grant the licenses granted by it hereunder.

8.1.2 Authority and Binding Agreement. (i) It has the corporate power and authority and the legal right to enter into this Agreement and perform its obligations hereunder, (ii) it has taken all necessary corporate action on its part required to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder, and (iii) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, and binding obligation of such Party that is enforceable against it in accordance with its terms, except as enforcement may be affected by bankruptcy, insolvency or other similar laws and by general principles of equity.

8.1.3 No Conflicts. The execution, delivery and performance of this Agreement by it does not (i) conflict with any agreement, instrument or understanding, oral or written, to which it is a party and by which it may be bound, subject in all cases to the rights of Ipsen under the Existing Radius Agreement and Existing Teijin Agreement or (ii) violate any Laws of any Governmental Authority having jurisdiction over it.

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8.1.4 All Consents and Approvals Obtained. Except with respect to Regulatory Approvals for the Development, Manufacturing or Commercialization of Abalo-SC or as otherwise described in this Agreement, (i) all necessary consents, approvals and authorizations of, and (ii) all notices to, and filings by such Party with, all Governmental Authorities and other Persons required to be obtained or provided by such Party as of the Effective Date in connection with the execution, delivery and performance of this Agreement have been obtained and provided, except for those approvals, if any, not required at the time of execution of this Agreement.

8.2 Additional Representations, Warranties and Covenants of Radius. Radius hereby represents and warrants to Teijin, and, where specifically noted covenants, that, as of the Effective Date:

8.2.1 Radius has previously delivered or made available to Teijin a true and complete copy of the Existing Radius Agreement.

8.2.2 Radius has previously delivered or made available to Teijin a true and complete copy of the Commercial Supply Agreement entered into between Radius and Vetter Pharma International GmbH effective as of January 1, 2016 and the Manufacturing Services Agreement entered into between Radius an Lonza Sales Ltd, effective as of June 28, 2016 " **Supplier Agreements** "). Each of the Supplier Agreements remains in effect. To the knowledge of Radius, no party to a Supplier Agreement is in material breach of the applicable Supplier Agreement.

8.2.3 There are no claims, judgments or settlements against or owed by Radius, nor any pending reissue, reexamination, interference, opposition or similar proceedings with respect to Radius Patent Rights, and Radius has not received written notice of any threatened claims or litigation or any reissue, reexamination, interference, opposition or similar proceedings seeking to invalidate or otherwise challenge, the Radius Patent Rights.

8.2.4 To Radius's knowledge, Radius is the joint legal and beneficial owner of all Radius Patent Rights, free and clear of any liens and encumbrances, and, to Radius's knowledge, no Third Party other than the joint owner has any right, interest or claim in or to, and neither Radius nor any of its Affiliates has entered into any agreement granting any right, interest or claim in or to, any such Radius Patent Rights to any Third Party other than the joint owner.

8.2.5 There are no issued Patent Rights Controlled by Radius that are (a) necessary or useful for the Development or Commercialization of Abalo-SC in Japan other than those issued Patent Rights set forth in Section A of Schedule 1.44 or (b) necessary or useful for the Manufacture of Abalo-SC anywhere in the world for purposes of Development or Commercialization in Japan other than those issued Patent Rights set forth in Section B of Schedule 1.44 . Furthermore, there are no pending Patent Rights Controlled by Radius in Japan that are necessary or useful for the Development, Commercialization or use of Abalo-SC in Japan. Radius covenants not to sue Teijin for infringement of any Patent Rights Controlled by Radius that issue from patent applications pending and Controlled by Radius as of the Effective

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Date in connection with the Manufacture by Teijin of Abalo-SC for purposes of Development or Commercialization by Teijin of Abalo-SC in Japan.

8.2.6 Radius has paid all maintenance fees with respect to the Radius Patent Rights in Japan that are required by the Japanese Patent office to maintain the Radius Patent Rights.

8.2.7 Radius has taken reasonable steps to maintain the confidentiality of the Confidential Information of Radius that is Radius Know-How contained in the Regulatory Data and Regulatory Materials.

8.2.8 No written claim has been made by Radius which alleges that a Third Party (a) is infringing Radius Patent Rights in Japan or (b) has made an unauthorized disclosure or misappropriation of Radius Know-How in Japan.

8.2.9 To Radius's knowledge, no funding, facilities, or personnel of any Governmental Authority or any college, university, or other educational institution were used, directly or indirectly, to develop or create, in whole or in part, any Radius Patent Rights in Japan.

8.2.10 To Radius's knowledge, neither the execution, delivery, or performance of this Agreement nor the consummation of any of the transactions contemplated by this Agreement will, with or without notice or lapse of time, result in, or give any other Person the right or option to cause or declare: (a) a loss of, or lien or other encumbrance on, any Radius Patent Rights or Radius Know-How in Japan; or (b) the grant, assignment, or transfer to any other Person of any license or other right to interest under, to, or in any of Radius Patent Rights.

8.3 Additional Representations, Warranties and Covenants of Teijin. Teijin hereby represents and warrants and, as applicable, covenants to Radius that, as of the Effective Date:

8.3.1 All Abalo-SC Commercialized by, or under authority of, Teijin shall be handled, stored and shipped by Teijin, in accordance with, and shall conform to, all applicable Laws, including GMPs.

8.3.2 Teijin has provided a true and complete copy of the Existing Teijin Agreement to Radius prior to the amendment thereto that will become effective as of the Effective Date. The Existing Teijin Agreement is the only agreement in place between Teijin (or its Affiliates) and a Third Party that pursuant to which Teijin (or its Affiliates) are granted licenses to use intellectual property rights that are necessary or useful for the Development, Manufacture or Commercialization of Abalo-SC in the Field in Japan.

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8.3.3 There are no Teijin Patent Rights and there are no pending Patent Rights that are A. Controlled by Teijin and B. necessary or useful to the Development, Manufacture, Commercialization or use of Abalo-SC.

8.3.4 Teijin has taken reasonable steps to maintain the confidentiality of the Confidential Information of Teijin that is Teijin Know-How contained in the Regulatory Data and Regulatory Materials.

8.3.5 To Teijin's knowledge, no written claim has been made to Teijin or its Affiliates by a Third Party which alleges that Development, Commercialization or Manufacture of Abalo-SC infringes the Japanese intellectual property rights of such Third Party.

8.3.6 No written claim has been made by Teijin which alleges that a Third Party has made an unauthorized disclosure or misappropriation of Teijin Know-How.

8.4 Disclaimer. Teijin understands that Abalo-SC is the subject of ongoing clinical research and development and that Radius cannot ensure the safety or usefulness of Abalo-SC or that Abalo-SC will receive Regulatory Approvals.

8.5 No Other Representations or Warranties. EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR NON-MISAPPROPRIATION OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, ARE MADE OR GIVEN BY OR ON BEHALF OF A PARTY. EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, ALL REPRESENTATIONS AND WARRANTIES, WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE, ARE HEREBY EXPRESSLY EXCLUDED.

ARTICLE 9
INDEMNIFICATION

9.1 Indemnification by Radius. Radius hereby agrees to save, indemnify, defend and hold Teijin, its Affiliates, and their respective directors, officers, agents and employees harmless from and against any and all losses, damages, liabilities, costs and expenses (including reasonable attorneys' fees and expenses) (collectively, **"Losses"**) arising in connection with any and all charges, complaints, actions, suits, proceedings, hearings, investigations, claims, demands, judgments, orders, decrees, stipulations or injunctions by a Third Party (each a **"Third Party Claim"**) resulting or otherwise arising from (i) any breach by Radius of any of its representations, warranties, covenants or obligations pursuant to this Agreement, (ii) the negligence or willful misconduct by Radius or its Affiliates or their respective officers, directors, employees, agents, consultants or sublicensee in performing any obligations under this Agreement or (iii) any matter related to the (a) Development or Commercialization of Abalo-SC by Radius and (b) clinical Manufacture of API hereunder (including, for clarity, product liability Losses resulting therefrom) by Radius or its Affiliates or their respective officers, directors,

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employees, agents, consultants or sublicensees; in each case except to the extent that such Losses are subject to indemnification by Teijin pursuant to Section 9.2.

9.2 Indemnification by Teijin. Teijin hereby agrees to save, indemnify, defend and hold Radius, its Affiliates, and their respective directors, agents and employees harmless from and against any and all Losses arising in connection with any and all Third Party Claims resulting or otherwise arising from (i) any breach by Teijin of any of its representations, warranties, covenants or obligations pursuant to this Agreement, (ii) the negligence or willful misconduct by Teijin or its Affiliates or their respective officers, directors, employees, agents, consultants or sublicensees in performing any obligations under this Agreement, or (iii) any matter related to the Development or Commercialization of Abalo-SC by Teijin or its Affiliates or their respective officers, directors, employees, agents, consultants or sublicensees; in each case except to the extent that such Losses are subject to indemnification by Radius pursuant to Section 9.1.

9.3 Indemnification Procedures.

9.3.1 Notice of Claim. All indemnification claims in respect of any indemnitee seeking indemnity under Section 9.1 or 9.2, as applicable (collectively, the **"Indemnitees"** and each an **"Indemnitee"**) will be made solely by the corresponding Party (the **"Indemnified Party"**). The Indemnified Party will give the indemnifying Party (the **"Indemnifying Party"**) prompt written notice (an **"Indemnification Claim Notice"**) of any Losses and any legal proceeding initiated by a Third Party against the Indemnified Party as to which the Indemnified Party intends to make a request for indemnification under Section 9.1 or 9.2, as applicable; provided, however, that Indemnified Party's failure or delay in providing such notice shall not relieve the Indemnifying Party of its indemnification obligation except to the extent the Indemnifying Party is prejudiced thereby. Each Indemnification Claim Notice shall contain a description of the claim and the nature and amount of such Loss (to the extent that the nature and amount of such Loss are known at such time). Together with the Indemnification Claim Notice, the Indemnified Party will furnish promptly to the Indemnifying Party copies of all notices and documents (including court papers) received by any Indemnitee in connection with the Third Party Claim.

9.3.2 Control of Defense. At its option, the Indemnifying Party may assume the defense of any Third Party Claim subject to indemnification as provided for in Section 9.1 or 9.2, as applicable, by giving written notice to the Indemnified Party within thirty (30) days after the Indemnifying Party's receipt of an Indemnification Claim Notice. Upon assuming the defense of a Third Party Claim, the Indemnifying Party may appoint as lead counsel in the defense of the Third Party Claim any legal counsel it selects, and such Indemnifying Party shall thereafter continue to defend such Third Party Claim in good faith. Should the Indemnifying Party assume the defense of a Third Party Claim (and continue to defend such Third Party Claim in good faith), the Indemnifying Party will not be liable to the Indemnified Party or any other Indemnitee for any legal expenses subsequently incurred by such Indemnified Party or other Indemnitee in connection with the analysis, defense or settlement of the Third Party Claim,

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unless the Indemnifying Party has failed to assume the defense and employ counsel in accordance with this Section 9.3.

9.3.3 Right to Participate in Defense. Without limiting Section 9.3.2, any Indemnitee will be entitled to participate in the defense of a Third Party Claim for which it has sought indemnification hereunder and to employ counsel of its choice for such purpose; provided, however, that such employment will be at the Indemnitee's own expense unless (i) the employment thereof has been specifically authorized by the Indemnifying Party in writing, or (ii) the Indemnifying Party has failed to assume the defense (or continue to defend such Third Party Claim in good faith) and employ counsel in accordance with this Section 9.3, in which case the Indemnified Party will be allowed to control the defense.

9.3.4 Settlement. With respect to any Losses relating solely to the payment of money damages in connection with a Third Party Claim and that will not result in the Indemnitee becoming subject to injunctive or other relief or otherwise adversely affect the business of the Indemnitee in any manner, and as to which the Indemnifying Party will have acknowledged in writing the obligation to indemnify the Indemnitee hereunder, the Indemnifying Party will have the sole right to consent to the entry of any judgment, enter into any settlement or otherwise dispose of such Loss, on such terms as the Indemnifying Party, in its reasonable discretion, will deem appropriate (provided, however, that such terms shall include [*]), and will [*]. With respect to all other Losses in connection with Third Party Claims, where the Indemnifying Party has assumed the defense of the Third Party Claim in accordance with Section 9.3.2, the Indemnifying Party will have authority to consent to the entry of any judgment, enter into any settlement or otherwise dispose of such Loss, provided it obtains the prior written consent of the Indemnified Party (which consent will be at the Indemnified Party's reasonable discretion). The Indemnifying Party that has assumed the defense of (and continues to defend) the Third Party Claim in accordance with Section 9.3.2 will not be liable for any settlement or other disposition of a Loss by an Indemnitee that is reached without the written consent of such Indemnifying Party. Regardless of whether the Indemnifying Party chooses to defend or prosecute any Third Party Claim, no Indemnitee will admit any liability with respect to, or settle, compromise or discharge, any Third Party Claim without first offering to the Indemnifying Party the opportunity to assume the defense of the Third Party Claim in accordance with Section 9.3.2.

9.3.5 Cooperation. If the Indemnifying Party chooses to defend or prosecute any Third Party Claim, the Indemnified Party will, and will cause each other Indemnitee to, cooperate in the defense or prosecution thereof and will furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection with such Third Party Claim. Such cooperation will include access during normal business hours afforded to the Indemnifying Party to, and reasonable retention by the Indemnified Party of, records and information that are reasonably relevant to such Third Party Claim, and making Indemnitees and other employees and agents available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder, and the Indemnifying Party will reimburse the Indemnified Party for all its reasonable out-of-pocket expenses incurred in connection with such cooperation.

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9.3.6 Expenses of the Indemnified Party. Except as provided above, the reasonable and verifiable costs and expenses, including fees and disbursements of counsel, incurred by the Indemnitees in connection with any Third Party Claim will be reimbursed on a calendar quarter basis by the Indemnifying Party, without prejudice to the Indemnifying Party's right to contest the Indemnitees right to indemnification and subject to refund in the event the Indemnifying Party is ultimately held not to be obligated to indemnify the Indemnitees.

9.4 Limitation of Liability. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 9.4 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER SECTION 9.1 or 9.2, OR DAMAGES AVAILABLE FOR A PARTY'S BREACH OF CONFIDENTIALITY OBLIGATIONS UNDER ARTICLE 10.

9.5 Insurance. Each Party shall (provided that Teijin shall be allowed to self-insure) procure and maintain insurance, including clinical trials insurance and product liability insurance, adequate to cover its obligations hereunder and which is consistent with normal business practices of prudent companies similarly situated at all times during which Abalo-SC is being clinically tested in human subjects or commercially distributed or sold by such Party pursuant to this Agreement. It is understood that such insurance shall not be construed to create a limit of either Party's liability with respect to its indemnification obligations under this Article 9. Each Party shall provide the other Party with written evidence of such insurance upon written request therefor. Each Party shall provide the other Party with written notice at least thirty (30) days prior to the cancellation, nonrenewal or material change in such insurance or self-insurance which materially adversely affects the rights of the other Party hereunder.

ARTICLE 10
CONFIDENTIALITY

10.1 Confidential Information. As used in this Agreement, the term **"Confidential Information"** means all information, whether it be written or oral, including all production schedules, lines of products, volumes of business, processes, new product developments, product designs, formulae, technical information, laboratory data, clinical data, patent information, know-how, trade secrets, financial and strategic information, marketing and promotional information and data, and other material relating to any products, projects or processes of one Party (the **"Disclosing Party"**) that is provided to, or otherwise obtained by, the other Party (the **"Receiving Party"**) in connection with this Agreement (including information exchanged prior to the Effective Date in connection with the transactions set forth in this Agreement) and for the avoidance of doubt shall include Joint Inventions. Notwithstanding the foregoing sentence, Confidential Information shall not include any information or materials that:

(a) were already known to the Receiving Party (other than under an obligation of confidentiality), at the time of disclosure by the Disclosing Party, to the extent such Receiving Party has documentary evidence to that effect;

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(b) were generally available to the public or otherwise part of the public domain at the time of disclosure thereof to the Receiving Party;

(c) became generally available to the public or otherwise part of the public domain after disclosure or development thereof, as the case may be, and other than through any act or omission of a Party in breach of such Party's confidentiality obligations under this Agreement;

(d) were disclosed to a Party, other than under an obligation of confidentiality, by a Third Party who had no obligation to the Disclosing Party not to disclose such information to others; or

(e) were independently discovered or developed by or on behalf of the Receiving Party without the use of the Confidential Information belonging to the other Party, to the extent such Receiving Party has documentary evidence to that effect.

10.2 Confidentiality Obligations. Each of Teijin and Radius shall keep all Confidential Information received from or on behalf of the other Party with the same degree of care with which it maintains the confidentiality of its own Confidential Information, but in all cases no less than a reasonable degree of care. Neither Party shall use such Confidential Information for any purpose other than in performance of its obligations or the exercise of its rights pursuant to this Agreement or disclose the same to any other Person other than to such of its and its Affiliates' directors, managers, employees, independent contractors, agents, consultants or sublicensees who have a need to know such Confidential Information to implement the terms of this Agreement or enforce its rights under this Agreement; provided, however, that a Receiving Party shall advise any of its and its Affiliates' directors, managers, employees, independent contractors, agents, consultants or sublicensees who receives such Confidential Information of the confidential nature thereof and of the obligations contained in this Agreement relating thereto, and the Receiving Party shall ensure (including, in the case of a Third Party, by means of a written agreement with such Third Party having terms at least as protective as those contained in this Article 10) that all such directors, managers, employees, independent contractors, agents, consultants or sublicensees comply with such obligations. Upon termination of this Agreement, the Receiving Party shall return or destroy all documents, tapes or other media containing Confidential Information of the Disclosing Party that remain in the possession of the Receiving Party or its directors, managers, employees, independent contractors, agents, consultants or sublicensees, except that the Receiving Party may keep one copy of the Confidential Information in the legal department files of the Receiving Party, solely for archival purposes. Such archival copy shall be deemed to be the property of the Disclosing Party, and shall continue to be subject to the provisions of this Article 10. It is understood that receipt of Confidential Information under this Agreement will not limit the Receiving Party from assigning its employees to any particular job or task in any way it may choose, subject to the terms and conditions of this Agreement.

10.3 Permitted Disclosure and Use. Notwithstanding Section 10.2, either Party may disclose Confidential Information belonging to the other Party only to the extent such disclosure is reasonably necessary to: (a) comply with or enforce any of the provisions of this Agreement;

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(b) comply with applicable Law; and (c) obtain or maintain Regulatory Approval of (i) Abalo-SC in Japan (in the case of Teijin); or (ii) Abalo-SC and any other Licensed Product outside Japan (in the case of Radius), to the extent such disclosure is made to a Governmental Authority. If a Party deems it necessary to disclose Confidential Information of the other Party pursuant to this Section 10.3, such Party shall give reasonable advance written notice of such disclosure to the other Party to permit such other Party sufficient opportunity to object to such disclosure or to take measures to ensure confidential treatment of such information, including seeking a protective order or other appropriate remedy. Either Party may also disclose Confidential Information belonging to the other Party related to Abalo-SC to Ipsen if required pursuant to the Existing Radius Agreement or Existing Teijin Agreement (as applicable). Notwithstanding Section 10.2, either Party may disclose Confidential Information belonging to the other Party to Third Parties who have a need to know such Confidential Information in connection with (1) the Development or Commercialization of Abalo-SC and Licensed Product (as applicable) by such Party (in the case of Radius, outside Japan or in Japan, in the case of Teijin) or (2) a financing or strategic transaction (provided, that, in each case of (1) and (2), such Third Parties are bound by written agreements having terms at least as protective as those contained in this Article 10 with respect to keeping such Confidential Information confidential).

10.4 Notification. The Receiving Party shall notify the Disclosing Party promptly in writing upon discovery of any unauthorized use or disclosure of the Disclosing Party's Confidential Information, and will cooperate with the Disclosing Party in any reasonably requested fashion to assist the Disclosing Party to regain possession of such Confidential Information and to prevent its further unauthorized use or disclosure.

10.5 Publicity; Filing of this Agreement.

10.5.1 Publicity. Radius intends to issue a press release in connection with the transactions under this Agreement and will provide a draft of such release to Teijin for prior review and comment and consider in good faith any comments regarding the draft press release made by Teijin. Except as otherwise provided in this Section 10.5, each Party shall maintain the confidentiality of all provisions of this Agreement, and, without the prior written consent of the other Party, which consent shall not be unreasonably withheld, neither Party nor its respective Affiliates shall make any press release or other public announcement of, or otherwise disclose, the provisions of this Agreement to any Third Party, except for: (i) disclosure to those of its directors, officers, employees, accountants, attorneys, underwriters, lenders and other financing sources, potential strategic partners, advisors, agents and sublicensees whose duties reasonably require them to have access to this Agreement, provided that such directors, officers, employees, accountants, attorneys, underwriters, lenders and other financing sources, advisors, agents, potential strategic partners or sublicensees are required to maintain the confidentiality of this Agreement, (ii) disclosures required by Nasdaq regulation or any listing agreement with a national securities exchange or in the case of Teijin the rules of the Tokyo Stock Exchange or other exchange on which Teijin's securities are or may be listed or traded, in which case the disclosing Party shall provide the non-disclosing Party with at least forty eight (48) hours' advance written notice unless otherwise not practicable, but in any event no later than the time the disclosure required by such Nasdaq regulation or listing agreement is made, (iii) disclosures

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as may be required by Law, in which case the disclosing Party shall provide the non-disclosing Party with prompt advance written notice of such disclosure and cooperate with the non-disclosing Party to seek a protective order or other appropriate remedy, including a request for confidential treatment in the case of a filing with the U.S. Securities and Exchange Commission, (iv) the report on Form 8-K, which may be filed by Radius or an Affiliate of Radius setting forth the press release referred to above, and/or this Agreement in redacted form as provided in Section 10.5.2, (v) disclosures that are consistent with or complementary to those described in clause (iv) but which do not contain any Confidential Information of the other Party; and (vi) other disclosures for which consent has previously been given. A Party may publicly disclose without regard to the preceding requirements of this Section 10.5 any information that was previously publicly disclosed pursuant to this Section 10.5.

10.5.2 Redacted Agreement . The Parties acknowledge that either or both Parties may be obligated to file a copy of this Agreement with the U.S. Securities and Exchange Commission or other Governmental Authorities. Each Party shall be entitled to make such a required filing; provided, that it initially file a redacted copy of this Agreement approved by both Parties (" **Redacted Agreement** ") and requests confidential treatment of the terms redacted from this Agreement for a reasonable period of time. In the event of any such filing, each Party shall (i) permit the other Party to review and comment upon such request for confidential treatment and any subsequent correspondence with respect thereto at least [*] ([*]) business days in advance of its submission to the U.S. Securities and Exchange Commission or such other Governmental Authorities, (ii) reasonably consider and incorporate the other Party's comments thereon to the extent consistent with the then-current legal requirements governing redaction of information from material agreements that must be publicly filed, (iii) promptly deliver to the other Party any written correspondence received by it or its representatives from such Governmental Authority, if any, with respect to such confidential treatment request and promptly advise the other Party of any other communications between it or its representatives with such Governmental Authority with respect to such confidential treatment request, (iv) upon the written request of the other Party, request an appropriate extension of the term of the confidential treatment period, where available and (v) if such Governmental Authority requests any changes to the redactions set forth in the Redacted Agreement, use commercially reasonable efforts to support the redactions in the Redacted Agreement as originally filed (to the extent consistent with the then-current legal requirements governing redaction of information from material agreements that must be publicly filed) and, to the extent reasonably practicable, not agree to any changes to the Redacted Agreement without first discussing such changes with the other Party and taking the other Party's comments into consideration when deciding whether to agree to such changes. Each Party shall be responsible for its own legal and other external costs in connection with any such filing, registration or notification.

10.6 Use of Names. Except as otherwise set forth in this Agreement, neither Party shall use the name of the other Party in relation to this transaction in any public announcement, press release or other public document without the prior written consent of such other Party, which consent shall not be unreasonably withheld; provided, however, that subject to Section 10.5, either Party may use the name of the other Party in any document filed with any Regulatory Authority, including the FDA, EMA, PMDA and the U.S. Securities and Exchange Commission.

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10.7 Publications. Teijin acknowledges and agrees that before it makes any Publication of any Regulatory Data or Regulatory Materials (including any such data and materials generated from any preclinical and clinical trials commenced as of the Effective Date) of Radius, which are the subject of the right of reference granted to Teijin under Section 2.1.3: (i) it shall provide a copy of the proposed text of such Publication to Radius, and Radius shall have at least [*] ([*]) business days to review the proposed Publication and to provide comments to Teijin, (ii) Teijin shall incorporate all comments and proposed changes requested by Radius in any such Publication, (iii) Teijin shall remove any Confidential Information of Radius, as may be requested by Radius, (iv) Teijin shall provide appropriate attribution to Radius and designate authorship to Radius at a level commensurate with Radius' contribution in accordance with prevailing standards for authorship of scientific publications, and (v) Radius shall have final approval over any such Publication.

10.8 Survival. The obligations and prohibitions contained in this Article 10 as they apply to Confidential Information shall survive the expiration or termination of this Agreement for a period of ten (10) years.

ARTICLE 11
TERM AND TERMINATION

11.1 Term. This Agreement shall become effective on the Effective Date and, unless earlier terminated pursuant to this Article 11, shall remain in effect until the expiration of the Royalty Term in Japan (the " **Term** ").

11.2 Termination for Breach. Either Party may, without prejudice to any other remedies available to it at law or in equity, terminate this Agreement upon written notice to the other Party in the event that the other Party (the " **Breaching Party** ") shall have materially breached or defaulted in the performance of its obligations under this Agreement. The Breaching Party shall have sixty (60) days (thirty (30) days in the event of payment) after written notice thereof was provided to the Breaching Party by the non-breaching Party to remedy such default. Unless the Breaching Party has cured any such breach or default prior to the expiration of such sixty (60) day period (thirty (30) days in the event of payment), such termination shall become effective upon the end of the sixty (60) day period (thirty (30) days in the event of payment). In the event of any dispute as to whether or not a material breach has been committed under this Section 11.2, the matter shall be submitted to and finally resolved by arbitration in accordance with Section 13.3 (provided, however, that referral to the Executive Officers shall not be applicable, and the time period for a decision under Section 13.3 shall be three (3) months following selection of the arbitrators).

11.3 Termination as a Result of Bankruptcy. Each Party shall have the right to terminate this Agreement upon written notice as a result of 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, that such termination shall not be effective if such proceeding is dismissed within ninety (90) days after the filing thereof.

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11.4 Termination for Safety, Efficacy or Economic Hardship. Teijin shall have the right to terminate this Agreement upon sixty (60) days prior written notice to Radius if (a) Teijin reasonably believes that Abalo-SC cannot reasonably be Developed or Commercialized or Teijin cannot continue to Commercialize Abalo-SC due to reasons of safety, efficacy, pharma-economics, economic hardship and/or marketability and provides documentation to Radius that supports such determination and (b) Teijin permanently abandons the Development and Commercialization of Abalo-SC.

ARTICLE 12
EFFECTS OF TERMINATION

12.1 Effects of Termination for Breach and Bankruptcy. Without limiting any other legal or equitable remedies that a Party may have, if either Party terminates this Agreement pursuant to Sections 11.2 or 11.3, except as otherwise expressly provided in this Agreement, all rights and licenses granted by each Party to the other Party hereunder shall immediately terminate and be of no further force and effect.

12.2 Effects of Termination for Safety, Efficacy or Economic Hardship. Without limiting any other legal or equitable remedies that a Party may have, if Teijin terminates this Agreement pursuant to Section 11.4, except as otherwise expressly provided in this Agreement:

12.2.1 all rights and licenses granted by Radius to Teijin hereunder shall immediately terminate and be of no further force and effect;

12.2.2 Teijin shall, and hereby does effective as of the effective date of termination, assign to Radius all of its right, title, and interest in and to all Regulatory Materials (including any Regulatory Approvals), Joint Inventions, Joint Patent Rights, Teijin Patent Rights and Teijin Know-How solely related to Abalo-SC then owned by Teijin or any of its Affiliates, and shall cause any and all Sublicensees to assign to Radius any such Regulatory Materials then owned by such Sublicensees;

12.2.3 Teijin shall, and hereby does effective as of the effective date of termination, grant Radius an exclusive license and right of reference, with the right to grant multiple tiers of sublicenses and further rights of reference, under all Regulatory Materials (including any Regulatory Approvals), Joint Inventions, Joint Patent Rights, Teijin Patent Rights and Teijin Know-How then owned or Controlled by Teijin or any of its Affiliates or Sublicensees that are not assigned to Radius pursuant to clause 12.2.2 above that are necessary or useful for Radius or any of its Affiliates or sublicensees to Develop, make, have made, use, sell, have sold, offer to sell, import or Commercialize Licensed Product anywhere in the world, for which Radius shall pay Teijin a [*] royalty [*] commencing when Teijin sends notice of termination to Radius pursuant to Section 11.4; and

12.2.4 upon Radius's written request within thirty (30) days following such termination, unless prohibited by the applicable Regulatory Authority, Teijin shall transition any on-going clinical trials covering Abalo-SC conducted by or on behalf of Teijin to Radius.

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12.3 Expiration. Upon expiration of this Agreement pursuant to Section 11.1, all rights and licenses granted to (i) Teijin under Section 2.1 shall become fully-paid, perpetual, royalty-free licenses or sublicenses (as applicable), with the right for Teijin to grant multiple tiers of sublicenses and (ii) Radius under Section 2.2 shall become fully-paid, perpetual and irrevocable, licenses or sublicenses (as applicable), with the right for Radius to grant multiple tiers of sublicenses.

12.4 Accrued Rights. Termination or expiration of this Agreement for any reason will be without prejudice to any rights that will have accrued to the benefit of a Party prior to the effective date of such termination. Such termination will not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement.

12.5 Survival. Notwithstanding anything to the contrary contained herein, the following provisions shall survive any expiration or termination of this Agreement: Section 6.8, Section 6.9 (for the time period set forth therein), Section 7.1, Article 9, Article 10 (for the time period set forth in Section 10.8), Article 12, Article 13 (with respect to disputes for which notice was given during the Term), Section 14.1, Section 14.3, Section 14.4, Section 14.7, Section 14.8, and Section 14.10. Except as set forth in this Article 12 or otherwise expressly set forth herein, upon termination or expiration of this Agreement all other rights and obligations of the Parties shall cease.

12.6 Rights in Bankruptcy . All rights and licenses granted under or pursuant to this Agreement by Radius and Teijin are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that each Party, as licensee of certain rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code.

ARTICLE 13
DISPUTE RESOLUTION

13.1 Disputes. The Parties recognize that, from time to time during the Term, disputes may arise as to certain matters which relate to either Party's rights and/or obligations hereunder. It is the objective of the Parties to establish procedures to facilitate the resolution of disputes arising under this Agreement in an expedient manner by mutual cooperation and without resort to litigation. To accomplish this objective, the Parties agree to follow the procedures set forth in this Article 13 to resolve any controversy or claim arising out of, relating to or in connection with any provision of this Agreement (other than a dispute addressed in Section 3.4, except a dispute as to whether a dispute should be resolved pursuant to Section 3.4 by Teijin or Radius).

13.2 Arising Between the Parties. With respect to all disputes arising between the Parties and not from the JSC, including any alleged failure to perform, or breach, of this Agreement, or any issue relating to the interpretation or application of this Agreement, if the Parties are unable to resolve such dispute within thirty (30) days after such dispute is first identified by either Party in writing to the other, the Parties shall refer such dispute to the Chief

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Executive Officers of each of the Parties, or a designee from senior management with decision making authority (the Chief Executive Officer or such designee, the **"Executive Officer"**) for attempted resolution by good-faith negotiations within thirty (30) days after such notice is received.

13.3 Dispute Resolution. If the Executive Officers are not able to resolve such dispute referred to them under Section 13.2 within such thirty (30) day period, then either Party shall have right to refer such dispute for binding arbitration under the Rules of Arbitration of the International Chamber of Commerce (" **ICC** "). The arbitration will be heard and determined by three (3) arbitrators who are retired judges or attorneys with at least ten (10) years of experience in the pharmaceutical and biotechnology industry, each of whom will be a neutral. Each Party will appoint one arbitrator and the third arbitrator will be selected by the two Party-appointed arbitrators, or, failing agreement within thirty (30) days following the date of receipt by the respondent of the claim, by ICC. Such arbitration will take place in San Francisco, CA. Unless the Parties otherwise agree, (i) the arbitrators shall apply the International Bar Association Rules on the Taking of Evidence in International Commercial Arbitration and (ii) the arbitrators shall not have the power to appoint experts. The arbitrators shall not issue any award, grant any relied or take any action that is prohibited by or inconsistent with the terms of this Agreement and shall not, under any circumstances, award punitive or exemplary damages. A written decision shall be rendered by the arbitrators following a full comprehensive hearing, no later than twelve (12) months following the selection of the arbitrators as provided for in this Section 13.3. The arbitration award so given will be a final and binding determination of the dispute, will be fully enforceable in any court of competent jurisdiction, and will not include any damages expressly prohibited by Section 9.4. Fees, costs and expenses of arbitration are to be divided by the Parties in the following manner: Radius will pay for the arbitrator it chooses, Teijin will pay for the arbitrator it chooses, and the Parties will share payment for the third arbitrator. Except in a proceeding to enforce the results of the arbitration or as otherwise required by Law, neither Party nor any arbitrator may disclose the existence, content or results of any arbitration hereunder without the prior written agreement of both Parties.

ARTICLE 14
MISCELLANEOUS

14.1 Entire Agreement; Amendment. This Agreement, including the Schedules hereto, sets forth the complete, final and exclusive agreement and all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto with respect to the subject matter hereof and supersedes, as of the Effective Date, all prior agreements and understandings between the Parties with respect to the subject matter hereof. No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by an authorized representative of each Party.

14.2 Force Majeure. If the performance of any part of this Agreement by either Party, or of any obligation under this Agreement, is prevented, restricted, interfered with or delayed by reason of a Force Majeure event affecting the Party liable to perform, unless conclusive evidence to the contrary is provided, the Party so affected shall, upon giving written notice to the other

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Party, be excused from such performance to the extent of such Force Majeure event; provided, that the affected Party shall use its commercially reasonable efforts to avoid or remove such causes of nonperformance and shall continue performance with the utmost dispatch whenever such Force Majeure event ceases. When such circumstances arise, the Parties shall discuss what, if any, modification of the terms of this Agreement may be required in order to arrive at an equitable solution. Notwithstanding the foregoing, a Party shall not be excused from making payments owed hereunder because of Force Majeure event affecting such Party.

14.3 Notices. Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be addressed to the appropriate Party at the address specified below or such other address as may be specified by such Party in writing in accordance with this Section 14.3, and shall be deemed to have been given for all purposes (i) when delivered, if hand-delivered or sent by facsimile on a business day, (ii) on the next business day if sent by a reputable international overnight courier service, or (iii) five (5) business days after mailing, if mailed by first-class certified or registered airmail, postage prepaid, return receipt requested. Unless otherwise specified in writing, the mailing addresses of the Parties shall be as described below:

If to Radius: Radius Health, Inc.
950 Winter Street
Waltham, Massachusetts 02451
Attention: Chief Executive Officer
Fax: X-XXX-XXX-XXXX

With a copy to: Radius Health, Inc.
950 Winter Street
Waltham, Massachusetts 02451
Attention: General Counsel
Fax: X-XXX-XXX-XXXX

With a copy to: Morgan, Lewis & Bockius LLP
502 Carnegie Center
Princeton, New Jersey 08540
Attn: XXXXXXX XX XXXXXXX
Fax: X-XXX-XXX-XXXX

If to Teijin: Teijin Pharma Limited
2-1, Kasumigaseki 3-chome
Chiyoda-ku, Tokyo 100-8585, Japan
Attention: General Manager, Global Pharmaceutical Business Promotion Department
Fax: XX-X-XXXX-XXXX

With a copy to: Squire, Patton Boggs (US) LLP
Ebisu Prime Square Tower, 16/F

[*] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

1-1-39 Hiroo, Shibuya-ku
Tokyo 150-0012, Japan
Attn: XXXXXXX XX XXXXXXXX
Fax: XX-X-XXXX-XXXX

14.4 No Strict Construction; Interpretation. This Agreement has been prepared jointly and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision. The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

14.5 Assignment. Neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other, except that (i) a Party may without the other Party's consent make such an assignment (A) to an Affiliate, (B) to a successor to all or substantially all of its business to which this Agreement relates, whether in a merger, sale of stock, sale of assets or other transaction (provided that any assignment by Teijin to Ipsen shall require Radius's prior written consent), or (C) in part to a financing source. Any permitted assignment shall be binding on the successors of the assigning Party. Any assignment or attempted assignment by either Party in violation of the terms of this Section 14.5 shall be null, void and of no legal effect.

14.6 Further Actions. Each Party agrees to execute, acknowledge and deliver such further instruments, and to perform all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

14.7 Severability. If any one or more of the provisions of this Agreement are held to be invalid or unenforceable by any court of competent jurisdiction from which no appeal can be or is taken, such provision or provisions shall be considered severed from this Agreement and shall not serve to invalidate any remaining provisions hereof. The Parties shall make a good-faith effort to replace any invalid or unenforceable provision with a valid and enforceable one such that the objectives contemplated by the Parties when entering this Agreement may be realized.

14.8 No Waiver. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's rights to the future enforcement of its rights under this Agreement, except with respect to an express written and signed waiver relating to a particular matter for a particular period of time.

14.9 Independent Contractors. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give either Party the power or authority to act for, bind, or commit the other Party in any way. Nothing herein shall be construed to create the relationship of partners, principal and agent, or joint-venture partners between the Parties.

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14.10 English Language; Governing Law. This Agreement was prepared in the English language, which language shall govern the interpretation of, and any dispute regarding, the terms of this Agreement. All notices, reports and other documents contemplated by this Agreement to be delivered by a Party to the other Party shall be in the English language. This Agreement and all disputes arising out of or related to this Agreement or any breach hereof shall be governed by and construed under the laws of the State of New York, without giving effect to any choice of law principles that would require the application of the laws of a different jurisdiction.

14.11 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original but which together shall constitute one and the same instrument. A facsimile or a portable document format (PDF) copy of this Agreement, including the signature pages, will be deemed an original.

[Signature Page Immediately Follows]

IN WITNESS WHEREOF, the Parties have executed this Agreement by their duly authorized representatives as of the Effective Date.

RADIUS HEALTH, INC.	**TEIJIN LIMITED**
By: /s/ Robert E. Ward	By: /s/ Akihisa Nabeshima
Name: Robert E. Ward	Name: Akihisa Nabeshima
Title: President & CEO	Title: Teijin Group Executive Officer General Manager, Healthcare Business Group

[*] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

SCHEDULE 1.44

RADIUS PATENT RIGHTS *

SECTION A

Title: A stable composition comprising a bone anabolic protein, namely a PTHrP analogue and uses thereof
Application #: 2009531434
Japan Patent Number: 5375611
Filing date: 2007-10-03
Publication#: 2010-505835
Grant date: 2013-10-04

SECTION B

Title: A stable composition comprising a bone anabolic protein, namely a PTHrP analogue and uses thereof
Application #: 2009531434
Japan Patent Number: 5375611
Filing date: 2007-10-03
Publication#: 2010-505835
Grant date: 2013-10-04

And the issued foreign counterparts of the foregoing with the Patent numbers specified below:

AU2007322334; AU2012201490 (Australia)
CN101578093; CN102274492 (China)
EP2957278 (Europe, including the patents of all designated states)
IL197926 (Israel)
KR1512377 (Korea)
MX303348 (Mexico)
NZ576682 (New Zealand)
RU2506070 (Russia)
SG151061; 175580 (Singapore)
UA98776 (Ukraine)
US7803770; US8148333; US8748382 (USA)

* Notwithstanding anything to the contrary in this Agreement, Radius Patent Rights shall include only any right, title and interest in the Radius Patent Rights owned by Radius and shall exclude any right, title and interest in the Radius Patent Rights owned by any joint owner.

[*] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Exhibit 10.4

AMENDED AND RESTATED FIRST AMENDMENT TO SUBLEASE

This **AMENDED AND RESTATED FIRST AMENDMENT** (this " **First Amendment** ") dated as of August 1, 2017, by and between ROVI CORPORATION, a Delaware corporation (" **Sublandlord** ") and RADIUS HEALTH, INC., a Delaware corporation (" **Subtenant** ").

RECITALS

WHEREAS , Sublandlord is the tenant under that certain Lease with KBSIII CROSSPOINT AT VALLEY FORGE TRUST (as successor-in-interest to DIV VALLEY FORGE LIMITED PARTNERSHIP) (the " **Landlord** "), dated February 11, 2014 (the " **Main Lease** ") for certain premises in the building located at 550 Swedesford Road, Wayne, Pennsylvania, and comprising approximately 64,967 rentable square feet (the " **Premises** ");

WHEREAS , Subtenant is the Subtenant under that certain Sublease Agreement dated as of March 11, 2016, by and between Sublandlord and Subtenant (the " **Sublease** "), demising a portion of the Premises, which portion is described as the "Sublease Premises" in the Sublease;

WHEREAS , pursuant to the Sublease, the rentable area of the Sublease Premises (prior to adjustment by this First Amendment), consists of approximately 14,000 rentable square feet of the Premises;

WHEREAS , pursuant to the Sublease, the term of the Sublease (prior to extension by this First Amendment), commenced on May 1, 2016, and ends on April 30, 2019;

WHEREAS , Sublandlord and Subtenant entered into an earlier version of this First Amendment, as of July 7, 2017 (the " **Superseded First Amendment** "); Landlord requested certain changes be made to the Superseded First Amendment and the parties thereto were agreeable thereto, and therefore the Superseded First Amendment was amended and restated in full to address such changes; accordingly, Sublandlord and Subtenant desire to void the Superseded First Amendment and replace it in its entirety with this amended and restated First Amendment;

WHEREAS , Sublandlord and Subtenant desire to amend the Sublease by, among other things, and subject to the terms hereof, (i) extending the term thereof to October 30, 2025, (ii) adding to the Subleased Premises certain contiguous additional space in the Premises (on the 3 rd floor of the Building) consisting of approximately 12,401 rentable square feet (the " Additional Space "), (iii) providing an option for Sublandlord to deliver to Subtenant certain contiguous expansion space in the Premises (on the 3 rd floor of the Building) consisting of approximately 8,000 rentable square feet (the "Expansion Space"), (iv) providing Subtenant with the continuing right of first offer to certain other space in the Premises, (v) modifying the Base Rent thereof and Subtenant's Proportionate Share, and (vi) further amending the Sublease as hereinafter provided.

NOW THEREFORE , for good and valuable consideration, Sublandlord and Subtenant hereby agree as follows:

1. The Superseded First Amendment is hereby agreed to be null and void, and of no further force or effect, and replaced in its entirety by this amended and restated First Amendment. All capitalized terms not otherwise defined herein shall have the meanings ascribed thereto in the Sublease.

2. From and after the date of Landlord's written consent to this First Amendment (the " **Effective Date** "), the Sublease is amended as follows:

A. The term of the Sublease is hereby modified so that it expires on October 30, 2025 (the **"Expiration Date** "), subject to Subtenant's limited termination right set forth in Paragraph 9 hereof.

B. The definition of " **Base Rent** " (also called " **Sublease Base Rental Rate** ") in Section 1.10 of the Sublease is hereby modified so that (i) the Base Rent for the period from May 1, 2017 to April 30, 2018 shall be an annual amount equal to $32.29 per rentable square foot of the Sublease Premises, (ii) the Base Rent for the period from May 1, 2018 to April 30, 2019 shall be an annual amount equal to $33.09 per rentable square foot of the Sublease Premises, (iii) the Base Rent for the period from May 1, 2019 to April 30, 2020 shall be an annual amount equal to $33.92 per rentable square foot of the Sublease Premises, (iv) the Base Rent for the period from May 1, 2020 to April 30, 2021 shall be an annual amount equal to $34.77 per rentable square foot of the Sublease Premises, (v) the Base Rent for the period from May 1, 2021 to April 30, 2022 shall be an annual amount equal to $35.64 per rentable square foot of the Sublease Premises, (vi) the Base Rent for the period from May 1, 2022 to April 30, 2023 shall be an annual amount equal to $36.53 per rentable square foot of the Sublease Premises, (vii) the Base Rent for the period from May 1, 2023 to April 30, 2024 shall be an annual amount equal to $37.44 per rentable square foot of the Sublease Premises, (viii) the Base Rent for the period from May 1, 2024 to April 30, 2025 shall be an annual amount equal to $38.38 per rentable square foot of the Sublease Premises, and (ix) the Base Rent for the period from May 1, 2025 to October 30, 2025 shall be an annual amount equal to $39.34 per rentable square foot of the Sublease Premises. As of the Additional Space Delivery Date (as hereinafter defined), Subtenant's Proportionate Share shall be deemed to equal 40.64%.

C. Upon the date (the " **Additional Space Delivery Date** ") of delivery of the Additional Space by Sublandlord to Subtenant with Sublandlord's Demising Work (as hereinafter defined) substantially complete, the rentable area of the Subleased Premises shall be deemed to consist of 26,401 rentable square feet of space, and the Base Rent shall commence with respect to the Additional Space. The references to "Rent Commencement Date" in the Sublease shall not be applicable to the Additional Space, as there shall be no "free rent" or other rent concession applicable to such space. Sublandlord, at its sole cost and expense, shall, after Landlord's written consent to this Sublease is obtained, work in a commercially reasonable diligent manner (and, if requested by Landlord, performing all noisy work during non-business hours) to remove a minimum of six (6) lineal feet of wall to create a new opening connecting the existing Sublease Premises and the Additional Space, and shall close off the balance of the Additional Space from the Premises by

means of a demising wall (and shall make such reasonably necessary repairs and/or replacements to carpet, ceiling tiles, lighting fixtures, paint, and such other finishes to the extent the same are damaged by the work creating such new opening and installing such new demising wall) (" Sublandlord's Demising Work "). The parties acknowledge that Landlord (by its representative, Michele L. Haines of CBRE Asset Services) has approved Sublandlord's Demising Work as shown on IA drawings dated June 27, 2017. Subtenant agrees to accept the Additional Space in its "as is" condition, subject to Sublandlord's obligation to perform Sublandlord's Demising Work. Subtenant has been provided with the opportunity to examine the condition and repair of all mechanical, electrical, plumbing, and life safety systems within the Additional Space, and agrees that the same are in good operating condition and repair as of the date of this Sublease, and Subtenant acknowledges and agrees that (i) Sublandlord's Demising Work shall not include any repairs needed due to any change in such condition and repair between the date hereof and the Additional Space Delivery Date, and (ii) that the responsibility for making (or causing Landlord to make) any such repairs are fully addressed in the Sublease. Upon the Effective Date (if the same is not the Additional Space Delivery Date), Sublandlord shall provide reasonable early access to the Additional Space to Subtenant for Subtenant's installation of its telecommunications and business equipment, provided that Subtenant's work in the space does not interfere with Sublandlord's performance of the Sublandlord's Demising Work. Subtenant shall not be required to pay rent for the Additional Space during such early access period, if any, prior to the Additional Space Delivery Date.

D. Effective as of the Additional Space Delivery Date, Exhibit A attached to the Sublease shall hereby be deleted in its entirety and replaced with Exhibit A attached hereto (showing the Sublease Premises consisting of the originally demised Subleased Premises and the Additional Space).

E. Section 16.4 of the Sublease (Renewal Options) is hereby deleted in its entirety.

F. To the extent that Landlord consents thereto, Section 5.5.2 of the Sublease, with respect to use of or access to the Common Areas, is hereby modified to allow Subtenant to request the Overlandlord's consent or approval directly, provided that written notice of each such consent or approval request (and response) is simultaneously delivered to Sublandlord, and provided, further, that (a) Subtenant is not then in default under the Sublease, and (b) any payment due (if any) with respect to such use or access is made directly to Landlord at the time of such consent or approval, and (c) Sublandlord has no material liability with respect to any such use or access.

G. To the extent that Landlord consents separately in writing at such time thereto to any such sub-sublease, Section 8.2 of the Sublease is hereby modified to permit Subtenant to sub-sublet less than the entire Sublease Premises to another party (subject to all of the other terms and conditions applicable to sub-subletting under the Main Lease and Sublease, including any right of recapture by Landlord of any such proposed sublet premises), provided that (a) Tenant shall pay for and perform the demising work required therefor at its sole cost and expense (and shall restore such work to its prior condition at the end of the term at its sole cost and expense), (b) Subtenant shall not then be in default under the Sublease (and an Event of Default shall not have occurred under the Sublease), and (c) no more than two (2) occupiable spaces (e.g., two (2) sub-sublet spaces, or

one (1) sub-sublet space and one (1) retained space for Subtenant) shall be demised in the Sublease Space at any one time.

3. Sublandlord and Subtenant each hereby represent that it has not dealt with or had any conversations or negotiations with any broker or finder concerning this First Amendment other than Cushman & Wakefield of Pennsylvania, Inc. (" **Broker** "). Sublandlord and Subtenant each shall indemnify, defend and hold the other harmless from and against any claims for any brokerage commissions or other compensation, and all costs, expenses and liabilities in connection therewith, including, without limitation, reasonable attorneys' fees and expenses which are made by any broker or finder (other than Broker) who claims to have dealt with the indemnifying party or its representatives in connection with this transaction. Sublandlord shall pay the commissions of Broker, as earned, pursuant to a separate agreement between Sublandlord and the Broker. The provisions of this Section shall survive the expiration or earlier termination of the Sublease.

4. Subject to obtaining Landlord's consent in accordance with Section 8 hereof, Sublandlord and Subtenant each hereby warrant and represent that all requisite third party consents required in connection with the execution and delivery of this First Amendment have been obtained.

5. Except as amended by this First Amendment, the Sublease shall remain in full force and effect according to its terms. The parties hereby ratify and reaffirm the Sublease as modified herein.

6. This First Amendment may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. An electronic version of an executed counterpart shall constitute an original counterpart for the purposes of this Agreement.

7. The provisions hereof shall inure to the benefit of, and be binding upon, the parties hereto and their respective heirs, legal representatives and permitted assigns.

8. Sublandlord shall submit a request for consent to this First Amendment to Landlord promptly after the full execution hereof and shall use commercially reasonable efforts to diligently pursue an answer to such request, and Subtenant shall use commercially reasonable efforts to cooperate with the same. In the event Landlord's consent to this First Amendment is not obtained on or before October 1, 2017, then (i) Subtenant shall have the right to terminate this First Amendment by giving written notice to Sublandlord at any time after October 1, 2017 (but prior to the receipt of Landlord's consent); and (ii) Sublandlord shall have the right to terminate this First Amendment by giving written notice to Subtenant at any time after October 1, 2017 (but prior to the receipt of Landlord's consent); and upon either of such notices this First Amendment shall terminate and be of no further force and effect except for those obligations which are specifically provided to survive such termination. In no event shall Subtenant have any right to occupy the Additional Space unless and until such consent of Landlord to this First Amendment is received.

9. Subject to the terms and provisions contained herein, if Sublandlord shall deliver to Subtenant a notice (the " **Expansion Space Notice** ") between September 30, 2020 and December 31, 2020 (the " **Expansion Space Notice Period** ") identifying at least 8,000 rentable square feet of space (in a commercially reasonable configuration) in the balance of the Premises immediately adjacent to then-applicable Sublease Premises (the " **Expansion Space** "), then the Expansion Space shall become part of the Sublease Premises (and Subtenant's Proportionate Share shall be appropriately adjusted) upon the date of delivery to Subtenant with Sublandlord's Demising Work (as applicable to the Expansion Space) substantially complete, and the Base Rent (per rentable square foot), and all of the other terms and conditions of the Sublease, shall be applicable to the Expansion Space upon such delivery. Unless otherwise agreed upon by the parties, Sublandlord shall not deliver the Expansion Space to Subtenant prior to May 1, 2022. If Sublandlord shall not have delivered the Expansion Space Notice during the Expansion Space Notice Period, then Subtenant shall have the right to send a reminder notice (the " **Expansion Space Wake-Up Notice** ") to Sublandlord within thirty (30) days after the expiration of the Expansion Space Notice Period, time being of the essence, referencing the Sublease and any amendments thereto and this paragraph of the First Amendment, and stating the following: "Sublandlord has failed to deliver the Expansion Space Notice during the Expansion Space Notice Period. If Sublandlord fails to deliver the Expansion Space Notice by the date that is thirty (30) days after the date of delivery of this notice, then, subject to the terms and conditions of the First Amendment and the Sublease, Subtenant shall have the right to exercise the Expansion Space Failure Termination Option pursuant to Paragraph 9 of the First Amendment." If, after the failure of Sublandlord to deliver the Expansion Space Notice during the Expansion Space Notice Period, and the subsequent failure of Sublandlord to deliver the Expansion Space Notice within thirty (30) days after timely delivery of the Expansion Space Wake-Up Notice (the " **Extended Expansion Space Notice Period** "), then, subject to the terms and conditions hereof, Subtenant shall have the option (the " **Early Termination Option** ") to accelerate the Expiration Date to May 1, 2022 (the " **Early Termination Date** ") by delivering notice of such exercise to Sublandlord by the date that is thirty (30) days after the Extended Expansion Space Notice Period, time being of the essence, together with a payment to Sublandlord of the Termination Payment. As used herein, " **Termination Payment** " shall mean the sum of (1) the unamortized balance of the First Amendment Leasing Costs as of the Early Termination Date had the First Amendment Leasing Costs been loaned to Subtenant as of the Effective Date at the interest rate of nine percent (9%) per annum and had such loaned amount been repaid in equal monthly installments commencing on the Effective Date in amounts sufficient to fully amortize such loaned amount and the imputed interest thereon on the uncelebrated Expiration Date and (2) an amount equal to three (3) multiplied by the sum of Base Rent and Additional Rent due under the Sublease for the full calendar month immediately preceding the Early Termination Date. The term " **First Amendment Leasing Costs** " shall mean the sum of (i) the total brokerage commission actually paid by Sublandlord in connection with the First Amendment, and (ii) Sublandlord's actual costs incurred in performing Sublandlord's Demising Work for the Additional Space. Sublandlord and Subtenant acknowledge that the Termination Payment is not a penalty, but is a reasonable estimate of the damages to be suffered by Sublandlord as a consequence of Subtenant's exercise of the Early Termination Option. Subtenant hereby acknowledges and agrees that Subtenant shall not be entitled to any rebate or return of any portion of the Termination Payment as a consequence of the actual

costs incurred by Sublandlord in re-letting the Sublease Premises being less than the Termination Payment. Within 30 days after Subtenant's request, made no earlier than the Effective Date and no more than once in any calendar year, Sublandlord shall provide Subtenant with a then-estimate of the First Amendment Leasing Costs. Notwithstanding anything contained herein to the contrary, Subtenant shall have no rights under this Paragraph 9 with respect to the Expansion Space (including, without limitation, any right to exercise the Early Termination Option), and Sublandlord shall have no obligations under this Paragraph 9 with respect to the Expansion Space (including, without limitation, any obligation to recognize any prior exercise of the Early Termination Option, or to deliver any Expansion Space), if (i) Subtenant is in default under any provision of this Sublease beyond the applicable notice or cure period, or otherwise in default in the payment of money under this Sublease, (ii) Subtenant shall have subleased at least 8,000 rentable square feet of space pursuant to a ROFO under Section 16.5 of the Sublease, or Subtenant shall have (from and after the date that is 12 months after the Effective Date) rejected (or shall have been deemed to have rejected) a ROFO of at least 8,000 rentable square feet of space (in a commercially reasonable configuration) in the balance of the Premises immediately adjacent to the then-applicable Sublease Premises under such Section 16.5 of the Sublease, or (iii) Subtenant shall have assigned the Sublease or sub-sublet any of the Sublease Premises (excepting Permitted Transfers). In the event that Sublandlord is obligated under this Paragraph 9 to deliver the Expansion Space, then if Sublandlord fails to so deliver (with Sublandlord's Demising Work for the Expansion Space substantially complete) by May 1, 2022 (as such date shall be extended by one day for each day of delay due to a force majeure event (e.g. causes beyond the reasonable control of Sublandlord), or any act, omission (where Subtenant is obligated to act), or negligence by Subtenant or any of its employees, agents, invitees, or contractors), and, provided further, that Subtenant is in not in default under any provision of this Sublease beyond the applicable notice or cure period, or otherwise in default in the payment of money under this Sublease, Subtenant shall be entitled to an abatement of one day of Base Rent for all of the Sublease Premises for each day beyond May 1, 2022 (as such date is extended, as provided herein) that such delivery of the Expansion Space is delayed.

10. The parties acknowledge that the provisions of Section 16.5 of the Sublease (Right of First Offer) shall remain in effect.

11. Subject to the written approval, consent, and conditions of Landlord (and otherwise in accordance with the incorporated provisions of the Main Lease), (a) Subtenant, at its sole cost and expense, may install building suite entry door signage in a location designated by Landlord (and subject to the approval of Landlord as to the signage) at the entrance to the Additional Space (and Sublandlord, at its sole cost and expense, shall remove its existing signage at such entrance; and Subtenant, upon or prior to the expiration or earlier termination of the Sublease, shall, at its sole cost and expense, remove such signage of Subtenant and repair any damage caused by such removal), and (b) have its name inserted in the multi-tenant building directory in the lobby of the Building (but not on the multi-tenant monument sign in front of the Building).

12. Effective as of the Additional Space Delivery Date, Subtenant shall have, as an appurtenant privilege with respect to the Additional Space, the use of the furniture, fixtures and equipment

located in the Additional Space as of the date of this First Amendment, an inventory of which is attached hereto as Exhibit B (collectively, the "Additional Space Furniture") during the term of the Sublease. Subtenant agrees to take all actions necessary or appropriate to ensure that the Additional Space Furniture shall be and remain personal property, and nothing in this Sublease shall be constituted as conveying to Subtenant any interest in the Additional Space Furniture other than its interest as a Subtenant. The Additional Space Furniture shall be used by Subtenant only at the Additional Space and in the ordinary conduct of its business. Subtenant shall, at its expense, repair and maintain, but not replace (unless damaged by Subtenant), the Additional Space Furniture so that it will remain in the same condition as when delivered to Subtenant, ordinary wear and tear from proper use excepted. In addition, as Sublandlord is not the manufacturer or vendor of the Additional Space Furniture, it makes no other representation or warranty, express or implied, as to any matter whatsoever, including without limitation the design or condition of the Additional Space Furniture, its merchantability, durability, suitability or fitness for any particular purpose, the quality of the material or workmanship of the Additional Space Furniture, or the conformity of the Additional Space Furniture to the provisions or specifications of any purchase order relating thereto, and Sublandlord hereby disclaims any and all such representations and warranties. At the expiration or earlier termination of the Term, Subtenant shall return all remaining Additional Space Furniture (and all Included Personal Property) to Sublandlord in the condition required hereunder, or, upon notice from Sublandlord, remove the same (including, notwithstanding anything to the contrary in the Sublease, all Included Personal Property) from the Sublease Premises and dispose of the same, at Subtenant's sole cost and expense.

13. Provided Landlord has consented in writing to this First Amendment and Subtenant has delivered certificates evidencing the insurance required to be carried by Subtenant under the Sublease (and naming Landlord and its agents as additional insureds) and shall have performed any other applicable obligation under the Sublease, and provided that the same shall not interfere with the performance or completion of Sublandlord's Demising Work, Subtenant shall be entitled to reasonable early access of the Additional Space prior to the Additional Space Delivery Date for the purpose of installing furniture, trade fixtures, equipment, cabling and similar items, on all of the terms of this Sublease, except that, for such early access period prior to the Additional Space Delivery Date, Subtenant shall have no obligation to begin paying Base Rent or other charges payable (other than charges, such as freight elevator fees, etc., that are directly incurred with respect to such installation) related to the Additional Space based solely on its installation of these items, it being understood, however, that any other use or occupancy of the Additional Space by Subtenant for the operation of its business during such early access period shall require the commencement of payment of Base Rent and other charges under this First Amendment.

14. Effective as of the Additional Space Delivery Date, Sublandlord shall provide Subtenant with four (4) of Sublandlord's reserved, covered parking spaces, as described below. Subtenant shall have parking spaces 16, 18, 20, and 22 located in the west side parking garage for a monthly fee of $75.00 per month per parking space. Such monthly fee is subject to such parking cost increases charged to Sublandlord by Landlord for such spaces (it being understood that Subtenant shall pay whatever Sublandlord is required to pay for such spaces from time to time). Effective as of the Additional Space Delivery Date, Subtenant shall receive such additional parking spaces as Subtenant is entitled to under Section 17.1 of the Sublease.

IN WITNESS WHEREOF, Sublandlord and Subtenant have duly executed this First Amendment as of the day and year first above written.

SUBLANDLORD: ROVI CORPORATION, a Delaware corporation

By /s/ Pamela Sergeeff
Name: Pamela Sergeeff
Title: General Counsel

SUBTENANT: RADIUS HEALTH, INC., a Delaware corporation

By /s/ David Snow
Name: David Snow
Title: Chief Commercial Officer

EXHIBIT A

FLOOR PLAN OF SUBLEASE PREMISES (SHOWING ORIGINALLY DEMISED SUBLEASE PREMISES AND ADDITIONAL SPACE)

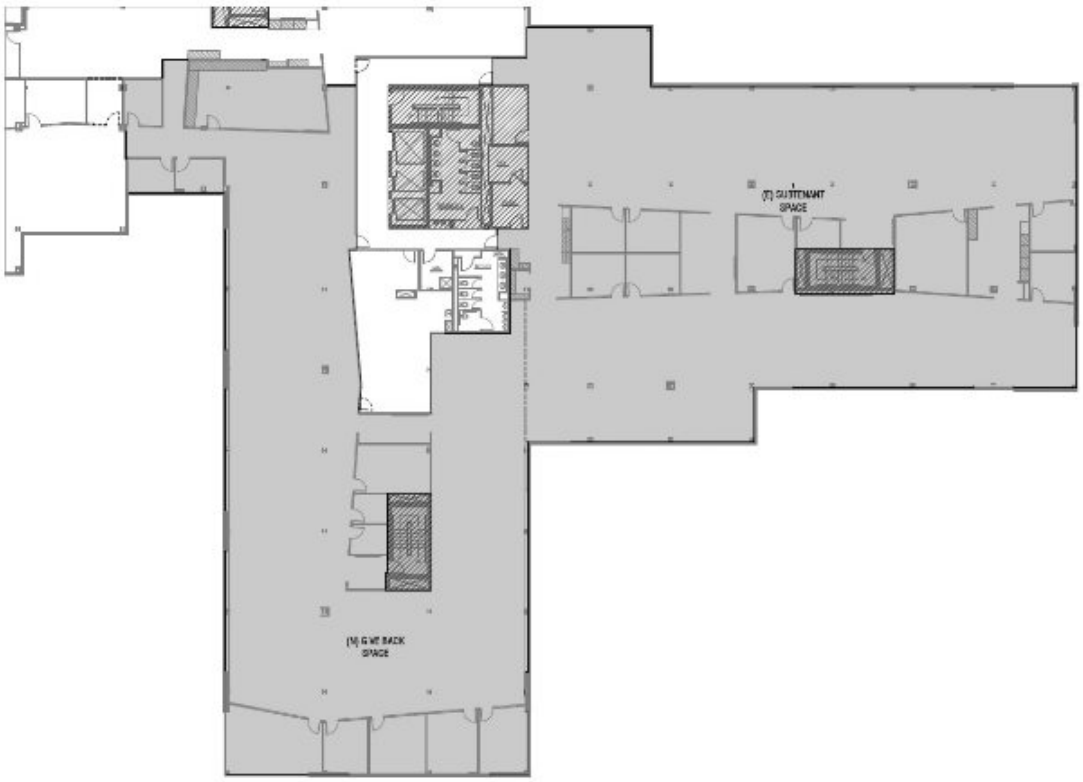

EXHIBIT "B"

ADDITIONAL SPACE FURNITURE INVENTORY

Quantity	Product	Location	Description
74	AllSteel Workstations		White 86" Surfaces
72	Bench Files with storage shelves		White with two file drawers and two storage shelves
26	Box File Storage Unit - One Sided		White with one Box file, two drawers and one opened storage box
17	Box File Storage Unit - Two Sided		White with one Box file and one opened storage box
	Office Furniture Set	Office 3318	Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	Office Desk		
1	Clarity Guest Chair		
1	AllSteel Relate Desk Chair		
	Executive Office Furniture Set	Office 3319	Executive Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	Executive Office Desk		
1	Clarity Guest Chair		
1	AllSteel Relate Desk Chair		
	Executive Office Furniture Set	Office 3320	Executive Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	Executive Office Desk		
1	Clarity Guest Chair		
1	AllSteel Relate Desk Chair		
1	File Cabinets 2 Drawer Double		Two drawer File Cabinets Double (2 Single Cabinets)
3	File Cabinets 2 Drawer Triple		Two drawer File Cabinets Triple (3 Single Cabinets)
2	File Cabinet Single		Two drawer File Cabinets Single
	Conference Table and Chairs	Conference Room 3317	12' White Table, 12 Relate Conference Room Chairs
1	12' White Table		
12	12 Relate Conference Room Chairs		
	Conference Table and Chairs	Conference Room 3321	6' White Table, 6 White Chairs
1	6' White Table		
6	White Chairs		
	Conference Table and Chairs	Conference Room 3313	8' White Table, 8 Relate Conference Room Chairs
1	8' White Table		
8	8 Relate Conference Room Chairs		
	Phone Room	Phone Room 3715	Rug, Glass Table, Chair
1	Rug		
1	Small Glass Table		
1	Chair		
	Phone Room	Phone Room 3714	White Table, 2 Chairs
1	Small white extending table		
2	2 Chairs		
	Huddle Room	Huddle Room 3207	Two (2) chairs, small glass table
1	Small Glass Table		
2	2 Chairs		
	Huddle Room	Huddle Room 3208	Round table, 4 Clarity chairs, 1 credenza
1	Round White Table		
4	4 Clarity Chairs		
1	1 Credenza White and Gray		

Quantity	Product	Location	Description
74	AllSteel Workstations		White 86" Surfaces
72	Bench Files with stoarge shelves		White with two file drawers and two storage shelves
26	Box File Storage Unit - One Sided		White with one Box file, two drawers and one opened storage box
17	Box File Storage Unit - Two Sided		White with one Box file and one opened storage box
1	Office Furniture Set	Office 3318	Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	Executive Office Furniture Set	Office 3319	Executive Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	Executive Office Furniture Set	Office 3320	Executive Office Desk, Clarity Guest Chair, Allsteel Relate Desk Chair
1	File Cabinets 2 Drawer Double		Two drawer File Cabinets Double (2 Single Cabinets)
3	File Cabinets 2 Drawer Triple		Two drawer File Cabinets Triple (3 Single Cabinets)
2	File Cabinet Single		Two drawer File Cabinets Single
1	Conference Table and Chairs	Conference Room 3317	12' White Table, 12 Relate Conference Room Chairs
1	Conference Table and Chairs	Conference Room 3321	6' White Table, 6 White Chairs
1	Conference Table and Chairs	Conference Room 3313	8' White Table, 8 Relate Conference Room Chairs
1	Phone Room	Phone Room 3715	Rug, Glass Table, Chair
1	Phone Room	Phone Room 3714	White Table, 2 Chairs
1	Huddle Room	Huddle Room 3207	Two (2) chairs, small glass table
1	Huddle Room	Huddle Room 3208	Round table, 4 Clarity chairs, 1 credenza

Exhibit 31.1

CERTIFICATIONS

I, Jesper Høiland, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Radius Health, 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.

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

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

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

Date: November 2, 2017

/s/ Jesper Høiland

Jesper Høiland

President and Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Jose Carmona, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Radius Health, 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.

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

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

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

Date: November 2, 2017

/s/ Jose Carmona

Jose Carmona

Chief Financial Officer

Exhibit 32.1

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

Each of Jesper Høiland and Jose Carmona hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, in his capacity as President and Chief Executive Officer (principal executive officer) and Chief Financial Officer (principal financial officer), respectively, of Radius Health, Inc. (the "Company"), that, to his knowledge, the Quarterly Report of the Company on Form 10-Q for the period ended September 30, 2017 as filed with the Securities and Exchange Commission (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 2, 2017

By: /s/ Jesper Høiland

Jesper Høiland

President and Chief Executive Officer

Date: November 2, 2017

By: /s/ Jose Carmona

Jose Carmona

Chief Financial Officer

This written statement is being furnished to the Securities and Exchange Commission as an exhibit to the Report, and "accompanies" such Report to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report to which it relates), notwithstanding any general incorporation language contained in such filing. A signed original of this statement has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.