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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 March 31, 2018

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: 001-33093

LIGAND PHARMACEUTICALS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**77-0160744**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
3911 Sorrento Valley Boulevard, Suite 110 San Diego, CA	**92121**
(Address of principal executive offices)	**(Zip Code)**

(858) 550-7500

(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 Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-Accelerated Filer	☐ (Do not check if a smaller reporting company)	Smaller Reporting Company	☐
Emerging Growth Company	☐		

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

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

As of April 20, 2018, the registrant had 21,301,400 shares of common stock outstanding.

LIGAND PHARMACEUTICALS INCORPORATED
QUARTERLY REPORT

FORM 10-Q

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GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviation	Definition
2019 Convertible Senior Notes	$245.0 million aggregate principal amount of convertible senior unsecured notes due 2019
ANDA	Abbreviated New Drug Application
Amgen	Amgen, Inc.
ASC	Accounting Standards Codification
ASU	Accounting Standards Update
Aziyo	Aziyo Med, LLC
CEO	Chief Executive Officer
Company	Ligand Pharmaceuticals Incorporated, including subsidiaries
CorMatrix	CorMatrix Cardiovascular, Inc.
CVR	Contingent value right
Crystal	Crystal Bioscience, Inc.
CyDex	CyDex Pharmaceuticals, Inc.
ESPP	Employee Stock Purchase Plan, as amended and restated
FASB	Financial Accounting Standards Board
FDA	Food and Drug Administration
GAAP	Generally accepted accounting principles in the United States
GRA	Glucagon receptor antagonist
Hovione	Hovione Farmaciencia
IPR&D	In-Process Research and Development
Ligand	Ligand Pharmaceuticals Incorporated, including subsidiaries
Metabasis	Metabasis Therapeutics, Inc.
NOLs	Net Operating Losses
Novartis	Novartis AG
OMT	OMT, Inc. or Open Monoclonal Technology, Inc.
Orange Book	Publication identifying drug products approved by the FDA based on safety and effectiveness
Q1 2018	The Company's fiscal quarter ended March 31, 2018
Q1 2017	The Company's fiscal quarter ended March 31, 2017
Retrophin	Retrophin Inc.
Roivant	Roivant Sciences GMBH
SEC	Securities and Exchange Commission
Selexis	Selexis, SA
Viking	Viking Therapeutics

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

LIGAND PHARMACEUTICALS INCORPORATED
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited, in thousands, except share data)

	March 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 51,024	$ 20,620
Short-term investments	213,329	181,041
Investment in Viking	27,535	—
Accounts receivable, net	37,108	25,596
Note receivable from Viking	3,877	3,877
Inventory	10,531	4,373
Other current assets	5,647	1,514
Total current assets	349,051	237,021
Deferred income taxes	69,368	84,422
Investment in Viking	—	6,438
Intangible assets, net	225,306	228,584
Goodwill	85,961	85,959
Commercial license rights, net	19,969	19,526
Property and equipment, net	4,119	4,212
Other assets	894	4,859
Total assets	$ 754,668	$ 671,021
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,407	$ 2,259
Accrued liabilities	8,480	7,377
Current contingent liabilities	7,545	4,703
2019 convertible senior notes, net	227,547	224,529
Total current liabilities	246,979	238,868
Long-term contingent liabilities	6,376	9,258
Long-term deferred revenue, net	3,000	3,525
Other long-term liabilities	1,135	723
Total liabilities	257,490	252,374
Commitments and contingencies		
Equity component of currently redeemable convertible notes (Note 3)	16,078	18,859
Stockholders' equity:		
Common stock, $0.001 par value; 33,333,333 shares authorized; 21,301,980 and 21,148,665 shares issued and outstanding at March 31, 2018 and December 31, 2017, respectively	21	21
Additional paid-in capital	808,765	798,205
Accumulated other comprehensive (loss) income	(286)	2,486
Accumulated deficit	(327,400)	(400,924)
Total stockholders' equity	481,100	399,788
Total liabilities and stockholders' equity	$ 754,668	$ 671,021

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)
(in thousands, except per share amounts)

	Three months ended March 31,	
	2018	**2017**
Revenues:		
Royalties	$ 20,820	$ 24,230
Material sales	4,391	1,121
License fees, milestones and other revenues	30,946	3,916
Total revenues	56,157	29,267
Operating costs and expenses:		
Cost of sales [1]	788	341
Amortization of intangibles	3,278	2,715
Research and development	7,407	8,673
General and administrative	7,643	7,322
Total operating costs and expenses	19,116	19,051
Income from operations	37,041	10,216
Other (expense) income:		
Interest expense, net	(2,605)	(2,941)
Increase in contingent liabilities	(960)	(140)
Gain (loss) from Viking	21,097	(1,083)
Other income, net	739	141
Total other income (expense), net	18,271	(4,023)
Income before income taxes	55,312	6,193
Income tax expense	(10,033)	(1,114)
Net income	$ 45,279	$ 5,079
Basic net income per share	$ 2.13	$ 0.24
Shares used in basic per share calculations	21,209	20,938
Diluted net income per share	$ 1.83	$ 0.22
Shares used in diluted per share calculations	24,800	23,019

(1) Excludes amortization of intangibles.

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)
(in thousands)

	Three months ended March 31,	
	2018	**2017**
Net income:	$ 45,279	$ 5,079
Unrealized net gain on available-for-sale securities, net of tax	(149)	(66)
Less: Reclassification of net realized gain included in net income, net of tax	—	428
Comprehensive income	$ 45,130	$ 5,441

See accompanying notes.

LIGAND PHARMACEUTICAL INCORPORATED
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, in thousands)

	Three months ended March 31,	
	2018	**2017 (Revised)**
Operating activities		
Net income	$ 45,279	$ 5,079
Adjustments to reconcile net income to net cash provided by operating activities:		
Non-cash change in estimated fair value of contingent liabilities	960	140
Depreciation and amortization	3,002	2,979
Amortization of debt discount and issuance fees	3,018	2,838
Stock-based compensation	4,555	6,045
Deferred income taxes	9,862	1,018
Change in fair value of the Viking convertible debt receivable and warrants	(748)	(76)
(Gain) / loss from equity investments	(21,183)	1,083
Changes in operating assets and liabilities:		
Payments to CVR holders and other contingency payments	—	(4,998)
Royalties recorded in retained earnings upon adoption of ASU 606	32,707	—
Accounts receivable	(11,512)	7,643
Inventory	(4,978)	(1,197)
Accounts payable and accrued liabilities	321	(1,963)
Other	(522)	633
Net cash provided by operating activities	60,761	19,224
Investing activities		
Payments to CVR holders and other contingency payments	(1,000)	—
Purchase of short-term investments	(98,957)	(73,352)
Proceeds from sale of short-term investments	12,291	17,719
Proceeds from maturity of short-term investments	54,325	30,052
Other	(240)	(87)
Net cash used in investing activities	(33,581)	(25,668)
Financing activities		
Net proceeds from stock option exercises and ESPP	8,916	355
Taxes paid related to net share settlement of equity awards	(3,797)	(2,022)
Share repurchase	(1,895)	—
Net cash provided by (used in) provided by financing activities	3,224	(1,667)
Net increase (decrease) in cash and cash equivalents	30,404	(8,111)
Cash and cash equivalents at beginning of period	20,620	18,752
Cash and cash equivalents at end of period	$ 51,024	$ 10,641
Supplemental disclosure of cash flow information		
Interest paid	$ 919	$ 919
Taxes paid	$ 171	$ 96
Supplemental schedule of non-cash activity		
Accrued inventory purchases	$ 1,180	$ 3,909
Unrealized gain (loss) on AFS investments	$ —	$ (66)

See accompanying notes

LIGAND PHARMACEUTICALS INCORPORATED
Notes to Condensed Consolidated Financial Statements
(Unaudited)

1. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation

The Company's condensed consolidated financial statements include the financial statements of Ligand and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. We have included all adjustments, consisting only of normal recurring adjustments, which we considered necessary for a fair presentation of our financial results. These unaudited condensed consolidated financial statements and accompanying notes should be read together with the audited consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2017. Interim financial results are not necessarily indicative of the results that may be expected for the full year.

Significant Accounting Policies

The Company describes its significant accounting policies in Note 1 to the financial statements in Item 8 of our Annual Report on Form 10-K for the year ended December 31, 2017.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with GAAP requires the use of estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and the accompanying notes. Actual results may differ from those estimates.

Accounting Standards Recently Adopted

Revenue Recognition - In May 2014, the FASB issued new guidance related to revenue recognition, ASU 2014-09, Revenue from Contracts with Customers ("ASC 606"), which outlines a comprehensive revenue recognition model and supersedes most current revenue recognition guidance. The new guidance requires a company to recognize revenue upon transfer of goods or services to a customer at an amount that reflects the expected consideration to be received in exchange for those goods or services. ASC 606 defines a five-step approach for recognizing revenue, which may require a company to use more judgment and make more estimates than under the current guidance. We adopted this new standard as of January 1, 2018, by using the modified-retrospective method.

Financial Instruments - In January 2016, the FASB issued ASU 2016-01, Financial Instruments - Overall ("Subtopic 825-10"), which requires equity investments (other than those accounted for under the equity method or those that result in consolidation) to be measured at fair value, with changes in fair value recognized in net income. We have strategic investments, including Viking, that fall under this guidance update. We have adopted ASU 2016-01 effective January 1, 2018 as a cumulative-effect adjustment and reclassified $2.6 million unrealized gains on equity investments, net of tax, from accumulated other comprehensive income to accumulated deficit on our consolidated balance sheet. Effective January 1, 2018, our results of operations include the changes in fair value of these financial instruments. See *Viking* subsection below for further information on the Viking investment.

Statement of Cash Flows - In August 2016 the FASB issued ASU No. 2016-15 Statement of Cash Flows (Topic 230), Classification of Certain Cash Receipts and Cash Payments. The new standard clarifies certain aspects of the statement of cash flows, and aims to reduce diversity in practice regarding how certain transactions are classified in the statement of cash flows. This standard was effective January 1, 2018. The Company adopted ASU No. 2016-15 effective January 1, 2018. We have updated our presentation of Payments to CVR holders and other contingency payments to conform to the standard and have revised our prior year cash flows accordingly.

Accounting Standards Not Yet Adopted

Financial Instruments - In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments, which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses to estimate credit losses on certain types of financial instruments, including

trade receivables and available for sale debt securities. The ASU is effective for us beginning in the first quarter of 2020, with early adoption permitted. We are currently evaluating the impact of ASU 2016-13 on the consolidated financial statements.

We do not believe that any other recently issued, but not yet effective accounting pronouncements, if adopted, would have a material impact on our consolidated financial statements or disclosures.

Revenue

Our revenue is generated primarily from royalties on sales of products commercialized by the Company's partners, Captisol material sales, license fees and development and regulatory milestone payments.

On January 1, 2018, we adopted ASC 606 which amends the guidance for recognition of revenue from contracts with customers by using the modified-retrospective method applied to those contracts that were not completed as of January 1, 2018. The results for the reporting period beginning January 1, 2018, are presented in accordance with the new standard, although comparative information has not been restated and continues to be reported under the accounting standards and policies in effect for those periods. See Note 1, Summary of significant accounting policies, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2017.

Upon adoption, we recorded a net decrease of $25.4 million to Accumulated deficit due to the cumulative impact of adopting the new standard—with the impact related primarily to the acceleration of royalty revenue, net of related deferred tax impact. The adoption of this new standard resulted in lower reported total revenues and operating income in the first quarter of 2018 of $11.9 million compared to what reported amounts would have been under the prior standard. Our accounting policies under the new standard were applied prospectively and are noted below.

Royalties, License Fees and Milestones

We receive royalty revenue on sales by our partners of products covered by patents that we own. We do not have future performance obligations under these license arrangements. We generally satisfy our obligation to grant intellectual property rights on the effective date of the contract. However, we apply the royalty recognition constraint required under the guidance for sales-based royalties which requires a sales-based royalty to be recorded no sooner than the underlying sale. Therefore, royalties on sales of products commercialized by the Company’s partners are recognized in the quarter the product is sold. Our partners generally report sales information to us on a one quarter lag. Thus, we estimate the expected royalty proceeds based on an analysis of historical experience and interim data provided by our partners including their publicly announced sales. Differences between actual and estimated royalty revenues are adjusted for in the period in which they become known, typically the following quarter.

Our contracts with customers often will include future contingent milestone based payments. We include contingent milestone based payments in the estimated transaction price when there is a basis to reasonably estimate the amount of the payment. These estimates are based on historical experience, anticipated results and our best judgment at the time. If the contingent milestone based payment is sales-based we apply the royalty recognition constraint and record revenue when the underlying sale has taken place. Significant judgments must be made in determining the transaction price for our sales of intellectual property. Because of the risk that products in development with our partners will not reach development based milestones or receive regulatory approval, we generally recognize any contingent payments that would be due to us upon or after the development milestone or regulatory approval.

Material Sales

We recognize revenue when control of Captisol material or intellectual property license rights is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We consider a performance obligation satisfied once we have transferred control of the product, meaning the customer has the ability to use and obtain the benefit of the Captisol material or intellectual property license right. We recognize revenue for satisfied performance obligations only when we determine there are no uncertainties regarding payment terms or transfer of control. Sales tax and other taxes we collect concurrent with revenue-producing activities are excluded from revenue. We expense incremental costs of obtaining a contract

when incurred if the expected amortization period of the asset that we would have recognized is one year or less or the amount is immaterial. We did not incur any incremental costs of obtaining a contract during the periods reported.

Depending on the terms of the arrangement, we may also defer a portion of the consideration received because we have to satisfy a future obligation. We use an observable price to determine the stand-alone selling price for separate performance obligations or a cost plus margin approach when one is not available. We have elected to recognize the cost for freight and shipping when control over Captisol material has transferred to the customer as an expense in cost of sales.

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, unbilled receivables (contract assets), and customer advances and deposits (contract liabilities) on the Consolidated Balance Sheet. Except for royalty revenue, we generally receive payment at the point we satisfy our obligation or soon after. Therefore, we do not generally carry a contract asset or contract liability balance.

The Company has revenue sharing arrangements whereby certain revenue proceeds are shared with a third party. The revenue standard requires an entity to determine whether it is a principal or an agent in these transactions by evaluating the nature of its promise to the customer. The Company received a $4.6 million milestone payment from a license partner in the first quarter of 2018 of which $3.0 million was paid to a third-party in-licensor. The Company recorded net revenue of $1.6 million as it believes it was an agent in the transaction.

Disaggregation of Revenue

Under ASC 605, the legacy revenue standard, the Company would have reported total royalty revenue of $32.7 million in the first quarter of 2018, disaggregated as follows: Promacta $24.1 million, Kyprolis $6.5 million, Evomela $1.7 million and Other $0.4M. In the first quarter of 2017 royalty revenue continues to be reported in accordance with ASC 605 and was $24.7 million or disaggregated as follows: Promacta $16.7 million, Kyprolis $4.6 million, Evomela, $1.9 million and Other $1.1 million. Royalty revenue was $20.8 million in first quarter of 2018 or disaggregated as follows: Promacta $15.6 million, Kyprolis $3.3 million, Evomela $1.6 million and Other $0.4 million.

The following table represents disaggregation of Material Sales and License fees, milestone and other (in thousands):

	Three months ended March 31,	
	2018	**2017**
Material Sales		
Captisol	$ 4,391	$ 1,121
License fees, milestones and other		
License Fees	$ 26,955	$ 2,872
Milestone	2,825	1,008
Other	1,166	36
	$ 30,946	$ 3,916

Short-term Investments

The Company's investments consist of the following at March 31, 2018 and December 31, 2017 (in thousands):

	March 31, 2018				December 31, 2017			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Estimated fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Estimated fair value
Short-term investments								
Bank deposits	$ 94,855	$ 5	$ (97)	$ 94,763	$ 80,095	$ 6	$ (42)	$ 80,059
Corporate bonds	73,129	—	(216)	72,913	55,335	—	(96)	55,239
Commercial paper	29,977	—	(26)	29,951	27,933	—	(20)	27,913
U.S. Government bonds	11,964	—	(22)	11,942	8,939	—	(10)	8,929
Agency bonds	—	—	—	—	4,991	—	(1)	4,990
Municipal bonds	2,014	—	(12)	2,002	2,028	—	(13)	2,015
Corporate equity securities	181	1,577	—	1,758	207	1,689	—	1,896
	$ 212,120	$ 1,582	$ (373)	$ 213,329	$ 179,528	$ 1,695	$ (182)	$ 181,041

Inventory

Inventory, which consists of finished goods, is stated at the lower of cost or market value. The Company determines cost using the first-in, first-out method.

Goodwill and Other Identifiable Intangible Assets

Goodwill and other identifiable intangible assets consist of the following (in thousands):

	March 31, 2018	December 31, 2017
Indefinite lived intangible assets		
IPR&D	$ 2,410	$ 7,923
Goodwill	85,961	85,959
Definite lived intangible assets		
Complete technology	228,413	222,900
Less: Accumulated amortization	(26,176)	(23,301)
Trade name	2,642	2,642
Less: Accumulated amortization	(949)	(916)
Customer relationships	29,600	29,600
Less: Accumulated amortization	(10,634)	(10,264)
Total goodwill and other identifiable intangible assets, net	$ 311,267	$ 314,543

Commercial License Rights

Commercial license rights consist of the following (in thousands):

	March 31, 2018	December 31, 2017
Aziyo and CorMatrix	$ 17,696	$ 17,696
Selexis	8,602	8,602
	$ 26,298	$ 26,298
Less: accumulated amortization	(6,329)	(6,772)
Total commercial rights, net	$ 19,969	$ 19,526

Commercial license rights represent a portfolio of future milestone and royalty payment rights acquired from Selexis in April 2013 and April 2015 and CorMatrix in May 2016. Individual commercial license rights acquired are carried at allocated cost and approximate fair value. In May 2017, the Company entered into a Royalty Agreement with Aziyo pursuant to which the Company will receive royalties from certain marketed products that Aziyo acquired from CorMatrix.

The Company accounts for the Aziyo commercial license right as a financial asset in accordance with ASC 310 and amortizes the commercial license right using the 'effective interest' method whereby the Company forecasts expected cash flows over the term of the arrangement to arrive at an annualized effective interest. The annual effective interest associated with the forecasted cash flows from the Royalty Agreement with Aziyo as of March 31, 2018 is 26%. Revenue is calculated by multiplying the carrying value of the commercial license right by the effective interest.

We elected a prospective approach to account for changes in estimated cash flows and selected a method for determining when an impairment would be recognized and how to measure that impairment. In circumstances where our new estimate of expected cash flows is greater than previously expected, we will update our yield prospectively. While it has not occurred to date, in circumstances where our new estimate of expected cash flows is less than previously expected and below our original estimated yield we will record impairment. Impairment will be recognized by reducing the financial asset to an amount that represents the present value of our most recent estimate of expected cash flows discounted by the original effective interest rate. In circumstances where our new estimate of expected cash flows is less than previously expected, but not below our original estimated yield, we will update our yield prospectively. The Company accounts for commercial license rights related to developmental pipeline products on a non-accrual basis. These developmental pipeline products are non-commercialized, non-approved products that require FDA or other regulatory approval, and thus have uncertain cash flows. The developmental pipeline products are on a non-accrual basis as the Company is not yet able to forecast future cash flows given their pre-commercial stages of development. The Company will prospectively update its yield model under the effective interest method once the underlying products are commercialized and the Company can reliably forecast expected cash flows. Income will be calculated by multiplying the carrying value of the commercial license right by the effective interest rate.

Viking

The Company's equity ownership interest in Viking decreased in the first quarter of 2018 to approximately 12.4% due to Viking's financing events in February 2018. As a result, in February 2018, the Company has concluded that it does not exert significant influence over Viking and has discontinued accounting for its investment in Viking under the equity method. The market value of the Company's equity investment in Viking was $27.5 million as of March 31, 2018 and as a result the Company recorded an unrealized gain of $21.1 million in Gain (loss) from Viking in its condensed consolidated statement of operations.

The Company also has outstanding warrants to purchase 1.5 million shares of Viking's common stock at an exercise price of $1.50 per share and a convertible note receivable with 2.5% fixed rate interest due from Viking with a maturity date of May 21, 2018. The Company recorded the warrants and note receivable at the fair value of $4.6 million and $3.9 million at March 31, 2018 and $3.8 million and $3.9 million at December 31, 2017, respectively.

The following table presents summarized financial information of Viking (in thousands):

	Three months ended March 31,	
	2018	2017
Condensed Statement of Operations:		
Total revenue	$ —	$ —
Gross profit	$ —	$ —
Loss from operations	$ 4,805	$ 4,968
Net Loss	$ 3,551	$ 5,222

	March 31, 2018	December 31, 2017
Condensed Balance Sheet:		
Current assets	$ 78,731	$ 21,852
Noncurrent assets	240	270
	$ 78,971	$ 22,122
Current liabilities	$ 6,339	$ 8,657
Noncurrent liabilities	$ —	$ —
Stockholder's equity	$ 72,632	$ 13,465

Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	March 31, 2018	December 31, 2017
Compensation	$ 1,455	$ 4,085
Professional fees	497	430
Amounts owed to former licensees	3,417	396
Royalties owed to third parties	1,043	954
Deferred revenue	75	173
Other	1,993	1,339
Total accrued liabilities	$ 8,480	$ 7,377

Stock-Based Compensation

Stock-based compensation expense for awards to employees and non-employee directors is recognized on a straight-line basis over the vesting period until the last tranche vests. The following table summarizes stock-based compensation expense recorded as components of research and development expenses and general and administrative expenses for the periods indicated (in thousands):

	Three months ended March 31,	
	2018	2017
Stock-based compensation expense as a component of:		
Research and development expenses	$ 1,767	$ 3,939
General and administrative expenses	2,788	2,106
	$ 4,555	$ 6,045

The fair-value for options that were awarded to employees and directors was estimated at the date of grant using the Black-Scholes option valuation model with the following weighted-average assumptions:

	Three months ended March 31,	
	2018	2017
Risk-free interest rate	2.7%	2.1%
Dividend yield	—	—
Expected volatility	33%	47%
Expected term	5.7	6.9

Lease Obligations

The Company describes its operating lease obligations in Note 5 to the financial statements in Item 8 of its Annual Report on Form 10-K for the year ended December 31, 2017. There were no significant changes in the Company's operating lease commitments during the first three months of 2018.

Income Per Share

Basic income per share is calculated by dividing net income by the weighted-average number of common shares outstanding during the period. Diluted income per share is computed based on the sum of the weighted average number of common shares and potentially dilutive common shares outstanding during the period.

Potentially dilutive common shares consist of shares issuable under 2019 Convertible Senior Notes and the associated warrants, stock options and restricted stock. The 2019 Convertible Senior Notes have a dilutive impact when the average market price of the Company's common stock exceeds the applicable conversion price of the notes. The warrants have a dilutive effect to the extent the market price per share of common stock exceeds the applicable exercise price of the warrants. Potentially dilutive common shares from stock options and restricted stock are determined using the average share price for each period under the treasury stock method. In addition, proceeds from exercise of stock options and the average amount of unrecognized compensation expense for restricted stock are assumed to be used to repurchase shares. In loss periods, basic net loss per share and diluted net loss per share are identical because the otherwise dilutive potential common shares become anti-dilutive and are therefore excluded.

The following table presents the calculation of weighted average shares used to calculate basic and diluted earnings per share:

	Three months ended March 31,	
	2018	**2017**
Weighted average shares outstanding:	21,208,793	20,937,627
Dilutive potential common shares:		
Restricted stock	63,959	185,745
Stock options	1,119,611	954,509
2019 Convertible Senior Notes	1,719,099	941,308
Warrants	688,852	—
Shares used to compute diluted income per share	24,800,314	23,019,189
Potentially dilutive shares excluded from calculation due to anti-dilutive effect	148,404	3,711,067

2. Fair Value Measurements

The following table presents the Company's hierarchy for assets and liabilities measured at fair value.

	March 31, 2018				December 31, 2017			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Short-term investments[1]	$ 29,292	$ 211,572	$ —	$ 240,864	$ 1,896	$ 179,145	$ —	$ 181,041
Note receivable Viking [2]	—	—	3,877	3,877	—	—	3,877	3,877
Investment in warrants [3]	4,594	—	—	4,594	3,846	—	—	3,846
Total assets	$ 33,886	$ 211,572	$ 3,877	$ 249,335	$ 5,742	$ 179,145	$ 3,877	$ 188,764
Liabilities:								
Current portion of contingent liabilities - Crystal [7]	$ —	$ —	$ 3,618	$ 3,618	$ —	$ —	$ 4,618	4,618
Current contingent liabilities-CyDex [4]	—	—	86	86	—	—	86	86
Long-term portion of contingent liabilities - Crystal [7]	—	—	3,783	3,783	—	—	3,783	3,783
Long-term contingent liabilities-CyDex [4]	—	—	1,503	1,503	—	—	1,503	1,503
Long-term contingent liabilities-Metabasis [5]	—	1,089	—	1,089	—	3,971	—	3,971
Liability for amounts owed to former licensees[6]	264	—	—	264	284	—	—	284
Total liabilities	$ 264	$ 1,089	$ 8,990	$ 10,343	$ 284	$ 3,971	$ 9,990	$ 14,245

(1) Investments in equity securities, which the Company received from Viking and another licensee as upfront and event-based payments, are classified as level 1 as the fair value is determined using quoted market prices in active markets for the same securities. Short-term investments in marketable debt securities with maturities greater than 90 days are classified as level 2 of the fair value hierarchy, as these investment securities are valued based upon 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.

(2) The fair value of the convertible note receivable approximates the book value since it will mature in May 21, 2018.

(3) Investment in warrants, which the Company received as a result of Viking's partial repayment of the Viking note receivable and the Company's purchase of Viking common stock and warrants in April 2016, are classified as level 1 as the fair value is determined using quoted market prices in active markets for the same securities. The change of the fair value is recorded in the other income or expenses in the Company's condensed consolidated statement of operations.

(4) The fair value of the liabilities for CyDex contingent liabilities were determined based on the income approach. To the extent the estimated future income may vary significantly given the long-term nature of the estimate, the Company utilizes a Monte Carlo model. The fair value is subjective and is affected by changes in inputs to the valuation model including management's estimates of timing and probability of achievement of certain revenue thresholds and developmental and regulatory milestones which may be achieved and affect amounts owed to former license holders. Changes in these assumptions can materially affect the fair value estimate.

(5) The liability for CVRs for Metabasis are determined using quoted prices in a market that is not active for the underlying CVR. At March 31, 2018, the Company has a CVR payable of $3.8 million to the Glucagon CVR holders due on July 2, 2018, which is not included in the fair value disclosure.

(6) The liability for amounts owed to former licensees are determined using quoted market prices in active markets for the underlying investment received from a partner, a portion of which is owed to former licensees.

(7) The fair value of Crystal contingent liabilities was determined using a probability weighted income approach. Most of the contingent payments are based on development or regulatory milestones as defined in the merger agreement with Crystal. The fair value is subjective and is affected by changes in inputs to the valuation model including management's estimates regarding the timing and probability of achievement of certain developmental and regulatory milestones. At March 31, 2018, most of the development and regulatory milestones were estimated to be highly probable of being achieved between 2018 and 2019. Changes in these estimates may materially affect the fair value.

For the three months ended March 31, 2018, there was no change to the fair value of the contingent liabilities associated with CyDex or Crystal. The Company made a $1.0 million payment to the former shareholders of Crystal in the first quarter of 2018.

The following table represents significant unobservable inputs used in determining the fair value of contingent liabilities assumed in the acquisition of CyDex:

	March 31, 2018	December 31, 2017
Revenue volatility	25%	25%
Average probability of commercialization	12.5%	12.5%
Market price of risk	2.9%	2.9%

Other Fair Value Measurements

2019 Convertible Senior Notes

In August 2014, the Company issued $245.0 million aggregate principal amount of its 2019 Convertible Senior Notes. The Company uses a quoted rate in a market that is not active, which is classified as a Level 2 input, to estimate the current fair value of its 2019 Convertible Senior Notes. The estimated fair value of the 2019 Senior Convertible Notes was $536.1 million as of March 31, 2018. The carrying value of the notes does not reflect the market rate. Additionally, at the time of the convertible notes issuance, the Company entered into convertible bond hedges, which is not required to be measured or disclosed at fair value, to offset the impact of potential dilution to the Company's common stock upon the conversion of the notes. See Note 3 *Convertible Senior Notes* for additional information about the convertible notes and the bond hedges.

3. Convertible Senior Notes

In August 2014, the Company issued and as of March 31, 2018 had outstanding $245.0 million aggregate principal amount of 2019 Convertible Senior Notes due August 15, 2019. The effective rate of the liability component was estimated to be 5.83%. The 2019 Convertible Senior Notes are convertible into common stock at an initial conversion rate of 13.3251 shares per $1,000 principal amount of convertible notes, subject to adjustment upon certain events, which is equivalent to an initial conversion price of approximately $75.05 per share of common stock. The notes bear cash interest at a rate of 0.75% per year, payable semi-annually.

Holders of the 2019 Convertible Senior Notes may convert the notes at any time prior to the close of business on the business day immediately preceding May 15, 2019, under any of the following circumstances:

(1) during any fiscal quarter (and only during such fiscal quarter) commencing after December 31, 2014, if, for at least 20 trading days (whether or not consecutive) during the 30 consecutive trading day period ending on the last trading day of the immediately preceding fiscal quarter, the last reported sale price of the Company's common stock on such trading day is greater than 130% of the conversion price on such trading day;

(2) during the five business day period immediately following any 10 consecutive trading day period, in which the trading price per $1,000 principal amount of notes was less than 98% of the product of the last reported sale price of the Company's common stock on such trading day and the conversion rate on each such trading day; or

(3) upon the occurrence of certain specified corporate events as specified in the indenture governing the notes.

As of March 31, 2018, the Company's last reported sale price has exceeded the 130% threshold described above and accordingly the Convertible Notes have been classified as a current liability as of March 31, 2018. As a result, the related unamortized discount of $16.1 million was classified as temporary equity component of currently redeemable convertible notes on the Company's Condensed Consolidated Balance Sheet. The determination of whether or not the Convertible Notes are convertible as described above is made each quarter until maturity, conversion or repurchase. It is possible that the Convertible Notes may not be convertible in future periods, in which case the Convertible Notes would be classified as long-term debt, unless one of the other conversion events described above were to occur.

On or after May 15, 2019 until the close of business on the second scheduled trading day immediately preceding August 15, 2019, holders of the notes may convert all or a portion of their notes at any time, regardless of the foregoing circumstances. Upon conversion, the Company must deliver cash to settle the principal and may deliver cash or shares of common stock, at its option, to settle any premium due upon conversion.

The 2019 Convertible Senior Notes will have a dilutive effect to the extent the average market price per share of the Company's common stock for a given reporting period exceeds the conversion price of $75.05 per share. As of March 31, 2018, the “if-converted value” exceeded the principal amount of the 2019 Convertible Senior Notes by $294.2 million.

Upon the occurrence of certain circumstances, holders of the 2019 Convertible Senior Notes may redeem all or a portion of their notes, which may require the use of a substantial amount of cash. As of March 31, 2018, we had working capital of $102.1 million, which includes the 2019 Convertible Senior notes that are currently redeemable as of March 31, 2018 but excludes another $16.1 million that is classified as mezzanine equity. The debt may change from current to non-current period over period, primarily as a result of changes in the Company’s stock price. In the event that all the debt was converted, we have three business days following a 50 trading day observation period from the convert date to pay the principal in cash. We have positive operating income and positive cash flow from operations since December 31, 2013 and, accordingly, while there can be no assurance, we believe we have the ability to raise additional capital through an offering using a registration statement on form S-3 or via alternative financing arrangements such as convertible or straight debt.

In March and April 2018, the Company received notices for conversion of $21.8 million in principal of 2019 Convertible Senior Notes.

Convertible Bond Hedge and Warrant Transactions

In August 2014, the Company entered into convertible bond hedges and sold warrants covering 3,264,643 shares of its common stock to minimize the impact of potential dilution to the Company's common stock upon conversion of the 2019 Convertible Senior Notes. The convertible bond hedges have an exercise price of $75.05 per share and are exercisable when and if the 2019 Convertible Senior Notes are converted. If upon conversion of the 2019 Convertible Senior Notes, the price of the Company's common stock is above the exercise price of the convertible bond hedges, the counterparties will deliver shares of common stock and/or cash with an aggregate value approximately equal to the difference between the price of common stock at the conversion date and the exercise price, multiplied by the number of shares of common stock related to the convertible bond hedge transaction being exercised. The convertible bond hedges and warrants described below are separate transactions entered into by the Company and are not part of the terms of the 2019 Convertible Senior Notes. Holders of the 2019 Convertible Senior Notes and warrants will not have any rights with respect to the convertible bond hedges. The Company paid $48.1 million for these convertible bond hedges and recorded the amount as a reduction to additional paid-in capital.

Concurrently with the convertible bond hedge transactions, the Company entered into warrant transactions whereby it sold warrants to acquire approximately 3,264,643 shares of common stock with an exercise price of approximately $125.08 per share, subject to certain adjustments. The warrants have various expiration dates ranging from November 13, 2019 to April 22, 2020. The warrants will have a dilutive effect to the extent the market price per share of common stock exceeds the applicable exercise price of the warrants, as measured under the terms of the warrant transactions. The Company received $11.6 million for these warrants and recorded this amount to additional paid-in capital. The common stock issuable upon exercise of the warrants will be in unregistered shares, and the Company does not have the obligation and does not intend to file any registration statement with the Securities and Exchange Commission registering the issuance of the shares under the warrants.

The following table summarizes information about the equity and liability components of the 2019 Convertible Senior Notes (in thousands).

	March 31, 2018	December 31, 2017
Principal amount outstanding	$ 245,000	$ 245,000
Unamortized discount (including unamortized debt issuance cost)	(17,453)	(20,471)
Total current portion of notes payable	$ 227,547	$ 224,529

4. Income Tax

The Company's effective tax rate may vary from the U.S. federal statutory tax rate due to the change in the mix of earnings in various state jurisdictions with different statutory rates, benefits related to tax credits, and the tax impact of non-deductible expenses, stock award activities and other permanent differences between income before income taxes and taxable income. The effective tax rate for the three months ended March 31, 2018 and 2017 was 18% and 18%, respectively. The variance from the U.S. federal statutory tax rate of 21% in 2018 and 35% in 2017 was primarily attributable to tax deductions related to stock award activities which were recorded as discrete items in the quarter. The release of a valuation allowance relating to our investment in Viking also contributed to the variance from the U.S. federal statutory rate in the first quarter of 2018.

We continue to evaluate the impact of the U.S. Tax Cuts and Jobs Act (Tax Act) and we have not adjusted our provisional tax estimates related to the Tax Act that we recorded in the fourth quarter of 2017. Our accounting remains incomplete as of March 31, 2018 and will be refined and, if necessary, adjusted throughout 2018 as required by SEC Staff Accounting Bulletin No. 118 (SAB 118).

5. Stockholders' Equity

The Company grants options and awards to employees and non-employee directors pursuant to a stockholder approved stock incentive plan, which is described in further detail in Note 8, Stockholders' Equity, of Notes to Consolidated Financial Statements in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

The following is a summary of the Company's stock option and restricted stock activity and related information:

	Stock Options		Restricted Stock Awards	
	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Grant Date Fair Value
Balance as of December 31, 2017	1,876,332	$ 53.17	133,294	$ 91.60
Granted	202,994	159.02	45,203	158.29
Options exercised/RSUs vested	(133,800)	64.73	(53,501)	80.49
Balance as of March 31, 2018	1,945,526	$ 63.43	124,996	$ 120.48

As of March 31, 2018, outstanding options to purchase 1.3 million shares were exercisable with a weighted average exercise price per share of $39.09.

Employee Stock Purchase Plan

The price at which common stock is purchased under the Amended ESPP is equal to 85% of the fair market value of the common stock on the first or last day of the offering period, whichever is lower. As of March 31, 2018, 67,394 shares were available for future purchases under the Amended ESPP.

6. Litigation

The Company records an estimate of a loss when the loss is considered probable and estimable. Where a liability is probable and there is a range of estimated loss and no amount in the range is more likely than any other number in the range, the Company records the minimum estimated liability related to the claim in accordance with *FASB ASC Topic 450 Contingencies.* As additional information becomes available, the Company assesses the potential liability related to its pending litigation and revises its estimates. Revisions in the Company's estimates of potential liability could materially impact its results of operations.

In November 2017, CyDex, our wholly owned subsidiary, received a paragraph IV certification from Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd. and Actavis, LLC (collectively "Teva") alleging that certain of our patents related to Captisol were invalid, unenforceable and/or will not be infringed by Teva's ANDA related to Spectrum Pharmaceuticals' NDA for Evomela. On December 20, 2017, CyDex filed a complaint against Teva in the U.S. District Court for the District of Delaware, asserting that Teva's ANDA would infringe our patents. On March 22, Teva filed an answer and

counterclaims seeking declarations of non-infringement and invalidity as to each of the asserted patents and on April 12, CyDex filed an answer to Teva's counterclaims.

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

Caution: This discussion and analysis may contain predictions, estimates and other forward-looking statements that involve a number of risks and uncertainties, including those discussed in Part II, Item 1A:"Risk Factors." This outlook represents our current judgment on the future direction of our business. These statements include those related to our Captisol-related revenues, our Promacta, Kyprolis, and other product royalty revenues, product returns, and product development. Actual events or results may differ materially from our expectations. For example, there can be no assurance that our revenues or expenses will meet any expectations or follow any trend(s), that we will be able to retain our key employees or that we will be able to enter into any strategic partnerships or other transactions. We cannot assure you that we will receive expected Promacta, Kyprolis, Captisol and other product revenues to support our ongoing business or that our internal or partnered pipeline products will progress in their development, gain marketing approval or achieve success in the market. In addition, ongoing or future arbitration, or litigation or disputes with third parties may have a material adverse effect on us. Such risks and uncertainties, and others, could cause actual results to differ materially from any future performance suggested. We undertake no obligation to make any revisions to these forward-looking statements to reflect events or circumstances arising after the date of this quarterly report. This caution is made under the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Our trademarks, trade names and service marks referenced herein include Ligand. Each other trademark, trade name or service mark appearing in this quarterly report belongs to its owner.

References to "Ligand Pharmaceuticals Incorporated," "Ligand," the "Company," "we" or "our" include Ligand Pharmaceuticals Incorporated and our wholly owned subsidiaries.

Overview

We are a biopharmaceutical company focused on developing and acquiring technologies that help pharmaceutical companies discover and develop medicines. Over our more than 30 year history, we have employed research technologies such as nuclear receptor assays, high throughput computer screening, formulation science, liver targeted pro-drug technologies and antibody discovery technologies to assist companies in their work toward securing prescription drug approvals. We currently have partnerships and license agreements with over 95 pharmaceutical and biotechnology companies, and over 165 different programs under license with us are currently in various stages of commercialization and development. We have contributed novel research and technologies for approved medicines that treat cancer, osteoporosis, fungal infections and low blood platelets, among others. Our partners have programs currently in clinical development targeting seizure, coma, cancer, diabetes, cardiovascular disease, muscle wasting, liver disease, and kidney disease, among others.

We have over 800 issued patents worldwide. We have assembled our large portfolio of fully-funded programs either by licensing our own proprietary drug development programs, licensing our platform technologies such as Captisol or OmniAb to partners for use with their proprietary programs, or acquiring existing partnered programs from other companies. Fully-funded programs are those for which our partners pay all of the development and commercialization costs. For our internal programs, we generally plan to advance drug candidates through early-stage drug development or clinical proof-of-concept.

Our business model creates value for stockholders by providing a diversified portfolio of biotech and pharmaceutical product revenue streams that are supported by an efficient and low corporate cost structure. Our goal is to offer investors an opportunity to participate in the promise of the biotech industry in a profitable, diversified and lower-risk business than a typical biotech company. Our business model is based on doing what we do best: drug discovery, early-stage drug development, product reformulation and partnering. We partner with other pharmaceutical companies to leverage what they do best (late-stage development, regulatory management and commercialization) to ultimately generate our revenue. We believe that focusing on discovery and early-stage drug development while benefiting from our partners' development and commercialization expertise will reduce our internal expenses and allow us to have a larger number of drug candidates progress to later stages of drug development.

Our revenue consists of three primary elements: royalties from commercialized products, license and milestone payments and sale of Captisol material. In addition to discovering and developing our own proprietary drugs, we selectively pursue acquisitions to bring in new assets, pipelines, and technologies to aid in generating additional potential new revenue streams.

Portfolio Program Updates

Promacta®/Revolade®

- Novartis reported first quarter 2018 net sales of Promacta/Revolade (eltrombopag) of $257 million, an $82 million or 47% increase over the same period in 2017.
- Novartis announced that the U.S. Food and Drug Administration (FDA) granted Breakthrough Therapy designation to Promacta for use in combination with standard immunosuppressive therapy for the treatment of patients with severe aplastic anemia as a first-line therapy.

Kyprolis® (carfilzomib), an Amgen Product Utilizing Captisol

- On April 24, 2018, Amgen reported first quarter net sales of Kyprolis of $222 million, a $32 million or 17% increase over the same period in 2017. On May 9, 2018, Ono Pharmaceutical Company is expected to report Kyprolis sales in Japan for the most recent quarter.
- On January 17, 2018, Amgen announced that the FDA approved the supplemental New Drug Application to add overall survival (OS) data from the Phase 3 head-to-head ENDEAVOR trial to the Prescribing Information for Kyprolis.
- On January 30, 2018, Amgen announced that the Committee for Medicinal Products for Human Use of the European Medicines Agency (CHMP) adopted a positive opinion recommending a label variation for Kyprolis to include updated OS data from the Phase 3 head-to-head ENDEAVOR trial in patients with relapsed or refractory multiple myeloma.
- On April 30, 2018, Amgen announced that the CHMP adopted a positive opinion recommending a label variation for Kyprolis to include the final overall survival (OS) data from the Phase 3 ASPIRE trial.

New Licensing Deals

- Ligand announced the signing of a license agreement granting Roivant Sciences exclusive global rights to develop and commercialize LGD-6972 (now named RVT-1502), Ligand's glucagon receptor antagonist (GRA). Under the terms of the agreement, Ligand received a $20 million upfront license fee, and is eligible to receive up to an additional $528.8 million of milestone payments and tiered royalties ranging from low double digits to the mid-teens, with the top tier applying to annual net sales above $3 billion. Roivant is responsible for all costs related to the program.
- Ligand announced worldwide license agreements with venBio Partners, Ferring Pharmaceuticals and Glenmark Pharmaceuticals to use the OmniAb platform technologies to discover fully human antibodies. The agreement with venBio permits the venture capital firm's portfolio companies to enter into worldwide OmniAb platform agreements under previously agreed-upon terms. Ligand is eligible to receive annual access payments, milestone payments and royalties on future net sales of any antibodies discovered under these licenses.

Additional Pipeline and Partner Developments

- Sage Therapeutics announced the submission of a New Drug Application to the FDA for an intravenous (IV) formulation of brexanolone for the treatment of postpartum depression.
- Retrophin announced first patient enrollment in the Phase 3 DUPLEX Study evaluating the long-term nephroprotective potential of sparsentan for the treatment of focal segmental glomerulosclerosis. Topline data from the 36-week interim efficacy endpoint analysis are expected in the second half of 2020.
- Retrophin announced that the company received regulatory feedback from both the FDA and European Medicines Agency (EMA) on the development pathway for sparsentan in IgA nephropathy and that a single registration-enabling Phase 3 clinical trial is expected to be initiated in the fourth quarter of 2018
- Melinta Therapeutics announced the U.S. launch of the Captisol-enabled IV formulation of Baxdela for the treatment of adult patients with acute bacterial skin and skin structure infections caused by designated susceptible bacteria.
- Melinta Therapeutics announced that The Menarini Group and Eurofarma Laboratórios submitted regulatory applications for delafloxacin (Baxdela in the U.S.) in the European Union and Argentina, respectively.
- CASI Pharmaceuticals announced a $50 million private placement to prepare for commercialization in China, including potentially for EVOMELA, which has a regulatory application outstanding under priority review with an Expert Advisory Committee review date of April 25-26, 2018.
- Aldeyra Therapeutics announced enrollment of the first patient in a Phase 3 clinical trial of topical ocular reproxalap for the treatment of allergic conjunctivitis and also enrollment of the first patient in a Phase 2b clinical trial of reproxalap for the treatment of dry eye disease.
- Aldeyra Therapeutics presented the results of a Phase 2a dry eye disease clinical trial of topical ocular reproxalap at the Association for Research in Vision and Ophthalmology 2018 Annual Meeting.
- Exelixis announced that its partner Daiichi Sankyo had submitted a regulatory application for esaxerenone (CS-3150) in patients with hypertension to the Japanese Pharmaceutical and Medical Devices Agency.
- Takeda Pharmaceuticals highlighted the Phase 3 initiation of pevonedistat and its TAK-020 program during its presentation at the JP Morgan 36th Annual Healthcare Conference.
- Merrimack Pharmaceuticals announced it had dosed the first patient in its Phase 2 SHERBOC study of MM-121 (seribantumab) in patients with heregulin-positive, hormone receptor-positive and HER2-negative post-menopausal metastatic breast cancer.
- Viking Therapeutics announced the pricing of a $63.3 million public offering of common stock (including over-allotment exercise) with proceeds to fund continued development of VK5211, VK2809 and VK0214.
- Opthea announced commencing a Phase 1b/2a trial evaluating the safety and efficacy of OPT-302 in patients with center-involved diabetic macular edema.
- Syros Pharmaceuticals announced new preclinical data showing that Captisol-enabled SY-1365, a first-in-class selective cyclin-dependent kinase 7 inhibitor currently in a Phase 1 trial in patients with advanced solid tumors, demonstrated potent anti-tumor activity in multiple models of heavily pretreated ovarian cancer.
- Aptevo Therapeutics announced that it had submitted an Investigational New Drug application to the FDA to evaluate APVO436 in a Phase 1 clinical study for the treatment of patients with relapsed or refractory acute myeloid leukemia or myelodysplastic syndrome.
- Aptevo Therapeutics presented new data for APVO436 at the American Association for Cancer Research (AACR) 2018 Annual Meeting.
- OmniAb partner Ferring Pharmaceuticals announced it is expanding its capabilities in biologics by constructing a new CHF30 million biotech center and manufacturing site.
- Arcus Biosciences presented a poster on OmniAb-derived GLS-010 (AB122) at the AACR 2018 Annual Meeting.

- Nucorion Pharmaceuticals presented preclinical data for its novel liver-targeting prodrug technology program, NCO-1010, for the potential treatment of hepatitis B at the European Association for the Study of the Liver's International Liver Congress.

Internal Research and Development

- Ligand announced initiation of an internally funded program to develop through proof-of-concept contrast agents with reduced renal toxicity for diagnostic imaging procedures. This development program will leverage Ligand's Captisol technology, as well as intellectual property obtained through its acquisition of Verrow Pharmaceuticals for $2 million in cash plus earn outs.
- Ligand presented a poster at the National Lipid Association's 2018 Scientific Sessions showing that Ligand's LTP Technology significantly improves liver targeting of the statin rosuvastatin (Crestor®), and may potentially be an effective strategy to increase the therapeutic index of statins and reduce statin intolerance.
- A paper by Ligand scientists entitled "Chickens with humanized immunoglobulin genes generate antibodies with high affinity and broad epitope coverage to conserved targets" was published in the journal *MAbs*, highlighting the use of OmniChicken in antibody drug discovery.

Results of Operations

Revenue

(Dollars in thousands)	Q1 2018	Q1 2017	Change	% Change
Royalties	**$ 20,820**	$ 24,230	$ (3,410)	(14)%
Material sales	**4,391**	1,121	3,270	292 %
License fees, milestones and other revenue	**30,946**	3,916	27,030	690 %
Total revenue	**$ 56,157**	$ 29,267	$ 26,890	92 %

Q1 2018 vs. Q1 2017

Total revenue increased $26.9 million, or 92%, to $56.2 million in Q1 2018 compared to $29.3 million in Q1 2017 primarily driven by $20.0 million received from Roivant upon entering into the GRA license agreement to develop and commercialize LGD-6972. Material sales also contributed to the increase and was due primarily to timing of customer purchases of Captisol for use in clinical trials and in commercialized products.

The Company adopted ASC 606, the new revenue standard, in the first quarter of 2018 and now recognizes royalties on sales of products commercialized by the Company's partners in the quarter the product is sold as opposed to on a one-quarter lag as previously recognized under ASC 605. The results for the reporting periods beginning after January 1, 2018, are presented in accordance with the new standard, although comparative information has not been restated and continues to be reported under the accounting standards and policies in effect for those periods. The adoption of this new standard resulted in lower reported royalty revenue of $11.9 million compared to what reported amounts would have been under the old standard.

Royalty revenue is a function of our partners' product sales and the applicable royalty rate. Promacta and Kyprolis royalty rates are under a tiered royalty rate structure with the highest tier being 9.4% and 3.0%, respectively. Evomela has a fixed royalty rate of 20%.

The following table represents royalty revenue by program under the new (ASC 606) and prior (ASC 605) revenue standard:

(in millions)	Q1 2018 Estimated Partner Product Sales	Effective Royalty Rate	Q1 2018 Royalty Revenue under ASC 606	Q4 2017 Partner Product Sales	Effective Royalty Rate	Q1 2018 Royalty Revenue under ASC 605[1]	Q4 2016 Partner Products Sales	Effective Royalty Rate	Q1 2017 Royalty Revenue under ASC 605
Promacta	**$ 257.0**	**6.07%**	**$ 15.6**	$ 255.3	9.44%	$ 24.1	$ 177.0	9.44%	$ 16.7
Kyprolis	**234.0**	**1.41%**	**3.3**	227.0	2.86%	6.5	187.4	2.45%	4.6
Evomela	**8.0**	**20.00%**	**1.6**	8.0	20.00%	1.6	9.4	20.00%	1.9
Other	**42.0**	**0.71%**	**0.3**	41.0	1.22%	0.5	45.0	2.22%	1.0
Total	**$ 541.0**		**$ 20.8**	$ 373.8		$ 32.7	$ 418.8		$ 24.2

[1] Upon adoption of the new revenue standard, we recorded a net decrease of $25.4 million to Accumulated deficit due to the cumulative impact of adopting the new standard—with the impact related primarily to $32.7 million acceleration of royalty proceeds from Q4 2017 product sales, net of $7.3 million related deferred tax impact.

Operating Costs and Expenses

(Dollars in thousands)	Q1 2018	% of Revenue	Q1 2017	% of Revenue
Costs of sales	**$ 788**		$ 341	
Amortization of intangibles	**3,278**		2,715	
Research and development	**7,407**		8,673	
General and administrative	**7,643**		7,322	
Total operating costs and expenses	**$ 19,116**	34%	$ 19,051	65%

Q1 2018 vs. Q1 2017

Total operating costs and expenses as a percentage of total revenue decreased in Q1 2018 compared to Q1 2017. Total revenue for Q1 2018 increased $26.9 million or 92% while total operating costs and expenses for that quarter increased $0.1 million. Costs of sales increased due to higher material sales. Amortization of intangibles increased primarily as a result of the Crystal acquisition in the fourth quarter of 2017. Research and development expenses decreased due to timing of internal development costs and a decrease in stock-based compensation. General and administrative expenses increased primarily due to an increase in headcount related expenses including stock-based compensation.

Other Income (Expense)

(Dollars in thousands)	Q1 2018	Q1 2017	Change
Interest expense, net	**$ (2,605)**	$ (2,941)	$ 336
Increase in contingent liabilities	**(960)**	(140)	(820)
Gain (loss) from Viking	**21,097**	(1,083)	22,180
Other income, net	**739**	141	598
Total other expense, net	**$ 18,271**	$ (4,023)	$ 22,294

Interest expense, net consisted primarily of accretion of discount on our 2019 Convertible Senior Notes. Increase in contingent liabilities primarily relates to the increase in fair value of certain CVRs associated with our Metabasis acquisition. The increase in gain (loss) from Viking is a result of a $21.2 million unrealized gain recorded in Q1 2018 as the Company discontinued accounting for its ownership interest in Viking's under the equity method and now accounts for Viking as an available for sale security with changes in the fair value of Viking common stock recorded as unrealized gain (loss) from Viking. Other income, net consists primarily of short term investment transactions and the change in fair market value of Viking warrants.

Income Tax Expense

(Dollars in thousands)	Q1 2018	Q1 2017	Change
Income before income taxes	**$ 55,312**	$ 6,193	$ 49,119
Income tax expense	**(10,033)**	(1,114)	(8,919)
Income from operations	**$ 45,279**	$ 5,079	$ 40,200
Effective tax rate	18.1%	18.0%	

We compute our income tax provision by applying the estimated annual effective tax rate to income or loss from recurring operations and adding the effects of any discrete income tax items specific to the period. Our effective tax rate for the first quarter of 2018 was approximately 18%. Excluding discrete tax items primarily related to stock-based compensation tax benefits and valuation allowance adjustments, our tax rate for the period was 23% and did not differ significantly from the federal statutory rate of 21%. Our effective tax rate for the first quarter of 2017 was approximately 18%. Excluding discrete tax items primarily related to share-based compensation tax benefits, our effective tax rate for the period was 37% and did not differ significantly from the federal statutory rate of 35%.

Liquidity and Capital Resources

We have financed our operations through offerings of our equity securities, issuance of convertible notes, product sales and the subsequent sales of our commercial assets, royalties, collaborative research and development and other revenue, and operating lease transactions.

We had net income of $45.3 million for the quarter ended March 31, 2018. As of March 31, 2018, our cash, cash equivalents and marketable securities totaled $291.9 million, and we had working capital of $102.1 million. We believe that our currently available funds, cash generated from operations as well as existing sources of and access to financing will be sufficient to fund our anticipated operating, capital requirements and debt service requirement. We expect to build cash in future months as we continue to generate significant cash flow from royalty, license and milestone revenue and Captisol material sales primarily driven by continued increases in Promacta and Kyprolis sales, recent product approvals and regulatory developments, as well as revenue from anticipated new licenses and milestones. In addition, we anticipate that our liquidity needs can be met through other sources, including sales of marketable securities, borrowings through commercial paper and/or syndicated credit facilities and access to other domestic and foreign debt and equity markets.

While we believe in the viability of our strategy to generate sufficient operating cash flow and in our ability to raise additional funds, there can be no assurances to that effect.

Investments

We invest our excess cash principally in U.S. government debt securities, municipal debt securities, investment-grade corporate debt securities and certificates of deposit. We have established guidelines relative to diversification and maturities that maintain safety and liquidity. These guidelines are periodically reviewed and modified to take advantage of trends in yields and interest rates. Additionally, we own certain equity securities as a result of milestones and license fees received from licensees as well as warrants to purchase Viking common stock.

Borrowings and Other Liabilities

2019 Convertible Senior Notes

We have convertible debt outstanding as of March 31, 2018 related to our 2019 Convertible Senior Notes. In August 2014, we issued $245.0 million aggregate principal amount of convertible senior unsecured notes. The 2019 Convertible Senior Notes are convertible into common stock upon satisfaction of certain conditions. Interest of 0.75% per year is payable semi-annually on August 15th and February 15th through the maturity of the notes in August 2019.

In March and April 2018, the Company received notices for conversion of $21.8 million in principal of 2019 Convertible Senior Notes.

Repurchases of Common Stock

In September 2015, our Board of Directors authorized us to repurchase up to $200.0 million of our common stock from time to time over a period of up to three years. We repurchased 13,000 shares of common stock during Q1 2018. As of March 31, 2018, $191.6 million remains available for repurchase under the authorized program.

Contingent Liabilities

Metabasis

In connection with the acquisition of Metabasis in January 2010, we entered into four CVR agreements with Metabasis shareholders. The CVRs entitle the holders to cash payments upon the sale or licensing of certain assets and upon the achievement of specified milestones. See *footnote 2,* Fair Value Measurements.

Leases and Off-Balance Sheet Arrangements

We lease our office facilities under operating lease arrangements with varying terms through April 2023. The agreements provide for increases in annual rents based on changes in the Consumer Price Index or fixed percentage increases of 3.0%. We had no off-balance sheet arrangements at March 31, 2018 and December 31, 2017.

Cash Flows

(Dollars in thousands)	Q1 2018	Q1 2017 Revised
Net cash provided by (used in):		
Operating activities	$ 60,761	$ 19,224
Investing activities	(33,581)	(25,668)
Financing activities	3,224	(1,667)
Net increase (decrease) in cash and cash equivalents	$ 30,404	$ (8,111)

During Q1 2018 and 2017, we generated cash from operations and from issuance of common stock under employee stock plans. During the same period we used cash for investing activities, including payments to CVR holders and net purchases of short term investments. We used $1.9 million to repurchase our common stock in Q1 2018.

Critical Accounting Policies

Certain of our policies require the application of management judgment in making estimates and assumptions that affect the amounts reported in our consolidated financial statements and the disclosures made in the accompanying notes. Those estimates and assumptions are based on historical experience and various other factors deemed applicable and reasonable under the circumstances. The use of judgment in determining such estimates and assumptions is by nature, subject to a degree of uncertainty. Accordingly, actual results could differ materially from the estimates made.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risk from interest rates and equity prices which could affect our results of operations, financial condition and cash flows. We manage our exposure to these market risks through our regular operating and financing activities.

Investment Portfolio Risk

At March 31, 2018, our investment portfolio included investments in available-for-sale securities of $213.3 million. These securities are subject to market risk and may decline in value based on market conditions. Due to the short-term duration of our investment portfolio and low risk profile of our investments, a 10% increase in interest rates would not have material effect on the fair value of our portfolio.

Equity Price Risk

Our 2019 Convertible Senior Notes include conversion and settlement provisions that are based on the price of our common stock at conversion or maturity of the notes, as applicable. The minimum amount of cash we may be required to pay is $245.0 million, but will ultimately be determined by the price of our common stock. The fair values of our 2019 Convertible Senior Notes are dependent on the price and volatility of our common stock and will generally increase or decrease as the market price of our common stock changes. In order to minimize the impact of potential dilution to our common stock upon the conversion of the 2019 Convertible Senior Notes, we entered into convertible bond hedges covering 3,264,643 shares of our common stock. Concurrently with entering into the convertible bond hedge transactions, we entered into warrant transactions whereby we sold warrants with an exercise price of approximately $125.08 per share, subject to adjustment. Throughout the term of the 2019 Convertible Senior Notes, the notes may have a dilutive effect on our earnings per share to the extent the stock price exceeds the conversion price of the notes. Additionally, the warrants may have a dilutive effect on our earnings per share to the extent the stock price exceeds the strike price of the warrants.

Foreign currency risk

Through our licensing and business operations, we are exposed to foreign currency risk. Foreign currency exposures arise from transactions denominated in a currency other than the functional currency and from foreign denominated revenues and profit translated into U.S. dollars. Our collaborative partners sell our products worldwide in currencies other than the U.S. dollar. Because of this, our revenues from royalty payments are subject to risk from changes in exchange rates.

We purchase Captisol from Hovione, located in Lisbon, Portugal. Payments to Hovione are denominated and paid in U.S. dollars, however the unit price of Captisol contains an adjustment factor which is based on the sharing of foreign currency risk between the two parties. The effect of an immediate 10% change in foreign exchange rates would not have a material impact on our financial condition, results of operations or cash flows. We do not currently hedge our exposures to foreign currency fluctuations.

Interest rate risk

We are exposed to market risk involving rising interest rates. To the extent interest rates rise, our interest costs could increase. An increase in interest costs of 10% would not have a material impact on our financial condition, results of operations or cash flows.

ITEM 4. CONTROLS AND PROCEDURES

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures, as such term is defined in Rules 13a15(e) and 15d-15(e) under the Exchange Act. Based upon and as of the date of that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in reports we file or submit pursuant to the Exchange Act is (1) recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and (2) accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Our disclosure controls were designed to provide reasonable assurance that the controls and procedures would meet their objectives. Our management, including the Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls will prevent all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable assurance of achieving the designed control objectives and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusions of two or more people, or by management override of the control. Because of the inherent limitations in a cost-effective, maturing control system, misstatements due to error or fraud may occur and not be detected.

During the fiscal quarter ended March 31, 2018, we implemented certain internal controls over financial reporting in connection with our adoption of ASC 606. There have not been any other changes in our internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter of the fiscal year to which this report relates that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. Legal Proceedings

From time to time we are subject to various lawsuits and claims with respect to matters arising out of the normal course of our business. Due to the uncertainty of the ultimate outcome of these matters, the impact on future financial results is not subject to reasonable estimates.

In November 2017, CyDex, our wholly owned subsidiary, received a paragraph IV certification from Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd. and Actavis, LLC (collectively "Teva") alleging that certain of our patents related to Captisol were invalid, unenforceable and/or will not be infringed by Teva's ANDA related to Spectrum Pharmaceuticals' NDA for Evomela. On December 20, 2017, CyDex filed a complaint against Teva in the U.S. District Court for the District of Delaware, asserting that Teva's ANDA would infringe our patents. On March 22, Teva filed an answer and counterclaims seeking declarations of non-infringement and invalidity as to each of the asserted patents and on April 12, CyDex filed an answer to Teva's counterclaims.

ITEM 1A. RISK FACTORS

The following is a summary description of some of the many risks we face in our business. You should carefully review these risks in evaluating our business, including the businesses of our subsidiaries. You should also consider the other information described in this report. The risk factors set forth below with an asterisk (*) next to the title are new risk factors or risk factors containing material changes from the risk factors previously disclosed in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the SEC on March 1, 2018:

Future revenue based on Promacta, Kyprolis and Evomela, as well as sales of our other products, may be lower than expected.

Novartis is obligated to pay us royalties on its sales of Promacta, and we receive revenue from Amgen based on both sales of Kyprolis and purchases of Captisol material for clinical and commercial uses. These payments are expected to be a substantial portion of our ongoing revenues for some time. In addition, we receive revenues based on sales of Evomela and other products. Any setback that may occur with respect to any of our partners' products, and in particular Promacta or Kyprolis, could significantly impair our operating results and/or reduce our revenue and the market price of our stock. Setbacks for the products could include problems with shipping, distribution, manufacturing, product safety, marketing, government regulation or reimbursement, licenses and approvals, intellectual property rights, competition with existing or new products and physician or patient acceptance of the products, as well as higher than expected total rebates, returns, discounts, or unfavorable exchange rates. These products also are or may become subject to generic competition.

Future revenue from sales of Captisol material to our license partners may be lower than expected.

Revenues from sales of Captisol material to our collaborative partners represent a significant portion of our current revenues. Any setback that may occur with respect to Captisol could significantly impair our operating results and/or reduce the market price of our stock. Setbacks for Captisol could include problems with shipping, distribution, manufacturing, product safety, marketing, government regulation or reimbursement, licenses and approvals, intellectual property rights, competition with existing or new products and physician or patient acceptance of the products using Captisol.

If products or product candidates incorporating Captisol material were to cause any unexpected adverse events, the perception of Captisol safety could be seriously harmed. If this were to occur, we may not be able to sell Captisol unless and until we are able to demonstrate that the adverse event was unrelated to Captisol, which we may not be able to do. Further, the FDA could require us to submit additional information for regulatory review or approval, including data from extensive safety testing or clinical testing of products using Captisol. This would be expensive and it may delay the marketing of Captisol-enabled products and receipt of revenue related to those products, which could significantly impair our operating results and/or reduce the market price of our stock.

We obtain Captisol from a sole source supplier, and if this supplier were to cease to be able, for any reason, to supply Captisol to us in the amounts we require, or decline to supply Captisol to us, we would be required to seek an alternative source, which could potentially take a considerable length of time and impact our revenue and customer relationships. We maintain inventory of Captisol, which has a five year shelf life, at three geographically dispersed storage locations in the United States and Europe. If we were to encounter problems maintaining our inventory, such as natural disasters, at one or more of these locations, it could lead to supply interruptions. While we believe we maintain adequate inventory of Captisol to meet our current and expected future partner needs, our estimates and projections for Captisol demand may be wrong and any supply interruptions could materially adversely impact our operating results.

We currently depend on our arrangements with our partners and licensees to sell products using our Captisol technology. These agreements generally provide that our partners may terminate the agreements at will. If our partners discontinue sales of products using Captisol, fail to obtain regulatory approval for products using Captisol, fail to satisfy their obligations under their agreements with us, or choose to utilize a generic form of Captisol should it become available, or if we are unable to establish new licensing and marketing relationships, our financial results and growth prospects would be materially affected. Furthermore, we maintain significant accounts receivable balances with certain customers purchasing Captisol materials, which may result in the concentration of credit risk. We generally do not require any collateral from our customers to secure payment of these accounts receivable. If any of our major customers were to default in the payment of their obligations to us, our business, operating results and cash flows could be adversely affected.

Further, under most of our Captisol outlicenses, the amount of royalties we receive will be reduced or will cease when the relevant patent expires. Our low-chloride patents and foreign equivalents are not expected to expire until 2033, our high purity patents and foreign equivalents, are not expected to expire until 2029 and our morphology patents and foreign equivalents, are not expected to expire until 2025, but the initially filed patents relating to Captisol expired starting in 2010 in the United States and in 2016 in most countries outside the United States. If our other intellectual property rights are not sufficient to prevent a generic form of Captisol from coming to market and if in such case our partners choose to terminate their agreements with us, our Captisol revenue may decrease significantly.

Third party intellectual property may prevent us or our partners from developing our potential products; our and our partners' intellectual property may not prevent competition; and any intellectual property issues may be expensive and time consuming to resolve.

The manufacture, use or sale of our potential products or our licensees' products or potential products may infringe the patent rights of others. If others obtain patents with conflicting claims, we may be required to obtain licenses to those patents or to develop or obtain alternative technology. We may not be able to obtain any such licenses on acceptable terms, or at all. Any failure to obtain such licenses could delay or prevent us from pursuing the development or commercialization of our potential products.

Generally, our success will depend on our ability and the ability of our partners to obtain and maintain patents and other intellectual property rights for our and their potential products. Our patent position is uncertain and involves complex legal and technical questions for which legal principles are unresolved. Even if we or our partners do obtain patents, such patents may not adequately protect the technology we own or have licensed.

We permit our partners to list our patents that cover their branded products in the Orange Book. If a third party files an NDA or ANDA for a generic drug product that relies in whole or in part on studies contained in our partner's NDA for their branded product, the third party will have the option to certify to the FDA that, in the opinion of that third party, the patents listed in the Orange Book for our partner's branded product are invalid, unenforceable, or will not be infringed by the manufacture, use or sale of the third party's generic drug product. A third party certification that a new product will not infringe Orange Book-listed patents, or that such patents are invalid, is called a paragraph IV patent certification. If the third party submits a paragraph IV patent certification to the FDA, a notice of the paragraph IV patent certification must be sent to the NDA owner and the owner of the patents that are subject to the paragraph IV patent certification notice once the third-party's NDA or ANDA is accepted for filing by the FDA. A lawsuit may then be initiated to defend the patents identified in the notice. The filing of a patent infringement lawsuit within 45 days of the receipt of notice of a paragraph IV patent certification automatically prevents the FDA from approving the generic NDA or ANDA until the earlier of the expiration of a 30-month period, the expiration of the patents, the entry of a settlement order stating that the patents are invalid or not infringed, a decision in the infringement case that is favorable to the NDA or ANDA applicant, or such shorter or longer period as the court may order. If a patent infringement lawsuit is not initiated within the required 45-day period, the third-party's NDA or ANDA will not be subject to the 30-month stay.

Several third-parties have challenged, and additional third parties may challenge, the patents covering our partner's branded products, including Promacta, Kyprolis and Evomela, which could result in the invalidation or unenforceability of some or all of the relevant patent claims. We may from time to time become party to litigation or other proceedings as a result of Paragraph IV certifications. For example, in November 2017, CyDex, our wholly owned subsidiary, received a paragraph IV certification from Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd. and Actavis, LLC (collectively "Teva") alleging that certain of our patents related to Captisol were invalid, unenforceable and/or will not be infringed by Teva's ANDA related to Spectrum Pharmaceuticals' NDA for Evomela. On December 20, 2017, CyDex filed a complaint against Teva in the U.S. District Court for the District of Delaware, asserting that Teva's ANDA would infringe our patents. On March 22, Teva filed an answer and counterclaims seeking declarations of non-infringement and invalidity as to each of the asserted patents and on April 12, CyDex filed an answer to Teva's counterclaims.

Litigation or other proceedings to enforce or defend intellectual property rights are often very complex in nature, may be very expensive and time-consuming, may divert our management's attention from our core business, and may result in unfavorable results that could adversely impact our ability to prevent third parties from competing with our partner's products. Any adverse outcome of such litigation could result in one or more or our patents being held invalid or unenforceable, which could adversely affect our ability to successfully execute our business strategy and negatively impact our financial condition and results of operations. However, given the unpredictability inherent in litigation, we cannot predict or guarantee the outcome

of these matters or any other litigation. Regardless of how these matters are ultimately resolved, these matters may be costly, time-consuming and distracting to our management, which could have a material adverse effect on our business.

In addition, periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and or applications will be due to the U.S. and various foreign patent offices at various points over the lifetime of our and our licensees' patents and/or applications. We have systems in place to remind us to pay these fees, and we rely on our outside patent annuity service to pay these fees when due. Additionally, the U.S. and various foreign patent offices require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with rules applicable to the particular jurisdiction. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or
complete loss of patent rights in the relevant jurisdiction. If such an event were to occur, it could have a material adverse effect on our business.

Any conflicts with the patent rights of others could significantly reduce the coverage of our patents or limit our ability to obtain meaningful patent protection. For example, our European patent related to Agglomerated forms of Captisol was limited during an opposition proceeding, and the rejection of our European patent application related to High Purity Captisol was upheld on appeal. In addition, any determination that our patent rights are invalid may result in early termination of our agreements with our license partners and could adversely affect our ability to enter into new license agreements. We also rely on unpatented trade secrets and know-how to protect and maintain our competitive position. We require our employees, consultants, licensees and others to sign confidentiality agreements when they begin their relationship with us. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our competitors may independently discover our trade secrets.

We may also need to initiate litigation, which could be time-consuming and expensive, to enforce our proprietary rights or to determine the scope and validity of others' rights. If this occurs, a court may find our patents or those of our licensors invalid or may find that we have infringed on a competitor's rights. In addition, if any of our competitors have filed patent applications in the United States which claim technology we also have invented, the United States Patent and Trademark Office may require us to participate in expensive interference proceedings to determine who has the right to a patent for the technology.

The occurrence of any of the foregoing problems could be time-consuming and expensive and could adversely affect our financial position, liquidity and results of operations.

We rely heavily on licensee relationships, and any disputes or litigation with our partners or termination or breach of any of the related agreements could reduce the financial resources available to us, including milestone payments and future royalty revenues.

Our existing collaborations may not continue or be successful, and we may be unable to enter into future collaborative arrangements to develop and commercialize our unpartnered assets. Generally, our current collaborative partners also have the right to terminate their collaborations at will or under specified circumstances. If any of our collaborative partners breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully (for example, by not making required payments when due, or at all), our product development under these agreements will be delayed or terminated. Disputes or litigation may also arise with our collaborators (with us and/or with one or more third parties), including those over ownership rights to intellectual property, know-how or technologies developed with our collaborators. For example, we are asserting our rights to receive payment against one of our collaborative partners which could harm our relationship with such partner. Such disputes or litigation could adversely affect our rights to one or more of our product candidates and could delay, interrupt or terminate the collaborative research, development and commercialization of certain potential products, create uncertainty as to ownership rights of intellectual property, or could result in litigation or arbitration. In addition, a significant downturn or deterioration in the business or financial condition of our collaborators or partners could result in a loss of expected revenue and our expected returns on investment. The occurrence of any of these problems could be time-consuming and expensive and could adversely affect our business.

Our product candidates, and the product candidates of our partners, face significant development and regulatory hurdles prior to partnering and/or marketing which could delay or prevent licensing, sales-based royalties and/or milestone revenue.

Before we or our partners obtain the approvals necessary to sell any of our unpartnered assets or partnered programs, we must show through preclinical studies and human testing that each potential product is safe and effective. We and/or our

partners have a number of partnered programs and unpartnered assets moving toward or currently awaiting regulatory action. Failure to show any product's safety and effectiveness could delay or prevent regulatory approval of a product and could adversely affect our business. The drug development and clinical trials process is complex and uncertain. For example, the results of preclinical studies and initial clinical trials may not necessarily predict the results from later large-scale clinical trials. In addition, clinical trials may not demonstrate a product's safety and effectiveness to the satisfaction of the regulatory authorities. A number of companies have suffered significant setbacks in advanced clinical trials or in seeking regulatory approvals, despite promising results in earlier trials. The FDA may also require additional clinical trials after regulatory approvals are received. Such additional trials may be expensive and time-consuming, and failure to successfully conduct those trials could jeopardize continued commercialization of a product.

The speed at which we and our partners complete our scientific studies and clinical trials depends on many factors, including, but not limited to, the ability to obtain adequate supplies of the products to be tested and patient enrollment. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial and other potential drug candidates being studied. Delays in patient enrollment for our or our partners' trials may result in increased costs and longer development times. In addition, our partners have rights to control product development and clinical programs for products developed under our collaborations. As a result, these partners may conduct these programs more slowly or in a different manner than expected. Moreover, even if clinical trials are completed, we or our partners still may not apply for FDA or foreign regulatory approval in a timely manner or the FDA or foreign regulatory authority still may not grant approval.

Our drug discovery, early-stage drug development, and product reformulation programs may require substantial additional capital to complete successfully. Our partner's drug development programs may require substantial additional capital to complete successfully, arising from costs to: conduct research, preclinical testing and human studies; establish pilot scale and commercial scale manufacturing processes and facilities; and establish and develop quality control, regulatory, marketing, sales and administrative capabilities to support these programs. While we expect to fund our research and development activities from cash generated from operations to the extent possible, if we are unable to do so, we may need to complete additional equity or debt financings or seek other external means of financing. These financings could depress our stock price. If additional funds are required to support our operations and we are unable to obtain them on terms favorable to us, we may be required to cease or reduce further development or commercialization of our products, to sell some or all of our technology or assets or to merge with another entity.

Our OmniAb antibody platform faces specific risks, including the fact that no drug using antibodies from the platform has yet advanced to late stage clinical trials.

None of our collaboration partners using our OmniAb antibody platform have tested drugs based on the platform in late stage clinical trials and, therefore, none of our OmniAb collaboration partners' drugs have received FDA approval. If one of our OmniAb collaboration partners' drug candidates fails during preclinical studies or clinical trials, our other OmniAb collaboration partners may decide to abandon drugs using antibodies generated from the OmniAb platform, whether or not attributable to the platform. All of our OmniAb collaboration partners may terminate their programs at any time without penalty. In addition, our OmniRat and OmniFlic platforms, which we consider the most promising, are covered by two patents within the U.S. and two patents in the European Union and are subject to the same risks as our patent portfolio discussed above, including the risk that our patents may infringe on third party patent rights or that our patents may be invalidated. Further, we face significant competition from other companies selling human antibody-generating rodents, especially mice which compete with our OmniMouse platform, including the VelocImmune mouse, the AlivaMab mouse, the Trianni mouse and the Kymouse. Many of our competitors have greater financial, technical and human resources than we do and may be better equipped to develop, manufacture and market competing antibody platforms.

If plaintiffs bring product liability lawsuits against us or our partners, we or our partners may incur substantial liabilities and may be required to limit commercialization of our approved products and product candidates.

As is common in our industry, our partners and we face an inherent risk of product liability as a result of the clinical testing of our product candidates in clinical trials and face an even greater risk for commercialized products. Although we are not currently a party to product liability litigation, if we are sued, we may be held liable if any product or product candidate we develop causes injury or is found otherwise unsuitable during product testing, manufacturing, marketing or sale. Regardless of merit or eventual outcome, liability claims may result in decreased demand for any product candidates, partnered products or products that we may develop, injury to our reputation, discontinuation of clinical trials, costs to defend litigation, substantial monetary awards to clinical trial participants or patients, loss of revenue and product recall or withdrawal from the market and the inability to commercialize any products that we develop. We have product liability insurance that covers our clinical trials

up to a $10.0 million annual limit. Our insurance coverage may not be sufficient to cover all of our product liability related expenses or losses and may not cover us for any expenses or losses we may suffer. If we are sued for any injury caused by our product candidates, partnered products or any future products, our liability could exceed our total assets.

Market acceptance and sales of any approved product will depend significantly on the availability and adequacy of coverage and reimbursement from third-party payors and may be affected by existing and future healthcare reform measures.

Sales of the products we license to our collaboration partners and the royalties we receive will depend in large part on the extent to which coverage and reimbursement is available from government and health administration authorities, private health maintenance organizations and health insurers, and other healthcare payors. Significant uncertainty exists as to the reimbursement status of healthcare products. Healthcare payors, including Medicare, are challenging the prices charged for medical products and services. Government and other healthcare payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement for medical products. Even if a product is approved by the FDA, insurance coverage may not be available, and reimbursement levels may be inadequate, to cover the costs associated with the research, development, marketing and sale of the product. If government and other healthcare payors do not provide adequate coverage and reimbursement levels for any product, market acceptance and any sales could be reduced.

From time to time, legislation is implemented to reign in rising healthcare expenditures. By way of example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, was enacted, which included a number of provisions affecting the pharmaceutical industry, including, among other things, annual, non-deductible fees on any entity that manufactures or imports some types of branded prescription drugs and increases in Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future.

Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers of 2% per fiscal year and reduced payments to several types of Medicare providers. Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed bills designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. We cannot predict whether other legislative changes will be adopted, if any, or how such changes would affect our operations or financial condition.

We and our collaboration partners may be subject to federal and state healthcare laws, including fraud and abuse, false claims, physician payment transparency and health information privacy and security laws. Our operations and those of our collaboration partners are subject to various federal and state fraud and abuse laws, including, without limitation, anti-kickback, false claims and physician payment transparency statutes. These laws may impact, among other things, financial arrangements with physicians, sales, marketing and education programs and the manner in any of those activities are implemented. In addition, we may be subject to federal and state patient privacy regulations. If our operations or those of our collaboration partners are found to be in violation of any of those laws or any other applicable governmental regulations, we or our collaboration partners may be subject to penalties, including civil and criminal penalties, damages, fines, imprisonment, exclusion from government healthcare programs or the curtailment or restructuring of operations, any of which could adversely affect our ability to operate our business and our financial condition.

Any difficulties from strategic acquisitions could adversely affect our stock price, operating results and results of operations.

We may acquire companies, businesses and products that complement or augment our existing business. We may not be able to integrate any acquired business successfully or operate any acquired business profitably. Integrating any newly acquired business could be expensive and time-consuming. Integration efforts often take a significant amount of time, place a significant strain on managerial, operational and financial resources and could prove to be more difficult or expensive than we predict. The diversion of our management's attention and any delay or difficulties encountered in connection with any future acquisitions we may consummate could result in the disruption of our on-going business or inconsistencies in standards and controls that could negatively affect our ability to maintain third-party relationships. Moreover, we may need to raise additional funds through

public or private debt or equity financing, or issue additional shares, to acquire any businesses or products, which may result in dilution for stockholders or the incurrence of indebtedness.

As part of our efforts to acquire companies, business or product candidates or to enter into other significant transactions, we conduct business, legal and financial due diligence with the goal of identifying and evaluating material risks involved in the transaction. Despite our efforts, we ultimately may be unsuccessful in ascertaining or evaluating all such risks and, as a result, might not realize the intended advantages of the transaction. If we fail to realize the expected benefits from acquisitions we may consummate in the future or have consummated in the past, whether as a result of unidentified risks, integration difficulties, regulatory setbacks, litigation with current or former employees and other events, our business, results of operations and financial condition could be adversely affected. If we acquire product candidates, we will also need to make certain assumptions about, among other things, development costs, the likelihood of receiving regulatory approval and the market for such product candidates. Our assumptions may prove to be incorrect, which could cause us to fail to realize the anticipated benefits of these transactions.

In addition, we will likely experience significant charges to earnings in connection with our efforts, if any, to consummate acquisitions. For transactions that are ultimately not consummated, these charges may include fees and expenses for investment bankers, attorneys, accountants and other advisors in connection with our efforts. Even if our efforts are successful, we may incur, as part of a transaction, substantial charges for closure costs associated with elimination of duplicate operations and facilities and acquired IPR&D charges. In either case, the incurrence of these charges could adversely affect our results of operations for particular quarterly or annual periods.

Changes or modifications in financial accounting standards, including those related to revenue recognition, may harm our results of operations.

From time to time, the FASB either alone or jointly with other organizations, promulgates new accounting principles that could have an adverse impact on our results of operations. For example, in May 2014, FASB issued a new accounting standard for revenue recognition-Accounting Standards Codification Topic 606, Revenue from Contracts with Customers, or ASC 606-that supersedes most current revenue recognition guidance. The new guidance requires a company to recognize revenue upon transfer of goods or services to a customer at an amount that reflects the expected consideration to be received in exchange for those goods or services. The new guidance is effective in the first quarter of 2018.

This standard has a material impact on our consolidated financial statements by accelerating the timing of revenue recognition for revenues related to royalties, and potentially certain contingent milestone based payments. Our practice has been to book royalties one quarter after our partners report sales of the underlying product. Now, under ASC 606, Ligand estimates and books royalties in the same quarter that our partners report the sale of the underlying product. As a result, we now book royalties one quarter earlier compared to our past practice. We rely on our partners' earning releases and other information from our partners to determine the sales of our partners' products and to estimate the related royalty revenues. If our partners report incorrect sales, or if our partners delay reporting of their earnings release, our royalty estimates may need to be revised and/or our financial reporting may be delayed.

Any difficulties in implementing this guidance could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us. Finally, if we were to change our critical accounting estimates, including those related to the recognition of license revenue and other revenue sources, our operating results could be significantly affected.

Uncertainties in the interpretation and application of the 2017 Tax Cuts and Jobs Act could materially affect our tax obligations and effective tax rate.

The 2017 Tax Cuts and Jobs Act (the Tax Act) was enacted on December 22, 2017, and significantly affected U.S. tax law by changing how the U.S. imposes income tax on corporations, including by reducing the U.S. corporate income tax rate. The U.S. Department of Treasury has broad authority to issue regulations and interpretative guidance that may significantly impact how we will apply the law and impact our results of operations in the period issued.

The Tax Act requires certain complex computations not previously provided in U.S. tax law. As such, the application of accounting guidance for such items is currently uncertain. Further, compliance with the Tax Act and the accounting for such provisions require accumulation of certain information not previously required or regularly produced. As a result, we have provided a provisional estimate on the effect of the Tax Act in our financial statements. As additional regulatory guidance is issued by the applicable taxing authorities, as accounting treatment is clarified, as we perform additional analysis on the

application of the law, and as we refine estimates in calculating the effect, our final analysis, which will be recorded in the period completed, may be different from our current provisional amounts, which could materially affect our tax obligations and effective tax rate.

Our ability to use our net operating loss carryforwards and certain other tax attributes to offset future taxable income may be subject to certain limitations.

As of December 31, 2017 we had U.S. federal and state net operating loss carryforwards (NOLs) of approximately $388 million and $127 million, respectively, which expire through 2036, if not utilized. As of December 31, 2017, we had federal and California research and development tax credit carryforwards of approximately $24 million and $21 million, respectively. The federal research and development tax credit carryforwards expire in various years through 2036, if not utilized. The California research and development credit will carry forward indefinitely. Under Sections 382 and 383 of Internal Revenue Code of 1986, as amended (Code) if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change NOLs and other pre-change tax attributes, such as research tax credits, to offset its future post-change income and taxes may be limited. In general, an "ownership change" occurs if there is a cumulative change in our ownership by "5% shareholders" that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under state tax laws. We believe we have experienced certain ownership changes in the past and have reduced our deferred tax assets related to NOLs and research and development tax credit carryforwards accordingly. In the event that it is determined that we have in the past experienced additional ownership changes, or if we experience one or more ownership changes as a result future transactions in our stock, then we may be further limited in our ability to use our NOLs and other tax assets to reduce taxes owed on the net taxable income that we earn in the event that we attain profitability. Furthermore, under recently enacted U.S. tax legislation, although the treatment of tax losses generated before December 31, 2017 has generally not changed, tax losses generated in calendar year 2018 and beyond may only offset 80% of our taxable income. This change may require us to pay federal income taxes in future years despite generating a loss for federal income tax purposes in prior years. Any such limitations on the ability to use our NOLs and other tax assets could adversely impact our business, financial condition and operating results.

We rely on information technology and any failure, inadequacy, interruption or security lapse of that technology, including any cyber security incidents, could harm our ability to operate our business effectively.

Our business is increasingly dependent on critical, complex and interdependent information technology systems, including internet-based systems, to support business processes as well as internal and external communications. Despite the implementation of security measures, our internal computer systems and those of our partners are vulnerable to damage from cyber-attacks, computer viruses, security breaches, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. System failures, accidents or security breaches could cause interruptions in our operations, could lead to the loss of trade secrets or other intellectual property, could lead to the public exposure of personal information of our employees and others, and could result in a material disruption of our clinical and commercialization activities and business operations, in addition to possibly requiring substantial expenditures to remedy. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and our business and financial condition could be harmed.

The occurrence of a catastrophic disaster could damage our facilities beyond insurance limits or we could lose key data which could cause us to curtail or cease operations.

We are vulnerable to damage and/or loss of vital data from natural disasters, such as earthquakes, tornadoes, power loss, fire, floods and similar events, as well as from accidental loss or destruction. If any disaster were to occur, our ability to operate our business could be seriously impaired. We have property, liability, and business interruption insurance which may not be adequate to cover our losses resulting from disasters or other similar significant business interruptions, and we do not plan to purchase additional insurance to cover such losses due to the cost of obtaining such coverage. Any significant losses that are not recoverable under our insurance policies could seriously impair our business, financial condition and prospects.

We sold the 2019 Convertible Senior Notes, which may impact our financial results, result in the dilution of existing stockholders, create downward pressure on the price of our common stock, and restrict our ability to take advantage of future opportunities.

In August of 2014, we sold $245.0 million aggregate principal amount of 0.75% Convertible Senior Notes due 2019, or the 2019 Convertible Senior Notes. We will be required to pay interest on the 2019 Convertible Senior Notes until they come due or are converted, and the payment of that interest will reduce our net income. The sale of the 2019 Convertible Senior Notes may also affect our earnings per share figures, as accounting procedures require that we include in our calculation of earnings per share the number of shares of our common stock into which the 2019 Convertible Senior Notes are convertible. The 2019 Convertible Senior Notes may be converted, under the conditions and at the premium specified in the 2019 Convertible Senior Notes, into cash and shares of our common stock, if any (subject to our right to pay cash in lieu of all or a portion of such shares). If shares of our common stock are issued to the holders of the 2019 Convertible Senior Notes upon conversion, there will be dilution to our shareholders' equity and the market price of our shares may decrease due to the additional selling pressure in the market. Any downward pressure on the price of our common stock caused by the sale or potential sale of shares issuable upon conversion of the 2019 Convertible Notes could also encourage short sales by third parties, creating additional selling pressure on our stock. Upon the occurrence of certain circumstances, holders of the 2019 Convertible Senior Notes may require us to purchase all or a portion of their notes for cash, which may require the use of a substantial amount of cash. If such cash is not available, we may be required to sell other assets or enter into alternate financing arrangements at terms that may or may not be desirable. The existence of the 2019 Convertible Senior Notes and the obligations that we incurred by issuing them may restrict our ability to take advantage of certain future opportunities, such as engaging in future debt or equity financing activities.

As of May 8, 2018, the Company has received notices for conversion of $21.8 million in principal of 2019 Convertible Senior Notes.

Impairment charges pertaining to goodwill, identifiable intangible assets or other long-lived assets from our mergers and acquisitions could have an adverse impact on our results of operations and the market value of our common stock.

The total purchase price pertaining to our acquisitions in recent years of CyDex, Metabasis, Pharmacopeia, Neurogen and OMT have been allocated to net tangible assets, identifiable intangible assets, in-process research and development and goodwill. To the extent the value of goodwill or identifiable intangible assets or other long-lived assets become impaired, we will be required to incur material charges relating to the impairment. Any impairment charges could have a material adverse impact on our results of operations and the market value of our common stock.

Our charter documents and concentration of ownership may hinder or prevent change of control transactions.

Provisions contained in our certificate of incorporation and bylaws may discourage transactions involving an actual or potential change in our ownership. In addition, our Board of Directors may issue shares of common or preferred stock without any further action by the stockholders. Our directors and certain of our institutional investors collectively beneficially own a significant portion of our outstanding common stock. Such provisions and issuances may have the effect of delaying or preventing a change in our ownership. If changes in our ownership are discouraged, delayed or prevented, it would be more difficult for our current Board of Directors to be removed and replaced, even if you or our other stockholders believe that such actions are in the best interests of us and our stockholders.

Our stock price has been volatile and could experience a sudden decline in value.

The market prices for securities of biotechnology and pharmaceutical companies have historically been highly volatile, and the market has recently experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. Continued volatility in the overall capital markets could reduce the market price of our common stock in spite of our operating performance. Further, high stock price volatility could result in higher stock-based compensation expense.

Our common stock has experienced significant price and volume fluctuations and may continue to experience volatility in the future. Many factors may have a significant impact on the market price of our common stock, including, but not limited to, the following factors: results of or delays in our preclinical studies and clinical trials; the success of our collaboration agreements; publicity regarding actual or potential medical results relating to products under development by us or others; announcements of technological innovations or new commercial products by us or others; developments in patent or other proprietary rights by us or others; comments or opinions by securities analysts or major stockholders or changed securities analysts' reports or recommendations; future sales or shorting of our common stock by existing stockholders; regulatory developments or changes in regulatory guidance; litigation or threats of litigation; economic and other external factors or other disaster or crises; the departure of any of our officers, directors or key employees; period-to-period fluctuations in financial results; and price and volume fluctuations in the overall stock market.

Our results of operations and liquidity needs could be materially negatively affected by market fluctuations and economic downturn.

Our results of operations could be materially negatively affected by economic conditions generally, both in the United States and elsewhere around the world. Concerns over inflation, energy costs, geopolitical issues, the availability and cost of credit, and the U.S. financial markets have in the past contributed to, and may continue in the future contributed to, increased volatility and diminished expectations for the economy and the markets. Domestic and international equity markets periodically experience heightened volatility and turmoil. These events may have an adverse effect on us. In the event of a market downturn, our results of operations could be adversely affected by those factors in many ways, including making it more difficult for us to raise funds if necessary, and our stock price may further decline. We cannot provide assurance that our investments are not subject to adverse changes in market value. If our investments experience adverse changes in market value, we may have less capital to fund our operations.

ITEM 5. Other Information

ITEM 6. EXHIBITS

The Exhibit Index to this Quarterly Report on Form 10-Q 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.

Date: May 9, 2018

By: /s/ Matthew Korenberg
Matthew Korenberg
Executive Vice President, Finance and Chief Financial Officer
Duly Authorized Officer and Principal Financial Officer

EXHIBIT INDEX

Exhibit Number	Description
31.1	Certification by Principal Executive Officer, Pursuant to Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by Principal Financial Officer, Pursuant to Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certifications by Principal Executive Officer and Principal Financial Officer, Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
10.1	Amendment No. 5 to Sublicense Agreement, dated March 20, 2018, among the Company, Pharmacopeia, LLC and Retrophin, Inc.
10.2	License Agreement, dated March 5, 2018, by and between the Company and Roivant Sciences GmbH†
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

† Confidential treatment has been requested for portions of this exhibit. These portions have been omitted and submitted separately to the Securities and Exchange Commission.

Exhibit 10.2

*****Text Omitted and Filed Separately with Securities and Exchange Commission Confidential Treatment Requested Under 17 C.F.R. Sections 200.80(b)(4) and 240.24b-2 of the Securities Exchange Act of 1934, as amended.**

AMENDMENT NO. 5 TO SUBLICENSE AGREEMENT

THIS AMENDMENT NO. 5 TO SUBLICENSE AGREEMENT (the "**Amendment**") is made and entered into as of March 20, 2018 ("**Amendment Effective Date**") and amends the Sublicense Agreement effective as of February 16, 2012, as amended pursuant to that certain Amendment to Sublicense Agreement dated December 11, 2012, Amendment No. 2 to Sublicense Agreement dated January 7, 2013, Amendment No. 3 to Sublicense Agreement dated February 27, 2015 and Amendment No. 4 to Sublicense Agreement dated September 17, 2015 (the "**Sublicense Agreement**") by and between Ligand Pharmaceuticals Incorporated, a corporation organized under the laws of Delaware and having a place of business at **3911 SORRENTO VALLEY BOULEVARD, SUITE 110, SAN DIEGO, CA 92121** and its wholly owned subsidiary, Pharmacopeia, LLC (as successor in interest to Pharmacopeia Drug Discovery Inc.) ("**PCOP**"), a limited liability company organized under the laws of Delaware and having a place of business at **3911 SORRENTO VALLEY BOULEVARD, SUITE 110, SAN DIEGO, CA 92121** (collectively, Ligand Pharmaceuticals Incorporated and PCOP shall be known as "**Ligand**") and Retrophin Inc., a corporation organized under the laws of Delaware and having a place of business AT **3721 VALLEY CENTRE DRIVE, SUITE 200, SAN DIEGO, CA 92130** ("**Retrophin**").

BACKGROUND

WHEREAS Ligand and Retrophin have previously entered into the Sublicense Agreement pursuant to which Ligand sublicensed to Retrophin rights under the License Agreement dated March 27, 2006 between PCOP and Bristol-Myers Squib Company (the "Upstream License"); and

WHEREAS, Ligand and Retrophin desire to amend certain terms of the Sublicense Agreement as set forth herein.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants contained herein, the parties, intending to be legally bound, agree as follows:

1. **Capitalized Terms**. The capitalized terms used herein and not otherwise defined shall have the same definitions as provided in the Sublicense Agreement.

2. **Amendments**.

   a) Section 6.1.3 of the Sublicense Agreement is hereby amended to read as follows:

   "6.1.3 File for Approval for at least one (1) Orphan Licensed Product ("**Approval Submission**") no later than [***] ("**Filing Deadline**");

   [***].

   b) Section 8.2.1 of the Sublicense Agreement is hereby amended to read as follows:

   "8.2.1 Development Milestone Payments. Retrophin shall make milestone payments to Ligand upon achievement of each of the milestone events in the amounts set forth below in Table 1. The first milestone payment shall be payable by Retrophin to Ligand within thirty (30) days of execution of the Agreement. Notwithstanding Section 15.4 or any other provision herein, the last milestone payment shall be payable by Retrophin to Ligand upon the Closing of Retrophin's Exit Transaction. Subject to Section 8.2.2, the remainder of the milestone payments set forth below, with the exception of the milestone payment for Initiation of the first Phase 3 Trial for the first Licensed Product, will be payable by Retrophin to Ligand within thirty (30) days of the achievement of the specified

milestone event with respect to each Licensed Compound. The milestone for Initiation of the first Phase 3 Trial for the first Licensed Product will be payable by Retrophin to Ligand within ten (10) days of the execution of Amendment No. 5 by both Parties. The milestone payments shall not be refundable or returnable in any event, nor shall they be creditable against royalties or other payments.

Table 1

Milestone Event	Milestone Payment
Execution of Agreement	$1.15 million
The earlier of (a) December 31, 2012 or (b) initiation of the first Phase 2 Trial for a Licensed Product	$1.3 million (the "**Second Milestone**"); provided, that if the Second Milestone is received by Ligand (a) prior to or on January 31, 2012, Retrophin shall make an additional $50,000 payment simultaneously with the payment of the Second Milestone (for an aggregate payment of $1.35 million), (b) after January 31, 2013 but prior to or on February 28, 2013, Retrophin shall make an additional $100,000 payment simultaneously with the payment of the Second Milestone (for an aggregate payment of $1.4 million), and (c) after February 28, 2013 but prior to or on March 31, 2013, Retrophin shall make an additional $150,000 payment of the Second Milestone (for an aggregate payment of $1.45 million) (the additional payment, an "**Additional Payment**")
At or prior to Initiation of the first Phase 3 Trial for the first Licensed Product	$4.6 million
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

In the event that a milestone event is achieved that triggers a development milestone payment as set forth above, if the preceding milestone events have not occurred such that the previous development milestone payments have not been previously paid, all such previous development milestone payments shall become due and payable upon achievement of such milestone event. For example, if a Phase 3 Trial is initiated that triggers a development milestone payment as set forth above without a Phase 2 Trial

supporting such Phase 3 Trial being previously initiated (and consequently the applicable initiation of Phase 2 Trial milestone payment has not been previously paid to Ligand), in addition to the milestone payment for the initiation of the Phase 3 Trial, Retrophin shall also pay to Ligand the applicable milestone payment for the initiation of a Phase 2 Trial."

3. **No Other Amendments**. Except as provided herein, the Sublicense Agreement shall continue in full force and effect.

4. **Governing Law**. This Amendment shall be governed by, enforced, and shall be construed in accordance with the laws of the State of New York without regard to its conflicts of law provisions.

5. **Counterparts.** This Amendment may be executed in counter-parts with the same effect as if both Parties had signed the same document. All such counterparts shall be deemed an original, shall be construed together and shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have executed this Amendment to Sublicense Agreement through their duly authorized representatives to be effective as of the Amendment Effective Date.

LIGAND PHARMACEUTICALS INCORPORATED	**RETROPHIN, INC.**
By: /s/ Charles S. Berkman	By: /s/ Stephen Aselage
Name: Charles S. Berkman	Name: Stephen Aselage
Title: Sr. VP, General Counsel & Secretary	Title: CEO

Exhibit 10.2
*****Text Omitted and Filed Separately with the Securities and Exchange Commission. Confidential Treatment Requested Under 17 C.F.R. Sections 200.80(b)(4) and 240.24b-2.**

LICENSE AGREEMENT

This LICENSE AGREEMENT (the " Agreement") is executed as of March 5, 2018 (the " Effective Date") by and between Ligand Pharmaceuticals Incorporated, a corporation organized under the laws of Delaware and having a place of business at 3911 Sorrento Valley Blvd #110, San Diego, CA 92121 (" Ligand") and Roivant Sciences GmbH, a corporation organized under the laws of Switzerland and having a place of business at Viaduktstrasse 8, 4051 Basel, Switzerland ("Licensee"). Ligand and Licensee are each referred to herein by name or, individually, as a " Party" or, collectively, as "Parties."

BACKGROUND

WHEREAS Ligand Controls (as defined below) certain patent rights and know-how, which relate to LGD-6972 (as defined below);

WHEREAS, Licensee desires to obtain an exclusive license to develop and commercialize LGD-6972 in the Territory as set forth herein; and

WHEREAS, Ligand desires to grant such license to Licensee, all in accordance with the terms and conditions herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements provided herein below and other consideration, the receipt and sufficiency of which is hereby acknowledged, Ligand and Licensee hereby agree as follows:

ARTICLE 1
DEFINITIONS

As used in this Agreement, capitalized terms shall have the meanings indicated in this ARTICLE 1 (DEFINITIONS) or as specified elsewhere in this Agreement:

1.1 "Affiliate" means, with respect to a Person, any Person that is controlled by, controls, or is under common control with such first Person, as the case may be. For purposes of this Section 1.1 ("Affiliate"), the term "control" means (a) direct or indirect ownership of fifty percent (50%) or more of the voting interest in the entity in question, or fifty percent (50%) or more interest in the income of the entity in question (or such lesser percentage which is the maximum allowed to be owned by a foreign corporation in a particular jurisdiction), or (b) possession, directly or indirectly, of the power to direct or cause the direction of management or policies of the entity in question (whether through ownership of securities or other ownership interests, by contract or otherwise).

1.2 "Business Day" means a day other than Saturday, Sunday, or any other day on which commercial banks located in New York City or Basel, Switzerland are authorized or obligated by applicable Law to close.

1.3 "Captisol®" means Ligand's proprietary, modified cyclodextrin compound (CAS Number: 182410-00-0) that has the specifications set forth on Exhibit C.

1.4 "Calendar Quarter" means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30, and December 31; *provided*, *however*, that (a) the first Calendar Quarter of the Term will extend from the Effective Date to the end of the first complete Calendar Quarter thereafter and (b) the last Calendar Quarter of the Term will end upon the expiration or termination of this Agreement.

1.5 "Change of Control" means, with respect to a Party, (a) a merger or consolidation of such Party with a Third Party which results in the stockholders or equity holders of such Party not owning at least fifty percent (50%) of the combined voting power of the surviving entity immediately after such merger or consolidation, or (b) except in the case of a bona fide equity or debt financings, whether private or public, in which a Party issues new shares of its capital stock or securities convertible into shares of such Party, a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of such Party, or (c) the sale or other transfer to a Third Party of all or substantially all of such Party's business to which the subject matter of this Agreement relates.

1.6 "Clinical Trial" means an investigation in human subjects and/or patients intended to discover or verify the clinical, pharmacological and/or other pharmacodynamic effects of Product, and/or to identify any adverse reactions to Product, and/or to study absorption, distribution, metabolism, and/or excretion of Product with the objective of ascertaining its safety, activity and/or efficacy.

1.7 "Commercially Reasonable Efforts" means, with respect to LGD-6972 or any Product, that level of efforts and resources commonly dedicated in the pharmaceutical industry by a pharmaceutical company of a similar size and at a similar stage as the applicable Party to the manufacture, Development or commercialization, as the case may be, of a product of similar commercial potential at a similar stage in its lifecycle to LGD-6972 or any Product, in each case taking into account issues of safety and efficacy and other relevant scientific, technical and commercial factors, including product profile, the regulatory environment, payors' policies and regulations, competitiveness of the marketplace and the market potential of such products, the nature and extent of market exclusivity, including patent coverage and regulatory data protection, and price and reimbursement status, but without regard to any payments owed to Ligand under this Agreement.

1.8 "Confidential Information" means any information of a confidential and proprietary nature, including know-how, information, invention disclosures, patent applications, proprietary materials and/or technologies, economic information, business or research strategies, trade secrets, and material embodiments thereof, disclosed by a Party to the other Party and characterized to the receiving Party as confidential.

1.9 "Control" or "Controlled" means, with respect to any information, material or intellectual property right, that a Party owns or has a license to such information, material or intellectual property right, as applicable, and has the ability to grant to the other Party access to, or

a license or sublicense under, such information, material or intellectual property right as provided under the terms of this Agreement. Notwithstanding the foregoing, with respect to any Licensed Technology obtained by Ligand after the Effective Date, if use of any information, material or intellectual property right by Licensee requires that Ligand pay royalties, milestone payments or other consideration to a Third Party, then such information, material or intellectual property right shall only be deemed to be Controlled by Ligand if Licensee has agreed to pay its pro rata share of the financial consideration due to such Third Party.

1.10 "Cover", "Covered" or "Covering" means, with respect to a particular compound or Product and a particular Patent, that, but for rights granted to a Person hereunder, the making, using or selling of such compound or Product would infringe a Valid Claim in such Patent.

1.11 "Develop" or "Development" means pre-clinical and clinical research and development activities, including toxicology and other pre-clinical development efforts, stability testing, process development, formulation development, active pharmaceutical ingredient ("API") manufacturing development, dosage form development and manufacturing, delivery system development, quality assurance and quality control development, statistical analysis, clinical pharmacology, clinical studies (including Clinical Trials), regulatory affairs, and Regulatory Approval and clinical study regulatory activities.

1.12 "Development Funding Payment" has the meaning set forth in Section 4.2(b) (Development Requirements).

1.13 "Development Plan" has the meaning set forth in Section 4.2(a) (Development Plan and Reports).

1.14 "EU" means the European Union, at all times including the United Kingdom.

1.15 "Executive" shall mean for Ligand, the Chief Executive Officer of Ligand (or such individual's designee), and, for Licensee, the Chief Executive Officer of Licensee (or such individual's designee) (unless this entire Agreement has been assigned or sublicensed to an Affiliate of Licensee, in which case, "Executive" shall mean the Chief Executive Officer of such Affiliate (or such individual's designee)). If either position is vacant or either position does not exist, then the person having the most nearly equivalent position (or such individual's designee) shall be deemed to be the Executive of the relevant Party.

1.16 "FCPA" has the meaning set forth in Section 7.2(a) (Anti-Corruption Compliance).

1.17 "FD&C Act" means the U.S. Federal Food, Drug, and Cosmetic Act (21 U.S.C. §301, et seq.), including any amendments or supplements thereto.

1.18 "FDA" means the U.S. Food and Drug Administration, or any successor agency thereto.

1.19 "Field" means all uses, including the treatment, prevention and diagnosis of any and all human and animal diseases, disorders and conditions.

1.20 "First Commercial Sale" means, with respect to any Product in any country or jurisdiction in the Territory, the first arm's length sale of such Product by Licensee, its Affiliates or Sublicensees to a Third Party for distribution, use or consumption in such country or jurisdiction after the Regulatory Approvals have been obtained for such Product in such country or jurisdiction.

1.21 "Fiscal Year" means the period commencing on May 1 of a calendar year and ending on April 30 of the following calendar year.

1.22 "GAAP" means Generally Accepted Accounting Principles current in the United States, as consistently applied.

1.23 "Generic Competition" means, with respect to a particular mode of administration (such as topical versus subcutaneous injection) of a Product and a particular country, any other prescription pharmaceutical product that (i) contains the same active ingredient(s) as such Product, (ii) has the same mode of administration as such Licensed Product, (iii) is "therapeutically equivalent" as evaluated by the FDA, applying the definition of "therapeutically equivalent" set forth in the preface to the FDA's *Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations* (or, with respect to any country in the Territory outside the United States, is similarly substitutable under equivalent applicable Law in such country), to such Product, and (iv) achieves greater than thirty-five percent (35%) market share in such country.

1.24 "Governmental Entity" means any regional, central, federal, state, provincial or local court, commission or governmental, regulatory or administrative body, board, bureau, agency, instrumentality, authority or tribunal or any subdivision thereof.

1.25 "Government Official" has the meaning set forth in Section 7.1(f).

1.26 [***]

1.27 "IFRS" means International Financial Reporting Standards as promulgated by the International Standards Accounting Board, as consistently applied.

1.28 "Improvement" means any discovery, invention, contribution, method, finding, or improvement, whether or not patentable, and all intellectual property therein, that is conceived, reduced to practice, or otherwise developed by or on behalf of a Party, during the Term, that is a modification, improvement or enhancement to the Licensed Technology.

1.29 "Incremental Withholding Taxes" has the meaning set forth in Section 3.11(b) (Tax Cooperation).

1.30 "IND" means an Investigational New Drug application, Clinical Study Application, Clinical Trial Exemption, or similar application or submission for approval to conduct Clinical Trials filed with or submitted to a Regulatory Authority in the applicable jurisdiction in conformance with the requirements of such Regulatory Authority.

1.31 "Indication" means a medically recognized disease or disorder which in all cases requires a Clinical Trial for Regulatory Approval for the relevant Product label, and shall include

sub-types of the same disease and pediatric populations of the same disease, i.e. such subtypes and pediatric populations shall be part of the indication and shall not be treated as a separate indication. For clarity, expansion of the label to include sub-types of the same disease or pediatric populations of the same disease for an already-approved Indication will not constitute a second Indication.

1.32 "Initial Public Offering or IPO" means the first underwritten public offering of Common Stock of the Licensee (or the Affiliate of Licensee to which the U.S. and EU rights under this Agreement have been assigned or sublicensed) for the account of the Licensee (or the Affiliate of Licensee to which any rights in the U.S. and/or EU have been assigned or sublicensed under this Agreement) registered under the Securities Act of 1933, as amended.

1.33 "Intellectual Property Rights" means Patents, copyrights, database rights, trade secret and similar rights of any type (excluding trademarks) under the laws of any Governmental Entity, including all applications, registrations, extensions and renewals relating to any of the foregoing.

1.34 "Know-How" means all technical information and other technical subject matter, proprietary methods, ideas, concepts, formulations, discoveries, inventions, devices, technology, trade secrets, compositions, designs, formulae, know-how, show-how, specifications, drawings, techniques, results, data, processes, methods, procedures, designs and regulatory correspondence and information (including pharmacological, toxicological, pre-clinical, clinical and manufacturing test data, manufacturing protocols, analytical methods and data, quality control data and process validation) whether or not patentable.

1.35 "LGD-6972" means [***].

1.36 "Law" means, individually and collectively, any and all laws, ordinances, orders, rules, rulings, directives and regulations of any kind whatsoever of any Governmental Entity or Regulatory Authority within the applicable jurisdiction.

1.37 "Licensed Know-How" means all Know-How Controlled by Ligand or any of its Affiliates as of the Effective Date that is (a) necessary or useful in connection with developing, making, using, selling, offering to sell, exporting and importing LGD-6972 or any Other GRA Compound in the Territory and (b) not included in the Licensed Patents.

1.38 "Licensed Patents" means those Patents listed on Exhibit B attached hereto, and all Patents in the Territory (i) to which any of the Patents set forth on Exhibit B claim priority or (ii) for which any of the Patents on Exhibit B form a basis for priority, including any divisionals, continuations, substitutions, continuations-in-part, extensions, renewals, re-examinations or reissues of such Patents (including any foreign counterparts thereof) listed on Exhibit B. In the event that Ligand or any of its Affiliates Controls any Patent that, as of the Effective Date, Covers LGD-6972 or any Other GRA Compound or, any time during the Term, Covers LGD-6972, then Exhibit B shall be automatically amended to include any such Patent.

1.39 "Licensed Technology" means the Licensed Know-How and the Licensed Patents.

1.40 "Licensee Improvements" means any and all Improvements to the Licensed Technology made by Licensee or any of its Affiliates in connection with the Development, manufacture, use or commercialization of LGD-6972 and/or Product during the Term.

1.41 "Licensee Indemnitees" has the meaning set forth in Section 8.2 (Indemnification by Ligand).

1.42 "Ligand Indemnitees" has the meaning set forth in Section 8.1 (Indemnification by Licensee).

1.43 "Litigation Costs" has the meaning set forth in Section 8.1 (Indemnification by Licensee).

1.44 "Losses" has the meaning set forth in Section 8.1 (Indemnification by Licensee).

1.45 "NDA" means a "New Drug Application," as defined in the FD&C Act and applicable regulations promulgated thereunder by the FDA and all amendments and supplements thereto filed with the FDA, or the equivalent application filed with any Regulatory Authority, including all documents, data, and other information concerning Product, which are necessary for gaining Regulatory Approval to market and sell Product in the relevant jurisdiction.

1.46 "Net Sales" means gross amounts invoiced by or on behalf of Licensee and any of its Affiliates or Sublicensees (each a "Selling Party") for Product sold to Third Parties, less the following deductions, as determined in accordance with Licensee's usual and customary accounting methods, which are in accordance with GAAP or IFRS (as applicable and as generally and consistently applied throughout Licensee's organization) to the extent included in the gross invoiced sales price of Product or otherwise directly paid or incurred by a Selling Party with respect to the sale of Product: [***]

Each of the deductions set forth above shall be determined on an accrual basis in accordance with GAAP or IFRS, as applicable.

For purposes of determining Net Sales, a Product shall be deemed sold when invoiced and a "sale" shall not include transfers or dispositions of such Product for pre-clinical or non-commercial clinical purposes, as samples or under named patient use, compassionate use, patient assistance, or test marketing programs or other similar programs or studies. Licensee's, its Affiliates' or its or their Sublicensees' transfer of any Product to an Affiliate or Sublicensee shall not result in any Net Sales, unless such Product is consumed or administered by such Affiliate or Sublicensee in the course of its commercial activities. With respect to any Product that is consumed or administered by Licensee or its Affiliates or its or their Sublicensees (other than for pre-clinical or non-commercial clinical purposes), Net Sales shall include any amount received with respect to such consumption or administration, including any services provided in connection therewith.

In the case of pharmacy incentive programs, hospital performance incentive programs, chargebacks, disease management programs, similar programs or discounts on portfolio product offerings, all rebates, discounts and other forms of reimbursements shall be allocated among products on the

basis on which such rebates, discounts and other forms of reimbursements were actually granted or, if such basis cannot be determined, in accordance with Licensee's, its Affiliates' or its or their Sublicensees' existing allocation method; *provided* that any such allocation to a Product shall be (i) done in accordance with applicable Law, including any price reporting laws, rules and regulations and (ii) subject to clause (i), in no event no greater than a pro rata allocation, such that the portion of each of foregoing rebates, discounts and other forms of reimbursements shall not be included as deductions from invoiced sales hereunder in any amount greater than the proportion of the undiscounted dollar value of such Product sold by Licensee, its Affiliates or its or their Sublicensees to Third Parties hereunder compared to the undiscounted dollar value of all the products sold by Licensee, such Affiliates and such Sublicensees to Third Parties to which such foregoing rebate, discount or other form of reimbursement, as applicable, are granted.

In the event a Product is sold in a package or formulated in combination with one or more other active ingredients that are not Products (as used in this definition of Net Sales, a "Combination Product"), then for each calendar quarter payment period and on a country-by-country basis, the gross amount invoiced for that Product shall be calculated by multiplying the gross amount invoiced for such Combination Product by the fraction A/(A+B), where "A" is the gross amount invoiced for the Product sold separately and "B" is the gross amount invoiced for the other active ingredient(s) sold separately. In the event that the other active ingredient is not sold separately, then the gross amount invoiced for that Product shall be calculated by multiplying the gross amount invoiced for the Combination Product by the fraction A/C, where "A" is the gross invoice amount for the Product, if sold separately, and "C" is the gross invoice amount for the Combination Product. In the event that a particular Combination Product is not addressed by the foregoing, Net Sales for royalty determination shall be determined by the Parties in good faith.

1.47 [***]

1.48 "Other Covered Party" has the meaning set forth in Section 7.1(f).

1.49 "Other GRA Compound" means any compound other than LGD-6972 that (a) has as its intended mechanism of action glucagon receptor antagonism and (b) the composition of matter of which is Covered by a Patent on Exhibit B.

1.50 "Patent Challenge" means if Licensee, its Affiliates or any Sublicensee: (a) institutes, or causes its counsel to institute, any interference, opposition, re-examination, review or similar proceeding with respect to any Licensed Patent with the U.S. Patent and Trademark Office or any foreign patent office; (b) makes any filing or institutes any legal proceeding, or causes its counsel to make any filing or institute any legal proceeding, with a court or other governmental body (including, the U.S. Patent and Trademark Office or any foreign patent office) in which one or more claims or allegations challenges the validity or enforceability of any Licensed Patent; or (c) makes any filing with or certification to, or causes its representative to make any filing with or certification to, the FDA pursuant to 21 U.S.C. § 355(b)(2)(A)(iv) or 21 U.S.C. § 355(j)(2)(A)(vii)(IV) with respect to any Licensed Patent.

1.51 "Patents" means all: (a) United States and foreign patents, re-examinations, reissues, renewals, term extensions, term restorations, inventors' certificates, and counterparts of the

foregoing; and (b) pending applications for United States and foreign patents, including, provisional, regular, continuation, continued prosecution, divisional, and substitute applications, and counterparts of the foregoing.

1.52 "Phase 1 Trial" means a Clinical Trial that would satisfy the requirements of 21 C.F.R. § 312.21(a) (as amended from time to time) or other comparable regulation imposed by an applicable Regulatory Authority in any country other than the United States.

1.53 "Phase 2 Trial" means a Clinical Trial that would satisfy the requirements of 21 C.F.R. § 312.21(b) (as amended from time to time) or other comparable regulation imposed by an applicable Regulatory Authority in any country other than the United States. For purposes of this Agreement, 'initiation' of a Phase 2 Trial means the first dosing of Product in a human subject in a Phase 2 Trial.

1.54 "Phase 3 Trial" means a Clinical Trial that would satisfy the requirements of 21 C.F.R. Part 312.21(c) (as amended from time to time) or other comparable regulation imposed by an applicable Regulatory Authority in any country other than the United States. For purposes of this Agreement, 'initiation' of a Phase 3 Trial means the first dosing of Product in a human subject in a Phase 3 Trial.

1.55 "Person" means any individual, corporation, partnership, association, joint-stock company, trust, unincorporated organization or government or political subdivision thereof.

1.56 "Product" means all preparations, compositions and formulations intended for use in the Field that contain LGD-6972 and/or another compound that (a) has as its intended mechanism of action glucagon receptor antagonism and (b) is or at any time was Covered by the Licensed Patents, whether alone or in combination with other active pharmaceutical ingredients.

1.57 "Prosecute" or "Prosecution" means, with respect to Patents, the filing for, prosecuting, responding to oppositions, nullity actions, re-examinations, revocation actions and similar proceedings (including conducting or participating in interference and oppositions) filed by Third Parties against, and maintaining, Patents.

1.58 "Purchaser Income" means any payment received by Licensee or its Affiliates from a Third Party for an assignment of this Agreement, the sale of one or more of Licensee's assets, programs or compounds related to this Agreement, or a Change of Control of Licensee or any Affiliate to which Licensee sublicensed any of its rights hereunder. Not included in Purchaser Income are amounts payable to the Licensee that are reasonably and fairly attributable to any of the following to the extent that each is bona fide: (a) debt financing of the Licensee, (b) Sublicense Revenues; and (c) royalty or earn-out payments made at rates no higher than those contained herein.

1.59 "Regulatory Approval" means, with respect to a country or jurisdiction within the Territory, any approval, license, registration or authorization granted or issued by a Regulatory Authority for the manufacture, marketing and sale of a Product in such country or jurisdiction, including, where applicable, (a) pricing or reimbursement approval in such country, (b) pre- and post-approval marketing authorizations (including any prerequisite manufacturing approval or authorization related thereto) and (c) labeling approval.

1.60 "Regulatory Authority" means any national (e.g., the FDA), supranational (e.g., the European Medicines Agency), regional, state or local regulatory agency, department bureau, commission, council or other Governmental Entity in any jurisdiction of the world involved in the granting of Regulatory Approval for pharmaceutical products.

1.61 "Regulatory Documentation" means all submissions to Regulatory Authorities and other Governmental Entities, including for Clinical Trials, preclinical trials, tests, and biostudies, relating to a Product, including all INDs, NDAs and Regulatory Approvals, as well as all correspondence with Governmental Entities (registration and licenses, pricing and reimbursement correspondence, regulatory drug lists, advertising and promotion documents), adverse event files, complaint files, manufacturing records and inspection reports.

1.62 "Royalty Term" has the meaning set forth in Section 3.5(d) (Royalty Term).

1.63 "SEC" has the meaning set forth in Section 6.3 (Public Announcements).

1.64 "Selling Party" has the meaning set forth in Section 1.46 ("Net Sales").

1.65 "Sublicense Agreement" has the meaning set forth in Section 2.3(a).

1.66 "Sublicense Revenues" means amounts (including, any licensing fees, or license maintenance fees, or milestone payments) paid to the Licensee by any Sublicensee under a Sublicense Agreement, provided that Sublicense Revenues will not include amounts payable to the Licensee that are reasonably and fairly attributable to any of the following to the extent that each is bona fide: (a) debt financing of the Licensee, (b) amounts received by the Licensee as the purchase price, at fair market value, for equity securities (including stock of whatever class or series, and including the purchase price for warrants and the exercise price under such warrants, or as convertible debt, and the like) of the Licensee; (c) reimbursement to the Licensee for expenses associated with the cost of research and/or development activities performed or services provided by the Licensee under the Sublicense Agreement on the basis of reimbursement of out-of-pocket expenses and/or payments for full-time equivalent ("FTE") efforts of personnel at or below commercially reasonable and standard FTE rates for the location of Licensee and the kind of activities and services undertaken by the Licensee for which such reimbursement is made to the Licensee; (d) payments to Licensee for reimbursement of patent expenses; (e) grants from governmental entities and non-profit institutions; and (f) royalty payments.

1.67 "Sublicensee" means a Third Party to whom Licensee grants a sublicense hereunder.

1.68 "Tax" or "Taxes" means any (a) all federal, provincial, territorial, state, municipal, local, foreign or other taxes, imposts, rates, levies, assessments and other charges in the nature of a tax (and all interest and penalties thereon and additions thereto imposed by any governmental authority), including without limitation all income, excise, franchise, gains, capital, real property, goods and services, transfer, value added, gross receipts, windfall profits, severance, ad valorem, personal property, production, sales, use, license, stamp, documentary stamp, mortgage recording,

employment, payroll, social security, unemployment, disability, escheat, estimated or withholding taxes, and all customs and import duties, together with all interest, penalties and additions thereto imposed with respect to such amounts, in each case whether disputed or not; (b) any liability for the payment of any amounts of the type described in clause (a) as a result of being or having been a member of an affiliated, consolidated, combined or unitary group; and (c) any liability for the payment of any amounts as a result of being party to any tax sharing agreement or arrangement or as a result of any express or implied obligation to indemnify any other person with respect to the payment of any amounts of the type described in clause (a) or (b).

1.69 "Term" has the meaning set forth in Section 10.1 (Term).

1.70 "Territory" means worldwide.

1.71 "Third Party" means any Person other than Ligand, Licensee or any Affiliate of either Ligand or Licensee.

1.72 "Transfer Tax" has the meaning set forth in Section 0 (Transfer Tax).

1.73 "United States" means the United States of America and its territories and possessions (including the District of Columbia and Puerto Rico).

1.74 "Valid Claim" means (a) any claim of an issued and unexpired patent within the Licensed Patents that has not been held unenforceable or invalid by a court or other governmental agency of competent jurisdiction in a decision that is not appealed or is unappealable, and which patent has not been disclaimed or admitted to be invalid or unenforceable through reissue or otherwise, or (b) a pending claim in a pending patent application within the Licensed Patents that has not been abandoned or expired without the possibility of revival; *provided* that such pending Patent application has not been pending for more than seven (7) years from its earliest priority date; *further provided* that if such claim is later issued, it shall from the issuance date forward be deemed to be a Valid Claim.

1.75 Unless the context of this Agreement otherwise requires: (a) words of any gender include each other gender; (b) words using the singular or plural number also include the plural or singular number, respectively; (c) the terms "hereof," "herein," "hereby" and derivative or similar words refer to this entire Agreement; (d) the terms "Article," "Section" or "Exhibit" refer to the specified Article, Section or Exhibit of this Agreement; and (e) the term "including" means "including without limitation." Whenever this Agreement refers to a number of days, such number shall refer to calendar days.

ARTICLE 2
LICENSES AND TECHNOLOGY TRANSFER

2.1 Exclusive License for Products. During the Term, subject to the terms and conditions of this Agreement and Ligand's receipt of the License Issuance Fee, Ligand hereby grants to Licensee an exclusive (even as to Ligand), royalty-bearing right and license under the Licensed Technology to develop, make, have made, use, sell, have sold, import and export Products in the Field in the

Territory. For clarity, in the foregoing sentence, "exclusive" means that Ligand shall not for its own account, and shall not grant to any Third Party the right and license under the Licensed Technology to, develop, make, have made, use, sell, have sold, import and export Products in the Field in the Territory. Notwithstanding the foregoing to the contrary, the license granted to Licensee under this Section 2.1 (Exclusive License for the Products) specifically excludes any right or license to develop, make, have made, use, sell, have sold, import or export Captisol®.

2.2 Rights to Improvements. Licensee and its Affiliates shall have the right to make Improvements to the Licensed Technology, and to utilize such Improvements to develop, make, have made, use, sell, have sold, import and export Products in the Field in the Territory.

2.3 Sublicenses.

(a) The rights and licenses granted pursuant to Section 2.1 (Exclusive License for the Products) include the right to grant sublicenses through multiple tiers pursuant to a written sublicense agreement (each a "Sublicense Agreement"); *provided*, that (i) any such Sublicense Agreement shall be consistent with and subject to the terms and conditions of this Agreement; (ii) Licensee shall remain fully responsible to Ligand for the performance of its Sublicensee(s) with respect to Licensee's obligations under the terms of this Agreement; (iii) Licensee shall reserve the right under each Sublicense Agreement to conduct an audit of its Sublicensee in a comparable manner to Section 3.12 (Audit Rights), it being understood that commercially sensitive information may be redacted from such copies, to the extent such information is not necessary to verify compliance hereunder and the terms, conditions and existence of such Sublicense Agreement shall be deemed the Confidential Information of Licensee. Licensee shall provide Ligand with a fully-executed copy of any Sublicense Agreement with a Third Party (redacted as necessary to protect confidential or commercially sensitive information) reflecting any such sublicense promptly after the execution thereof.

(b) Should this Agreement terminate for any reason, any Sublicense Agreement granted by Licensee under this Agreement shall remain in effect and is hereby assigned to Ligand, provided that (i) Licensee or the Sublicensee provides Ligand with an unredacted copy of such agreement within fifteen (15) days after termination of this Agreement, unless an unredacted copy previously has been provided to Ligand; (ii) the Sublicensee agrees in writing to an assignment of such Sublicense Agreement to Ligand and to the payment of all consideration to Ligand that otherwise would have been payable in connection with such Sublicense Agreement to Ligand by Licensee under this Agreement; (iii) any obligations in such Sublicense Agreement that are greater than or inconsistent with the obligations of Ligand under this Agreement shall be reduced in scope to match those in this Agreement, if practicable, or terminated if such reduction in scope is not practicable; and (iv) the Sublicensee agrees in writing that all obligations arising prior to such assignment remain the responsibility of Licensee and that Ligand is released from any and all liability relating to such obligations; otherwise said sublicense will be terminated.

(c) Licensee shall remain obligated to make all payments due to Ligand under the terms of this Agreement with respect to the activities of its Sublicensees.

2.4 Technology Transfer. Within thirty (30) days after the Effective Date, Ligand shall, at its cost and expense, (1) disclose and provide to Licensee copies of all material tangible embodiments of data and information concerning the Licensed Technology and Regulatory Documentation (including without limitation all safety data for LGD-6972) in its Control as of the Effective Date that are necessary or, to the extent reasonably available and accessible, useful for developing, making, using or selling LGD-6972 in the Territory (including any data, information, and documentation contained in the electronic data room that was made available to Licensee prior to the Effective Date); and (2) provide Licensee with the following quantities of LGD-6972 for Development use: approximately 1.4 kg of bulk LGD-6972, plus approximately 3,316 bottles of 60 mg LGD-6972 per bottle, approximately 3,222 bottles of 10 mg LGD-6972 per bottle, and approximately 9,665 5-mg capsules of LGD-6972.

2.5 Manufacturing. With the exception of that quantity of LGD-6972 provided by Ligand to Licensee pursuant to Section 2.4 (Technology Transfer), Licensee shall be solely responsible, either itself for through the use of a Third Party contract manufacturer, for manufacturing and supplying LGD-6972 (and all other Products) and finished dosage form of Product for Development and commercialization in the Territory.

2.6 Regulatory Documentation. Within thirty (30) days following the Effective Date, unless otherwise agreed by the Parties, Ligand will assign to Licensee all rights, title, and interests in and to each LGD-6972 IND filed in the Field in the Territory, and will transfer to Licensee copies (in electronic or other format) of the Regulatory Documentation owned by Ligand or its Affiliates as of the Effective Date that relates to the Development or Manufacture of LGD-6972. Following the Effective Date, Licensee or its relevant Affiliates will have the sole right to file and hold all Regulatory Documentation for LGD-6972 and Products in the Field in the Territory.

2.7 No Other Rights. Ligand and Licensee each acknowledges and agrees that, except as expressly granted under this Agreement, no right, title, or interest of any nature whatsoever is granted whether by implication, estoppel, reliance, or otherwise, by either Party to the other Party. All rights with respect to technology, Patents, Know-How, or other Intellectual Property Rights that are not specifically granted herein are reserved.

2.8 Bankruptcy. All rights and licenses granted under or pursuant to this Agreement, including amendments hereto, are, for all purposes of 11 U.S.C. § 365(n), licenses of rights to intellectual property as defined in the United States Bankruptcy Code, and any comparable Law of a relevant jurisdiction. Each Party may elect to retain and may fully exercise all of its rights and elections under 11 U.S.C. § 365(n).

ARTICLE 3
COMPENSATION

3.1 License Issuance Fee. In partial consideration of the rights and licenses granted by Ligand hereunder, Licensee shall pay a one-time, non-refundable and non-creditable license issuance fee of Twenty Million U.S. Dollars (U.S. $20,000,000) (the "License Issuance Fee") within ten (10) Business Days of the Effective Date.

3.2 Additional Payment. Licensee shall pay a one-time, non-refundable and non-creditable fee of [***] ("Additional Payment") upon the first to occur of: [***] (the " Additional Payment Trigger Date"). Licensee (or, if applicable, the Affiliate of Licensee to which the U.S. and EU rights under this Agreement have been assigned or sublicensed) shall promptly inform Ligand of the occurrence of such Additional Payment Trigger Date. Ligand shall invoice whichever of Licensee or a Licensee Affiliate provided notification of such Additional Payment Trigger Date for the Additional Payment following occurrence of an Additional Payment Trigger Date. Licensee or its applicable Affiliate shall remit payment to Ligand within sixty (60) days of receipt of an invoice for the Additional Payment. For clarity, Licensee's (or the applicable Affiliate's) payment obligation under this Section 3.2 shall not survive termination of this Agreement.

3.3 Regulatory Milestone Payments. In further consideration of the rights and licenses granted by Ligand hereunder, Licensee shall pay to Ligand the non-refundable and non-creditable milestone payments following the achievement by Licensee or its Affiliates or Sublicensees of each of the corresponding events. Licensee or its applicable Affiliate shall notify Ligand of such milestone event within ten (10) days thereof, and Ligand shall invoice whichever of Licensee or a Licensee Affiliate provided notification of such milestone. Licensee or its applicable Affiliate shall remit payment to Ligand within sixty (60) days of receipt of an invoice.

Milestone	Payment
[***]	[***]

For clarity, each milestone payment is payable only once; no milestone payment shall be payable for subsequent or repeated achievements of such milestone event with one or more of the same or different Products.

3.4 Commercial Milestone Payments. In further consideration of the rights and licenses granted by Ligand hereunder, Licensee shall pay to Ligand the non-refundable and non-creditable milestone payments set forth below following achievement by Licensee or its Affiliates or Sublicensees of each of the corresponding events. Licensee or its applicable Affiliate shall notify Ligand of such milestone event within ten (10) days thereof, and Ligand shall invoice whichever of Licensee or a Licensee Affiliate provided notification of such milestone. Licensee or its applicable Affiliate shall remit payment to Ligand within sixty (60) days of receipt of an invoice.

Milestone	Payment
Achievement of [***] of annual Net Sales of all Products in the calendar year [***]	[***]
Achievement of [***] of annual Net Sales of all Products in the calendar year [***]	[***]
Achievement of [***] of annual Net Sales of all Products in the calendar year [***]	[***]
Achievement of [***] of annual Net Sales of all Products in the calendar year [***]	[***]

3.5 Payment of Royalties

(a) Royalty Rates. In further consideration of the rights and licenses granted by Ligand hereunder, Licensee (or its Affiliates) shall pay to Ligand a tiered royalty on aggregate Net Sales of Product sold by Licensee, its Affiliates and Sublicensees during the Royalty Term as follows:

Net Sales in a Single Calendar Year	Royalty rate
Aggregate Net Sales of all Products of less than or equal to [***]	[***]
Aggregate Net Sales of all Products greater than [***] to less than or equal to [***]	[***]
Aggregate Net Sales of all Products greater than [***]	[***]

(b) Sublicensing. In the event Licensee grants a sublicense under Section 2.3 (Sublicenses) to a Sublicensee to develop, make, use, sell, offer to sell, import or export a Product, the applicable Sublicense Agreement shall require the Sublicensee to account for and report its net sales of Product on substantially the same basis as if such sales were Net Sales, and Licensee shall pay royalties on such sales as if the net sales of the Sublicensees were Net Sales of Licensee.

(c) Payment of Royalties. Licensee shall pay on a Calendar Quarterly basis all royalties due and payable on Net Sales of Product in each Calendar Quarter pursuant to this Section 3.5 (Payment of Royalties) within sixty (60) days after the last day of each Calendar Quarter in which the applicable Net Sales underlying such royalties were billed or invoiced by Licensee, its Affiliate or its Sublicensee. Within twenty-five (25) calendar days after the conclusion of the Calendar Quarter in which the First Commercial Sale (anywhere) of any Product occurs and after the conclusion of each successive Calendar Quarter until the end of the first full Calendar Quarter after the end of the Term, Licensee shall deliver to Ligand a verbal or written, non-binding initial estimate of Net Sales and royalties due to Ligand (or as directed by Ligand).

(d) Royalty Term. The royalties due under this Section 3.5 (Payment of Royalties) shall be payable on Net Sales of a particular Product from the First Commercial Sale of such Product until the later of, on a country-by-country basis, (i) the expiration of the last Valid Claim of a Licensed Patent that Covers a Product in any such country, (ii) the expiration of any market exclusivity or data exclusivity granted by the applicable Regulatory Authority for such Product in such country, and (iii) twelve (12) years after the First Commercial Sale of such Product in such country (the "Royalty Term").

(e) Royalty Adjustments. Except as otherwise set forth in this Agreement, royalties due under this Section 3.5 (Payment of Royalties) are subject to adjustment on a country-by-country and Calendar Quarter-by-Calendar Quarter basis as a result of the events set forth below (such adjustments to be prorated for the then-current Calendar Quarter in which the reduction becomes applicable), provided that in no event shall the aggregate adjustments under this Section 3.5(e) (Royalty Adjustments) reduce the royalty otherwise due to Ligand by [***].

(1) Royalty Adjustment for Third Party License Payments. If Licensee reasonably determines that it is necessary for Licensee to obtain a license from a Third Party to research, develop, make, have made, use, offer to sell, sell, have sold or import any Product ("Additional Third Party Licenses") and Licensee obtains such an Additional Third Party License, then Licensee may deduct from the royalty payment that would otherwise have been due to Ligand under this Section 3.5 (Payment of Royalties), an amount equal to [***] of the royalties actually paid to such Third Party under such Additional Third Party Licenses by Licensee to research, develop, make, have made, use, offer to sell, sell, have sold or import, as applicable, such Licensed Product; provided, that in the case of a Combination Product, this Section 3.5(e) (Royalty Adjustments) applies only if Licensee reasonably determines that it is necessary to obtain such an Additional Third Party License from a Third Party to research, develop, make, have made, use, offer for sale, sell, have sold or import the Product contained within the Combination Product, and not only a license solely with respect to the other active ingredients or components within the Combination Product; provided, further, that in no event shall the royalties owed by Licensee to Ligand be reduced by [***] pursuant to this paragraph 3.5(e)(1) (Royalty Adjustment for Third Party License Payments).

(2) Royalty Adjustment for Non-Patent Products. If a particular Product is made, used, sold, offered for sale or imported in a country in which such manufacture, use and sale would not infringe any Valid Claim and there is no market exclusivity or data exclusivity granted by the applicable Regulatory Authority for such Product in such country, the royalties payable under this Section 3.5 (Payment of Royalties) on the sale of such Product in such country shall be reduced by [***].

(3) Royalty Adjustment for Generic Competition. If there is Generic Competition for a particular Product in a particular country in a particular Calendar Quarter, the royalties payable to Ligand on the sales of such Product in such country in such Calendar Quarter shall be reduced by [***].

3.6 Purchaser Income and Sublicense Revenues. In addition to any payments due under Sections 3.3 (Regulatory Milestone Payments), 3.4 (Commercial Milestone Payments), or 3.5 (Payment of Royalties), Licensee (or its Affiliates) shall pay to Ligand [***] of all Purchaser Income and Sublicense Revenues received by Licensee or its Affiliates from a Third Party purchaser ("Purchaser") or Sublicensee pursuant to any agreement that is entered into with such Purchaser or Sublicensee on or before the six (6) month anniversary of the Effective Date, *provided*, that any payment due to Ligand under this Section 3.6 (Purchaser Income and Sublicense Revenues) shall be capped at a [***]. Licensee or its Affiliate shall notify Ligand of receipt of all Purchaser Income and Sublicense Revenue that Ligand is entitled to a portion thereof within ten (10) days of receipt thereof, and Ligand shall invoice whichever of Licensee or a Licensee Affiliate provided notification of such Purchaser Income or Sublicense Revenue for the amount owed under this Section 3.6 (Purchaser Income and Sublicense Revenues). Licensee or its applicable Affiliate shall remit payment to Ligand within sixty (60) days of receipt of an invoice.

3.7 Payment Method. All payments made by Licensee under this Agreement shall be made in U.S. Dollars, and such payments shall be made by check or wire transfer to one or more bank accounts to be designated in writing by Ligand.

3.8 Currency Conversion. Net Sales in currencies other than U.S. Dollars shall be converted into U.S. Dollars using the official rate of exchange for such currencies published in *The Wall Street Journal*, Eastern Edition, on the next Business Day following the last day of the Calendar Quarter during which such Net Sales accrued.

3.9 Late Payment Interest. Any payment due and payable to Ligand under the terms and conditions of this Agreement, including any royalty payment, made by Licensee after the date such payment is due and payable shall bear interest as of the next Business Day after the date such payment was due and payable and shall continue to accrue such interest until such payment is made at a rate equal to the lesser of either (a) [***], or (b) the maximum rate permitted by applicable Law.

3.10 Records and Reports. All payments made to Ligand hereunder shall be accompanied by a written statement setting forth in reasonable detail the calculation thereof, including, for example, in the case of royalty payments, the gross amount billed or invoiced by Licensee, its Affiliate or Sublicensee for sale or other disposition of Product on a country-by-country basis in the local currency, itemized deductions against such gross amount in accordance with Section 1.46 ("Net Sales"), Net Sales on a country-by-country basis, and, if applicable, the exchange rate utilized to convert a local currency to U.S. Dollars. Licensee shall maintain complete and accurate records sufficient to enable accurate calculation of royalties and other payments due Ligand hereunder. Such records and books of account shall be preserved by Licensee for a period of three (3) years after the end of the period covered by such records and books of account, which obligation shall survive termination of this Agreement. Licensee must ensure that its Sublicensees provide reports and keep records in a manner consistent with this Section 3.10 (Records and Reports). Licensee shall provide reports received from Sublicensees to Ligand with the applicable payment.

3.11 Taxes.

(a) Taxes on Income. Except as otherwise set forth in this Section 3.11 (Taxes), each Party shall be solely responsible for the payment of all taxes imposed on its share of income arising directly or indirectly from the activities of the Parties under this Agreement.

(b) Tax Cooperation. The Parties agree to use commercially reasonable efforts to cooperate with one another and use reasonable efforts to avoid or reduce tax withholding or similar obligations in respect of royalties, milestone payments, and other payments made by Licensee to Ligand under this Agreement. If withholding taxes are imposed on any such payment, the liability for such taxes shall be the sole responsibility of Ligand, and Licensee shall (i) deduct or withhold such Taxes from the payment made to Ligand, (ii) timely pay such Taxes to the proper taxing authority, and (iii) send proof of payment to Ligand within thirty (30) days following such payment. Each Party shall comply with (or provide the other Party with) any certification, identification or other reporting requirements that may be reasonably necessary in order for Licensee to not withhold Tax or to withhold Tax at a reduced rate under an applicable bilateral income tax

treaty. Each Party shall provide the other with commercially reasonable assistance to enable the recovery, as permitted by applicable Laws, of withholding Taxes or similar obligations resulting from payments made under this Agreement, such recovery to be for the benefit of Ligand as the Party bearing the cost of such withholding Tax under this Section 3.11(b) (Tax Cooperation). Notwithstanding the foregoing, if as a result of any assignment or sublicense by Licensee, any change in Licensee's tax residency, any change in the entity that originates the payment, or any failure on the part of Licensee to comply with applicable Laws with respect to withholding Taxes (including filing or record retention requirements), withholding Taxes are imposed that would not otherwise have been imposed ("Incremental Withholding Taxes"), then Licensee shall be solely responsible for the amount of such Incremental Withholding Taxes and shall increase the amounts payable to Ligand so that Ligand receives a sum equal to the sum which it would have received had there been no such imposition of Incremental Withholding Taxes, except to the extent that such Incremental Withholding Taxes would not have been imposed but for the failure of Ligand to comply with any certification, identification or other reporting requirements if such compliance is required or imposed by Law as a precondition to an exemption from, or reduction in, such Incremental Withholding Taxes.

(c) Transfer Tax. Licensee shall bear and pay any transfer, stamp, value added, sales, use, or similar Taxes or obligations ("Transfer Tax") imposed on amounts payable by Licensee to Ligand in connection with this Agreement. If Ligand is required by applicable Laws to directly pay any Transfer Taxes, Licensee shall indemnify Ligand for such Transfer Taxes and shall promptly reimburse Ligand for any such Transfer Tax. Licensee shall be responsible for the timely filing of any Tax returns related to any such Transfer Taxes provided that Ligand shall cooperate to file any such Tax returns if required by applicable Laws.

3.12 Audit Rights. Licensee shall permit an independent public accountant designated by Ligand and reasonably acceptable to Licensee, to have access, no more than once in each Fiscal Year during the Term and no more than twice during the three (3) Fiscal Years following the termination of this Agreement, during regular business hours and upon at least thirty (30) days written notice, to Licensee's records and books to the extent necessary to determine the accuracy of Net Sales reported, and payments made, by Licensee to Ligand within the three (3) year period immediately preceding such an audit. No period shall be subject to more than one (1) audit. The independent public accountant shall disclose to Ligand only (a) the accuracy of Net Sales reported and the basis for royalty and other payments made to Ligand under this Agreement and (b) the difference, if any, such reported and paid amounts vary from amounts determined as a result of the audit. If such examination results in a determination that Net Sales or payments have been misstated, over or under paid amounts due shall be paid promptly to the appropriate Party. If Net Sales are understated by greater than ten percent (10%), the fees and expenses of such accountant shall be paid by Licensee; otherwise the fees and expenses of such accountant shall be paid by Ligand. All matters reviewed by such independent public accountant shall be deemed Confidential Information of Licensee subject to ARTICLE 6 (CONFIDENTIALITY).

ARTICLE 4
PRODUCT ACTIVITIES

4.1 Diligence. Licensee shall use Commercially Reasonable Efforts to Develop and manufacture Products, either directly or through an Affiliate or Sublicensee.

4.2 Development Requirements.

(a) Licensee shall prepare a Development Plan detailing the work it will perform and associated timelines to Develop Products and to obtain Regulatory Approval and sell Products throughout the Territory (the "Development Plan"). The Development Plan will include, at a minimum, [***]. Licensee shall provide a copy of the Development Plan to Ligand within ninety (90) days of the Effective Date and thereafter shall provide updated Development Plans on March 31 of each calendar year. [***]

(b) Licensee shall spend at least [***] Developing Products under the Development Plan by December 31, 2018. Prior to [***], Licensee shall inform Ligand of the amount of external costs and expenses actually incurred or paid by Licensee or its Affiliates for the Development of Products under the Development Plan and will provide Ligand with evidence to

support such amount. In the event Licensee does not spend [***] Developing Products under the Development Plan by [***], Licensee will pay to Ligand a one-time, non-refundable and non-creditable fee equal to [***] less the external costs and expenses actually incurred or paid by Licensee or its Affiliates through [***] (including costs properly accrued but not yet paid) for the Development of Products under the Research Plan (the "Development Funding Payment"). Ligand shall invoice Licensee for any Development Funding Payment, and Licensee shall remit the Development Funding Payment to Ligand within thirty (30) days of receipt of an invoice for the such amount. For clarity, Licensee's payment obligation under this Section 4.2(b) shall survive termination of this Agreement.

(c) No later than [***] the Parties will have an in-person meeting at which Licensee (or the Affiliate(s) of Licensee to which the U.S. and/or EU rights under this Agreement have been assigned or sublicensed) shall inform Ligand of the progress of Product Development and the amount of external costs and expenses expected to be incurred or paid by Licensee and its Affiliates through [***]. Notwithstanding anything to the contrary in Section 4.2(b), if Ligand, in its sole discretion, determines at the foregoing in-person meeting that Licensee may fail to meet the spending requirement in Section 4.2(b) due to factors beyond Licensee's control, the spending deadline may be extended from [***] to [***]; *provided*, that if Licensee or its Affiliates have not received [***], then the spending deadline will automatically be extended [***] to [***].

4.3 Development Reports. During the first two (2) years following the Effective Date, at the end of each Calendar Quarter Licensee shall provide to Ligand a progress report describing Licensee's, its Affiliates' and their Sublicensees' progress in accordance with the Development Plan and toward commercialization of Products, including a summary of clinical trials completed, summary of work-in-progress, current schedules or anticipated events or milestones, and significant transaction(s) involving Product (a "Progress Report"). Licensee shall also provide to Ligand copies of any similar progress reports received from its Affiliates or Sublicensees, within thirty (30) days of receipt. After the date that is two (2) years following the Effective Date, each updated Development Plan shall be accompanied by a Progress Report. In addition, upon the reasonable request of Ligand but no more frequently than one time in each Calendar Quarter during the first two (2) years following the Effective Date and no more frequently than one time in each year thereafter, Licensee and Ligand shall meet by telephone, videoconference, or in-person at Ligand's request at a mutually agreeable location to discuss the topics described in the Progress Reports, and such other topics related to Products as Ligand may reasonably request. All matters provided and discussed under this Section 4.3 (Development Plan and Reports) shall be considered the Confidential Information of Licensee.

4.4 Development. Licensee shall be solely responsible for the Development of all Products in the Field in the Territory, and Licensee shall bear [***] of all costs and expenses associated with the Development of Products.

4.5 Regulatory Responsibilities.

(a) Licensee shall use Commercially Reasonable Efforts to seek regulatory approval for at least one Product in the Territory.

(b) Licensee shall bear [***] of all costs and expenses associated with regulatory activities related to the Products in the Field in the Territory.

(c) Licensee shall be responsible for ensuring, at its sole expense, that the Development and commercialization of all Products in the applicable jurisdiction within the Territory are in compliance with applicable Laws in all material respects, including all rules and regulations promulgated by applicable Regulatory Authorities.

(d) Licensee shall be responsible for taking all actions related to adverse event reporting and other regulatory obligations that are legally required of the holder of a Regulatory Approval application, license, registration or authorization.

4.6 Commercialization. Licensee shall be solely responsible for the commercialization of all Products in the Field in the Territory and shall bear [***] of all costs and expenses associated with commercialization of all Products in the Field in the Territory. Licensee shall use Commercially Reasonable Efforts to commercialize at least one Product, either directly or through an Affiliate or Sublicensee, in the United States and in all other countries in which Licensee, its Affiliates or Sublicensees obtain Regulatory Approval for the Product.

ARTICLE 5
INTELLECTUAL PROPERTY

5.1 Patent Maintenance and Prosecution.

(a) Licensee shall have the first right (in its discretion), at Licensee's cost and expense, to Prosecute the Licensed Patents. Licensee may elect to use outside counsel, reasonably acceptable to Ligand, for such Prosecution. With respect to any Licensed Patent, Licensee may elect (i) not to Prosecute, (ii) not to Prosecute in a particular country (including electing not to validate in a particular country) or (iii) to discontinue Prosecution in a particular country, and in any such case, Licensee shall provide Ligand with at least thirty (30) days prior notice and Ligand shall have the right (but not the obligation), at Ligand's sole expense and upon written notice to Licensee, to assume such responsibility for the Prosecution of such Licensed Patents to the extent Licensee has elected not to do so. If Ligand assumes the Prosecution of a Licensed Patent and a patent claim issues with respect to such Licensed Patent, Ligand may elect to terminate all the rights to such issued claim of such Licensed Patent formally granted to the Licensee under this Agreement, unless Licensee (i)reimburses Ligand for its reasonable, documented, external costs and expenses related to the Prosecution of such patent claim within sixty (60) days of notice of issuance of any such patent and (ii) assumes, in writing, the responsibility for the continued Prosecution of such Licensed Patent.

(b) Upon the written request of the non-Prosecuting Party, the Prosecuting Party shall give the non-Prosecuting Party an opportunity to review the text of any application before filing, shall consult with the non-Prosecuting Party with respect thereto (and shall consider the non-Prosecuting Party's comments thereto in good faith), and shall supply the non-Prosecuting Party with a copy of the application as-filed, together with notice of its filing date and serial number. Upon request of the non-Prosecuting Party, the Prosecuting Party shall keep the other Party advised of the status of such actual and prospective patent filings and, upon such other Party's request, shall provide advance copies of any material papers to be filed related to the filing, prosecution and maintenance of such patent filings. Each Party shall promptly give notice to the other Party of the grant, lapse, revocation, surrender, invalidation or abandonment of such Licensed Patent that it is Prosecuting.

(c) Patent Extensions; Orange Book Listings.

(1) Patent Term Extension. If elections with respect to obtaining patent term extension or supplemental protection certificates or their equivalents in any country with respect to any Product becomes available, upon Regulatory Approval or otherwise, the Parties will mutually agree on which issued Licensed Patent to extend, provided that if Licensee Controls a Patent (other than a Licensed Patent) that may be extended and, if extended, would provide a longer patent coverage for a Product in a country then any Licensed Patent in such country, if extended, then Licensee shall have the right to elect to extend any such Patent Controlled by Licensee in such country rather than a Licensed Patent, provided further that the Royalty Term shall be automatically extended until the expiration of the extended term of such Patent Controlled by Licensee.

(2) Data Exclusivity and Orange Book Listings. With respect to data exclusivity periods (such as those periods listed in the Orange Book (including any available pediatric extensions) or periods under national implementations of Article 10.1(a)(iii) of Directive 2001/EC/83, and all equivalents in any country), Licensee, in consultation with Ligand, will seek and maintain all such data exclusivity periods that may be available for any of the Products. Licensee will have the sole right to determine which Licensed Patents, if any, will be listed in the Orange Book or any similar patent listing in any country in the Territory with respect to the Products.

(d) Cooperation. Each Party will reasonably cooperate with the other Party in the Prosecution of the Licensed Patents. Such cooperation includes promptly executing all documents, or requiring inventors, subcontractors, employees and consultants and agents of such Party and its Affiliates, and for Licensee, Sublicensees, to execute all documents, as reasonable and appropriate so as to enable the Prosecution of any such Licensed Patents in any country.

(e) Licensee shall, at Licensee's sole cost and expense, and in its sole discretion, Prosecute any Patents Covering Licensee Improvements.

5.2 Licensed Patents and Licensed Know-How Enforcement and Defense.

(a) Notification. Each Party shall notify the other Party of any infringement of any of the Licensed Patents (including receipt of notice from a third party pursuant to section 505(b)(3) or 505(j)(2)(B) of the FD&C Act) or misappropriation of any of the Licensed Know-How by a Third Party in the Field that becomes known to such Party, and of any claim by a Third Party that the activities of a Party relating to a Product infringe Patent rights or misappropriate other Intellectual Property Rights of such Third Party.

(b) Licensed Patents. Licensee shall have the first right, but not an obligation, to initiate, maintain and control, at Licensee's expense, legal action against any infringement of the Licensed Patents by a Third Party Product in the Field in the Territory. In the event that Licensee initiates legal action against infringement of the Licensed Patents by a Third Party, Licensee shall notify Ligand in writing. In order to establish standing, Ligand, upon request of Licensee, agrees to timely commence or to join in any such litigation, at Licensee's expense, and in any event to cooperate with Licensee in such litigation at Licensee's expense (and for clarity Licensee will indemnify Ligand in full against applicable damages owed to Third Parties resulting from such litigation). If Licensee does not take steps to defend or enforce the Licensed Patents, Ligand shall have the right, but not an obligation, to initiate, maintain and control, at its expense, legal action against any infringement of the Licensed Patents by a Third Party Product in the Field in the Territory. Any recovery received by a Party from legal action initiated pursuant to this Section 5.2 (Licensed Patents and Licensed Know-How Enforcement and Defense), whether by judgment, award, decree or settlement, shall be used first to reimburse such Party for its out-of-pocket costs and expenses actually incurred in pursuing such legal action, and second to reimburse the other Party for its costs and expenses actually incurred in connection with such legal action. The remainder of any recovery or distribution received by a Party under this Section 5.2 (Licensed Patents and Licensed Know-How Enforcement and Defense), after reimbursement of costs and expenses of Ligand and Licensee, shall be: (i) if Licensee is the enforcing party, treated as Net Sales subject to a royalty obligation hereunder, and (ii) if Ligand is the enforcing party, shall be shared [***] by Ligand and [***] by Licensee.

(c) Cooperation. In any suit, proceeding or dispute involving the infringement of any of the Licensed Patents in the Field or misappropriation of any of the Licensed Know-How in the Field, the Parties shall provide each other with reasonable cooperation, and, upon the request and at the expense of the Party bringing suit, the other Party shall make available to the Party bringing suit, at reasonable times and under appropriate conditions, all relevant personnel, records, papers, information, samples, specimens, and the like in its possession. Notwithstanding any other provision of this ARTICLE 5 (INTELLECTUAL PROPERTY), neither Party shall make any settlements of any suit, proceeding or action relating to an infringement of the Licensed Patents in the Field or misappropriation of any of the Licensed Know-How in the Field under Section 5.2 (Licensed Patents and Licensed Know-How Enforcement and Defense) that would materially adversely affect the other Party or materially adversely affect the rights and licenses granted hereunder without first obtaining such other Party's prior written consent, such consent not to be unreasonably withheld or delayed.

5.3 Infringement Claims by Third Parties. If the Development, manufacture or commercialization of a Product in the Territory pursuant to this Agreement results in, or is reasonably

expected to result in, any claim, suit or proceeding by a Third Party alleging infringement by Licensee or any of its Affiliates or its or their Sublicensees (a "Third Party Infringement Claim"), including any defense or counterclaim in connection with an Infringement action initiated pursuant to Section 5.2 (Licensed Patents and Licensed Know-How Enforcement and Defense), the Party first becoming aware of such alleged infringement shall promptly notify the other Party thereof in writing. As between the Parties, Licensee shall be responsible for defending any such claim, suit or proceeding at its sole cost and expense, using counsel of Licensee's choice. Ligand may participate in any such claim, suit or proceeding with counsel of its choice at its sole cost and expense; *provided* that Licensee shall retain the right to control such claim, suit or proceeding. Ligand shall, and shall cause its Affiliates to, assist and cooperate with Licensee, as Licensee may reasonably request from time to time, in connection with its activities set forth in this Section 5.3 (Infringement Claims by Third Parties), including where necessary, furnishing a power of attorney solely for such purpose or joining in, or being named as a necessary party to, such action, providing access to relevant documents and other evidence and making its employees available at reasonable business hours; *provided* that Licensee shall reimburse Ligand for its reasonable and verifiable costs and expenses incurred in connection therewith. Licensee shall keep Ligand reasonably informed of all material developments in connection with any such claim, suit or proceeding. Licensee agrees to provide Ligand with copies of all material pleadings filed in such action and to allow Ligand reasonable opportunity to participate in the defense of the claims.

ARTICLE 6
CONFIDENTIALITY

6.1 Confidentiality Obligations. Each Party agrees that, during the Term and for five (5) years thereafter, all Confidential Information of the other Party shall be maintained in strict confidence, and shall not be used for any purpose other than the purposes expressly permitted by this Agreement, and, subject to Section 6.2 (Permitted Usage), shall not be disclosed to any Third Party. The foregoing obligations will not apply to any portion of Confidential Information to the extent that it can be established by competent proof that such portion:

(a) was already known to the recipient as evidenced by its written records, other than under an obligation of confidentiality, at the time of disclosure;

(b) was generally available to the public or was otherwise part of the public domain at the time of its disclosure to the recipient;

(c) became generally available to the public or otherwise becomes part of the public domain after its disclosure and other than through any act or omission of the recipient in breach of this Agreement;

(d) was subsequently lawfully disclosed to the recipient by a Third Party other than in contravention of a confidentiality obligation of such Third Party to the disclosing party; or

(e) is developed by the recipient independently and without use of or reference to any Confidential Information received from the disclosing party, as evidenced by its written records.

6.2 Permitted Usage. Each Party may use and disclose Confidential Information of the other Party, in accordance with this Agreement, as follows: (a) under appropriate confidentiality provisions no less restrictive than those in this Agreement, in connection with the performance of its obligations or exercise of rights granted to or retained by such Party; (b) in connection with the Prosecution or enforcement of Licensed Patents or Improvements, in accordance with this Agreement; (c) in connection with prosecuting or defending litigation, complying with applicable governmental regulations, filing for, obtaining and maintaining Regulatory Approvals, or as otherwise required by Law, but *provided* that if a Party is required by Law to make any disclosure of the other Party's Confidential Information, it will give reasonable advance notice to the other Party of such disclosure requirement, it will disclose only for the sole purpose of and solely to the extent required by such Law (as advised by counsel), and it will use its reasonable efforts to secure confidential treatment of such Confidential Information required to be disclosed; (d) such disclosure is reasonably necessary: (i) to such Party's directors, independent contractors, consultants, attorneys, independent accountants or financial advisors for the purpose of enabling such directors, independent contractors, consultants, attorneys, independent accountants or financial advisors to provide advice to the receiving Party, *provided* that, such directors, attorneys, independent accountants and financial advisors are bound by confidentiality and non-use obligations substantially consistent with those contained in this Agreement; or (ii) to actual or potential investors, acquirers, licensees and other financial or commercial partners for the purpose of evaluating or carrying out an actual or potential investment, acquisition or collaboration, public offering, merger or acquisition of a Party or its Affiliates, or sale of all or substantially all of its business to which this Agreement relates, *provided* that any such Third Party agrees to be bound by confidentiality and non-use obligations that are no less stringent than those contained in this Agreement (except to the extent that a shorter confidentiality period is customary in the industry).

6.3 Public Announcements. No disclosure of the existence, or the terms, of this Agreement may be made by either Party or its Affiliates, and no Party shall use the name, trademark, trade name or logo of the other Party, its Affiliates or their respective employee(s) in any publicity, promotion, news release or disclosure relating to this Agreement or its subject matter, without the prior express written permission of the other Party, except as may be required by Law. Notwithstanding the above, each Party and its Affiliates may disclose on its website and in its promotional materials that the other Party is a development partner of such Party and may utilize the other Party's name and logo in conjunction with such disclosure.

(a) A Party may disclose this Agreement and its terms, and material developments or material information generated under this Agreement, in securities filings with the U.S. Securities and Exchange Commission ("**SEC**") (or equivalent foreign agency) to the extent required by law after complying with the procedure set forth in this Section 6.3 (Public Announcements). In such event, the Party seeking such disclosure will prepare a draft confidential treatment request and proposed redacted version of this Agreement to request confidential treatment for this Agreement, and the other Party agrees to promptly (and in any event, no less than seven (7) days after receipt of such confidential treatment request and proposed redactions) give its input in a reasonable manner in order to allow the Party seeking disclosure to file its request within the timelines proscribed by applicable SEC regulations. The Party seeking such disclosure shall exercise

commercially reasonable efforts to obtain confidential treatment of the Agreement from the SEC as represented by the redacted version reviewed by the other Party.

(b) Further, each Party acknowledges that the other Party may be legally required to make public disclosures (including in filings with the SEC or other agency) of certain material developments or material information generated under this Agreement and agrees that each Party may make such disclosures as required by law, *provided* that the Party seeking such disclosure first provides the other Party a copy of the proposed disclosure and a written representation of counsel that such proposed disclosure is the minimum disclosure required by law.

(c) If either Party desires to issue a press release or make a public announcement concerning the material terms of this Agreement or the Development or commercialization of the Product under this Agreement, such as the achievement of Regulatory Approvals of the Product, such Party shall provide the other Party with the proposed text of such announcement for prior review and approval by such other Party.

(d) The Parties agree that after a disclosure pursuant to subsection (b) or a press release pursuant to subsection (c) hereof has been reviewed and approved by the other Party, the disclosing Party may make subsequent public disclosures or issue a press release disclosing the same content without having to obtain the other Party's prior consent and approval.

6.4 Publication. Licensee shall be solely responsible for the publication strategy for Products. Ligand shall not make any publication or presentation with respect to Products without the prior written consent of Licensee. Licensee shall provide Ligand a copy of any manuscript concerning Products prior to its submission. Licensee shall delay the submission of any such manuscripts for a period up to ninety (90) days in the event that Ligand can demonstrate reasonable need for such delay, including the preparation and filing of a patent application. Licensee agrees to acknowledge the contributions of Ligand and its employees in all publications as scientifically appropriate.

6.5 Reporting of Financial Information. From and after the Effective Date, to the extent required by the SEC in connection with Licensee or an Affiliate of Licensee registering securities in a public offering, and at Licensee's cost and expense, Ligand shall (a) reasonably cooperate with Licensee or its Affiliates and their respective accountants and auditors in connection with the preparation by Licensee or its Affiliates of historical and pro forma financial statements related to the Products as may be required to be included in any filing made by Licensee or any of its Affiliates under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, and the regulations promulgated thereunder and (b) without limiting the foregoing, shall provide Licensee with such information as is reasonably required for Licensee or its Affiliates to prepare audited "carve out" financial statements related to the Products, for the two (2) Fiscal Years prior to the Effective Date (or such shorter period as agreed to by Licensee) and information requested by Licensee and reasonably necessary to prepare any applicable pro forma financial information required to be filed by Licensee with the SEC. Such cooperation shall include, as applicable, (i) the signing of management representation letters to the extent required in connection with any such audit performed by Licensee's auditors, (ii) providing Licensee or its Affiliates and their respective accountants and auditors with access to management representation letters provided by Ligand to

Licensee's accountants and auditors, and (iii) causing Ligand's accountants, auditors, and counsel to reasonably cooperate with Licensee or its Affiliates and its accountants, auditors, and counsel in connection with the preparation and audit of any financial information to be provided under this Section 6.5 (Reporting of Financial Information). If Ligand elects to provide Licensee with the audited financial statements contemplated hereunder, the selection of an external audit firm will be at the discretion of Ligand. Such financial statements shall be derived from Ligand's historical financial statements, and accurately present in all material respects the financial position of the Licensed Products as of the dates thereof. Ligand hereby consents to the inclusion or incorporation by reference of any financial statements provided to Licensee under this Section 6.5 (Reporting of Financial Information) in any filing by Licensee or its Affiliates with the SEC and, upon reasonable request therefor of Licensee, agrees to request that any auditor of Ligand that audits any financial statements provided to Licensee or its Affiliates under this Section 6.5 (Reporting of Financial Information) consent to the inclusion or incorporation by reference of its audit opinion with respect to such financial statements in any filing by Licensee or its Affiliates with the SEC.

ARTICLE 7
REPRESENTATIONS, WARRANTIES AND COVENANTS

7.1 General. Each Party represents and warrants to the other that:

(a) it is duly organized and validly existing under the Law of the jurisdiction of its incorporation, and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

(b) it is qualified to do business and is in good standing in each jurisdiction in which it conducts business;

(c) it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the individual executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate action;

(d) this Agreement is legally binding upon it and enforceable in accordance with its terms and the execution, delivery and performance of this Agreement by it does not conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it may be bound, nor violate any material Law; and

(e) it is not aware of any action, suit or inquiry or investigation instituted by any Person which questions or threatens the validity of this Agreement.

(f) it has not, directly or indirectly, offered, promised, paid, authorized or given, and will not in the future, offer, promise, pay, authorize or give, money or anything of value, directly or indirectly, to any Government Official (as defined below) or Other Covered Party (as defined below) for the purpose of: (i) influencing any act or decision of the Government Official or Other Covered Party; (ii) inducing the Government Official or Other Covered Party to do or omit to do an act in violation of a lawful duty; (iii) securing any improper advantage; or (iv) inducing the Government Official or Other Covered Party to influence the act or decision of a government or government instrumentality, in order to obtain or retain business, or direct business to, any person or entity, in any way related to this Agreement.

For purposes of this Agreement: (i) "Government Official" means any official, officer, employee or representative of: (A) any federal, state, provincial, county or municipal government or any department or agency thereof; (B) any public international organization or any department or agency thereof; or (C) any company or other entity owned or controlled by any government; and (ii) "Other Covered Party" means any political party or party official, or any candidate for political office.

7.2 Representations and Covenants of Licensee.

(a) Anti-Corruption Compliance.

(1) In performing under this Agreement, Licensee and its Affiliates agree to comply with all applicable anti-corruption laws, including the Foreign Corrupt Practices Act of 1977, as amended ("FCPA") and all laws enacted to implement the OECD Convention on Combating Bribery of Foreign Officials in International Business Transactions.

(2) Licensee is not aware of any Government Official or Other Covered Party having any financial interest in the subject matter of this Agreement or in any way personally benefiting, directly or indirectly, from this Agreement.

(3) No political contributions or charitable donations shall be given, offered, promised or paid at the request of any Government Official or Other Covered Party that is in any way related to this Agreement or any related activity, without Ligand's prior written approval.

(4) In the event that Licensee violates the FCPA or any applicable anti-corruption law or breaches any provision in this Section 7.2(a) (Anti-Corruption Compliance), such violation shall be considered a material breach and shall be subject to the termination provisions of Section 10.2(b) (For Material Breach); provided, however, that such termination of the Agreement shall be limited to the country(ies) in which such violation occurred. In addition, Licensee shall defend, indemnify and hold harmless Ligand from and against any and all costs, damages, losses, liabilities, expenses, judgments, fines, settlements and any other amounts of any nature, including reasonable attorneys' fees arising from any improper payment made in violation of the FCPA, any applicable anti-corruption laws or this Section 7.2(a) (Anti-Corruption Compliance), directly or indirectly, by, on behalf of or with the knowledge of the Licensee, in relation to this Agreement; and

(b) Licensee represents and warrants to Ligand that neither it nor any of its Affiliates is currently researching, developing, manufacturing, or commercializing a compound that has as its intended mechanism of action glucagon receptor antagonism.

7.3 Representations of Ligand. Ligand hereby represents and warrants to Licensee that:

(a) Ligand and/or its Affiliates are the sole and exclusive owner(s) of the Licensed Patents, all of which are free and clear of any claims, liens, charges or encumbrances (other than liens, charges or encumbrances for taxes or other obligations not yet due or being contested in good faith, or which do not and will not adversely interfere with Licensee's ability to exercise its rights under this Agreement);

(b) Ligand has the rights necessary to grant the licenses to Licensee to Licensed Know-How and the Licensed Patents that Ligand grants pursuant to this Agreement. Ligand has not granted to any Third Party any rights or licenses under such Licensed Patents or Licensed Know-How that would conflict with the licenses granted to Licensee hereunder;

(c) there are no Patents Controlled by Ligand or its Affiliates as of the Effective Date that are necessary for or, absent the license granted hereunder, would be infringed by, the making, using or selling of LGD-6972 or any Other GRA Compound under the Control of Ligand or its Affiliates as of the Effective Date, other than the Patents listed on Exhibit B;

(d) to Ligand's actual knowledge, the use of Captisol ® is not necessary for the making, using or selling of LGD-6972;

(e) there are no adverse actions, suits, or claims pending or to the knowledge of Ligand, threatened against Ligand in any court or by or before any Governmental Entity with respect to LGD-6972 or the Licensed Technology and, to the actual knowledge of Ligand, there are no Third Party Patents that would reasonably be expected to give rise to such actions, suits or claims. No Third Party has challenged the ownership, scope, duration, validity enforceability, priority or right to use the Licensed Technology;

(f) Ligand has not initiated or been involved in any proceedings or claims in which it alleges that any Third Party is or was infringing or misappropriating the Licensed Technology, nor have any proceedings been threatened by Ligand, nor to the knowledge of Ligand is there any valid basis for any such proceeding;

(g) to Ligand's actual knowledge, the commercialization of LGD-6972 will not infringe or misappropriate any Patent rights, know-how or other Intellectual Property Rights of any Third Party;

(h) to Ligand's actual knowledge, Ligand has provided Licensee with copies of (i) all material communication by or on behalf of Ligand with the FDA regarding the Product, and (ii) all material documentation regarding the Product provided or made available by or on behalf of Ligand to the FDA;

(i) neither it nor any of its Affiliates has been debarred or, to Ligand's actual knowledge, is subject to debarment and, to Ligand's actual knowledge, neither it nor any of its Affiliates used in any capacity, in connection with the Development of the Product prior to the Effective Date, any Person who has been debarred pursuant to Section 306 of the FFDCA or who is the subject of a conviction described in such section; and

(j) neither it nor any of its Affiliates is currently researching, developing, manufacturing, or commercializing a compound that has as its intended mechanism of action glucagon receptor antagonism, other than LGD-6972.

7.4 Disclaimer. EXCEPT AS PROVIDED IN THIS ARTICLE 7 (REPRESENTATIONS, WARRANTIES AND COVENANTS), NEITHER PARTY MAKES ANY REPRESENTATION OR WARRANTY (EXPRESS, IMPLIED, STATUTORY OR OTHERWISE) WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT, AND EACH PARTY SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL WARRANTIES AND CONDITIONS OF THE VALIDITY OF THE LICENSED PATENTS OR NONINFRINGEMENT OF THIRD PARTY KNOW-HOW OR INTELLECTUAL PROPERTY RIGHTS. EXCEPT AS PROVIDED IN THIS ARTICLE 7 (REPRESENTATIONS, WARRANTIES AND COVENANTS), ANY INFORMATION, TECHNOLOGY AND INVENTORY PROVIDED BY LIGAND IS MADE AVAILABLE ON AN "AS IS" BASIS WITHOUT WARRANTY WITH RESPECT TO COMPLETENESS, COMPLIANCE WITH REGULATORY STANDARDS OR REGULATIONS OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER KIND OF WARRANTY WHETHER EXPRESS OR IMPLIED. THIS SECTION 7.4 (DISCLAIMER) SHALL NOT BE CONSTRUED TO LIMIT EITHER PARTY'S OBLIGATIONS UNDER ARTICLE 8 (INDEMNIFICATION; INSURANCE).

(a)
INDEMNIFICATION; INSURANCE

7.5 Indemnification by Licensee. Licensee shall indemnify, hold harmless, and defend Ligand, its Affiliates, and their respective equity holders, partners (general and/or limited), managers, directors, officers, employees and agents ("Ligand Indemnitees") from and against any and all Third Party claims, suits, losses, liabilities, damages, costs, fees and expenses (including reasonable attorneys' fees) (collectively, "Losses") finally awarded to a Third Party by a court of competent jurisdiction or agreed to in a settlement approved by Licensee that result from any claim made or brought against a Ligand Indemnitee by or on behalf of such Third Party and, subject to Section 8.3 (Procedure), any direct out-of-pocket costs and expenses (including reasonable attorneys' fees) ("Litigation Costs") incurred by a Ligand Indemnitee while investigating or conducting the defense of such Third Party claim, in any such case, solely to the extent such claim is directly based on or directly arises out of (a) the material breach by Licensee of any representation, warranty or covenant contained in this Agreement, (b) the negligence or willful misconduct by or of any Licensee Indemnitee, (c) the Development, manufacturing and/or commercialization of a Product by Licensee or its Affiliates or Sublicensees (including product liability), (d) Licensee's contractual agreements with Third Parties during the Term, or (e) infringement or misappropriation of Patent or other Intellectual Property Rights or Know-How by any Licensee Indemnitees; *provided*, that Licensee shall have no obligation to indemnify the Ligand Indemnitees to the extent that the Losses or Litigation Costs arise out of or result from, directly or indirectly, a claim for which Licensee is obligated to indemnify a Ligand Indemnitee under Section 8.2 (Indemnification by Ligand).

7.6 Indemnification by Ligand. Ligand shall indemnify, hold harmless, and defend Licensee, its Affiliates and their respective equity holders, partners (general and/or limited), directors, managers, officers, employees and agents ("Licensee Indemnitees") from and against any and all Losses finally awarded to a Third Party by a court of competent jurisdiction or agreed to in a settlement approved by Ligand that result from any claim made or bought against a Licensee Indemnitee by or on behalf of such Third Party, and subject to Section 8.3 (Procedure), any Litigation Costs incurred by a Licensee Indemnitee while investigating or conducting the defense of such Third Party claim, in any such case, solely to the extent such claim is directly based on or directly arises out of (a) the material breach by Ligand of any representation, warranty or covenant contained in this Agreement; (b) the negligence or willful misconduct by or of any Ligand Indemnitee, (c) the Development, manufacturing and/or commercialization of a Product by Ligand or its Affiliates (including product liability) prior to the Effective Date, or (d) infringement or misappropriation of Patent or other Intellectual Property Rights or Know-How by any Ligand Indemnitees; *provided*, that Ligand shall have no obligation to indemnify the Licensee Indemnitees to the extent that the Losses or Litigation Costs arise out of or result from, directly or indirectly, a claim for which Licensee is obligated to indemnify a Ligand Indemnitee under Section 8.1 (Indemnification by Licensee).

7.7 Procedure. In the event of any such claim against any Licensee Indemnitee or Ligand Indemnitee (individually, an "Indemnitee"), the indemnified Party shall promptly notify the other Party in writing of the claim and the indemnifying Party shall manage and control, at its sole expense, the defense of the claim and its settlement; *provided*, that the failure to so notify promptly shall not relieve the indemnifying Party of its obligations under this ARTICLE 8 (INDEMNIFICATION; INSURANCE) except to the extent of the actual prejudice suffered by such Party as a result of such failure. The Indemnitee shall cooperate with the indemnifying Party and may, at its option and expense, be represented in and participate in any such action or proceeding. The indemnifying Party shall not be liable for any settlements, litigation costs or expenses incurred by any Indemnitee without the indemnifying Party's written authorization. Notwithstanding the foregoing, if the indemnifying Party believes that any of the exceptions to its obligation of indemnification of the Indemnitees set forth in Section 8.1 (Indemnification by Licensee) or Section 8.2 (Indemnification by Ligand) may apply, the indemnifying Party shall promptly notify the Indemnitees, which shall then have the right to be represented in any such action or proceeding by separate counsel at their expense; *provided*, that the indemnifying Party shall be responsible for payment of such expenses if the Indemnitees are ultimately determined to be entitled to indemnification from the indemnifying Party. The indemnifying Party shall not agree to any settlement of any such claims without the consent of the Indemnitee, which consent shall not be unreasonably withheld or delayed.

7.8 Insurance. During the Term and for at least three (3) years thereafter, Licensee will procure and maintain at its sole cost and expense, insurance policies for the following coverages with respect to personal injury, bodily injury and property damage arising out of Licensee's performance under this Agreement: (a) comprehensive general liability, including broad form and contractual liability, in a minimum amount of five million U.S. dollars ($5,000,000) combined single limit per occurrence and in the aggregate; (b) clinical trials coverage in a minimum amount of ten million U.S. dollars ($10,000,000) combined single limit per occurrence and in the aggregate; and (c) following First Commercial Sale, product liability coverage, in a minimum amount of five million U.S. dollars ($5,000,000) combined single limit per occurrence and in the aggregate. The policies of insurance required by this Section 8.4 (Insurance) will be issued by an insurance carrier with an A.M. Best rating of "A" or better. Licensee will name Ligand as an additional insured under such policies, and will provide Ligand with insurance certificates evidencing the required coverage within thirty (30) days after the Effective Date and upon any future request of Ligand. The coverage limits set forth herein will not create any limitation on Licensee's liability to Ligand under this Agreement.

(a)
LIMITATION OF LIABILITY

EXCEPT FOR ANY LIABILITY THAT IS THE CONSEQUENCE OF GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF A PARTY OR A VIOLATION OF ARTICLE 6 (CONFIDENTIALITY), IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY SPECIAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES (INCLUDING LOST OR ANTICIPATED REVENUES OR PROFITS RELATING TO THE SAME), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY ARISING OUT OF THIS AGREEMENT, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, AND WHETHER OR NOT SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY PROVIDED HEREIN. THIS ARTICLE 9 (LIMITATION OF LIABILITY) SHALL NOT BE CONSTRUED TO LIMIT EITHER PARTY'S OBLIGATIONS UNDER ARTICLE 8 (INDEMNIFICATION; INSURANCE).

(b)
TERM AND TERMINATION

7.9 Term. This Agreement shall commence on the Effective Date and on a country-by-country basis, shall be in full force and effect, unless earlier terminated by either Party pursuant to this ARTICLE 10 (TERM AND TERMINATION), until the last to expire of any Royalty Term for any Product in such country in the Territory (the "Term"). Following the expiration of the Royalty Term for a Product in a country, the grants in Section 2.1 (Exclusive License for the Products) shall become non-exclusive, fully-paid, royalty-free, and irrevocable for such Product in such country. For clarity, upon the expiration of the Term, the grants in Section 2.1 (Exclusive License for the Products) shall become non-exclusive, fully-paid, royalty-free, and irrevocable in their entirety.

7.10 Termination.

(a) Termination by Licensee for Convenience. Licensee may terminate this Agreement in its entirety for any reason (i) if, prior to receipt of Regulatory Approval for the first Product in any country in the Territory, upon ninety (90) days' written notice to Ligand, and (ii) if, after receipt of Regulatory Approval for the first Product in any country in the Territory, upon one hundred eighty (180) days' written notice to Ligand. For clarity, upon receipt of notice of termination by Licensee, except as set forth in Section 10.3 (Effect of Termination), Licensee shall have no further obligation to use Commercially Reasonable Efforts to further Develop or commercialize Products under this Agreement.

(b) For Material Breach. If either Party shall at any time materially breach this Agreement, and shall fail to have initiated and actively pursued remedy of any such material breach within sixty (60) days (or thirty (30) days if such breach is the non-payment of any amounts due hereunder) after receipt of written notice thereof by the other Party, that other Party may, at its option, terminate this Agreement. Any termination of this Agreement under this Section 10.2(b) (For Material Breach) shall not, however, prejudice the right of the Party who terminates this Agreement to recover any payment due at the time of such termination. If the allegedly breaching Party in good faith disputes such material breach or disputes the failure to cure or remedy such material breach and provides written notice of that dispute to the other Party within the above time periods, the matter will be addressed under the dispute resolution provisions in Section 11.11 (Dispute Resolution), and the notifying Party may not terminate this Agreement until it has been determined by a court of competent jurisdiction that the allegedly breaching Party is in material breach of this Agreement, and such breaching Party further fails to cure such material breach within thirty (30) days after the conclusion of such proceeding (and such termination shall then be effective upon written notification from the notifying Party to the breaching Party).

(c) For Bankruptcy. Either Party may terminate this Agreement upon the occurrence of one or more of the following: (i) immediately upon written notice to the other Party in the event such other Party is insolvent or initiates a voluntary proceeding under any applicable bankruptcy law or code; or (ii) immediately upon written notice to the other Party in the event such other Party becomes the subject of an involuntary proceeding under any applicable bankruptcy law or code and such proceeding is not dismissed or stayed within sixty (60) days of its commencement.

(d) For Patent Challenge. Ligand will have the right to terminate this Agreement in full upon written notice to Licensee in the event that Licensee or any of its Affiliates or Sublicensees directly or indirectly asserts a Patent Challenge; *provided*, that with respect to any such Patent Challenge by any non-Affiliate Sublicensee, Ligand will not have the right to terminate this Agreement under this Section 10.2(d) (For Patent Challenge) if Licensee (i) causes such Patent Challenge to be terminated or dismissed or (ii) terminates such Sublicensee's sublicense to the Licensed Patents being challenged by the Sublicensee, in each case within thirty (30) days of Ligand's notice to Licensee under this Section 10.2(d) (For Patent Challenge). In the event Licensee or any of its Affiliates intends to assert a Patent Challenge in any forum, not less than ninety (90) days prior to making any such assertion, Licensee will provide to Ligand a complete written disclosure of each basis known to Licensee and its Affiliates for such assertion. Notwithstanding the foregoing, Ligand's termination right under this Section 10.2(d) (For Patent Challenge) will not apply to any Affiliate of Licensee that first becomes an Affiliate of Licensee after the Effective Date, where such Affiliate of Licensee was undertaking activities in connection with a Patent Challenge prior to such Affiliate first becoming an Affiliate of Licensee; *provided*, *however*, that Licensee causes such Patent Challenge to terminate within forty-five (45) days of such Affiliate first becoming an Affiliate of Licensee.

7.11 Effect of Termination.

(a) Wind-Down. Except as may otherwise be agreed in writing by the Parties, following termination of this Agreement for any reason, Licensee will be responsible at its own expense for an orderly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices and applicable Law, of any then on-going clinical studies hereunder for which it has responsibility. Ligand reserves the right to continue any ongoing clinical studies for any Products at its own expense at such time as Licensee is no longer responsible therefor.

(b) Rights and Obligations.

(1) As of the effective date of a termination of this Agreement for any reason, this Agreement and all rights and licenses granted to Licensee under ARTICLE 2 (LICENSES AND TECHNOLOGY TRANSFER) shall terminate and all rights in the Licensed Technology shall revert to Ligand (except as otherwise provided for in Section 2.3 (Sublicenses)).

(2) In the event that the Agreement is terminated by Ligand pursuant to Sections 10.2(b) (For Material Breach), 10.2(c) (For Bankruptcy), or 10.2(d) (For Patent Challenge) or by Licensee pursuant to Section 10.2(a) (Termination by Licensee for Convenience), (i) Licensee shall return to Ligand the Licensed Know-How and shall transfer to Ligand all then-existing Regulatory Documentation provided by Ligand or its Affiliates together with all of Licensee's rights in any IND and NDA Filings (and any foreign equivalents); (ii) Licensee shall transfer to Ligand copies of all Development data generated by or on behalf of Licensee in connection with a Product (including reports of clinical studies and all other documentation containing or embodying any preclinical, clinical and manufacturing data); (iii) Licensee shall transfer ownership to Ligand of all Regulatory Approval applications and Regulatory Approvals, including any IND and/or NDA for a Product, not then owned by, and otherwise transferred to, Ligand; (iv) Licensee shall promptly notify all applicable Regulatory Authorities of such transfer; (v) Licensee shall promptly execute and deliver any and all documents necessary to effectuate such transfer and otherwise reasonably assist Ligand in effectuating such transfer; and (vi) each Party shall return to the other Party and cease using all Confidential Information of the other; *provided, however,* each Party may retain one (1) copy of such Confidential Information for archival purposes. Additionally, Licensee shall, upon the written request of Ligand, enter into good faith negotiations with Ligand regarding the grant of an exclusive, royalty-bearing, worldwide license under (A) any Licensee Improvements, (B) domain names registered to Licensee or its Affiliates, and (C) trademarks owned by Licensee and/or its Affiliates (but in each case (A), (B) and/or (C), solely if utilized exclusively in connection with a Product and not in connection with Licensee' and/or its Affiliates other products or services).

(3) In the event that the Agreement is terminated by Licensee pursuant to Section 10.2(c) (For Bankruptcy) (i) Licensee shall return to Ligand the Licensed Know-How and shall transfer to Ligand all then-existing Regulatory Documentation provided by Ligand or its Affiliates; and (ii) each Party shall return to the other Party and cease using all Confidential Information of the other; *provided, however,* each Party may retain one (1) copy of such Confidential Information for archival purposes.

(4) In the event that the Agreement is terminated by Licensee pursuant to Section 10.2(a) (Termination by Licensee for Convenience) and the Development Funding Payment has not been paid by Licensee prior to such termination (if applicable), Licensee's obligation to make the Development Funding Payment shall survive termination in accordance with Section 4.2(b) (Development Requirements).

(c) Accrued Rights. Expiration or termination 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 such termination. Such expiration or termination will not relieve a Party from accrued payment obligations or from obligations which are expressly indicated to survive termination of this Agreement.

(d) Survival. In addition to the termination consequences set forth in this Section 10.3 (Effect of Termination), the following provisions will survive expiration or termination of this Agreement for any reason: Articles 1 (DEFINITIONS) (to the extent necessary to give effect to other surviving provisions), 3 (COMPENSATION) (with respect to amounts due prior to or upon such expiration or termination or as otherwise set forth in Section 10.3(b)(4)), 6 (CONFIDENTIALITY) (for the period specified therein), 9 (LIMITATION OF LIABILITY) and 11 (GENERAL PROVISIONS) and Sections 7.4 (Disclaimer), 8.1 (Indemnification by Licensee), 8.2 (Indemnification by Ligand), 8.3 (Procedure), 8.4 (Insurance) (for the period specified therein), and this 10.3 (Effect of Termination).

(e)

GENERAL PROVISIONS

7.12 Entire Agreement. The Parties acknowledge that this Agreement, together with the exhibits and schedules attached hereto, sets forth the entire agreement and understanding of the Parties as to the subject matter hereof, and supersedes all prior and contemporaneous discussions, agreements and writings in respect hereto.

7.13 Modification; Waiver. No waiver, modification, amendment or alteration of any provision of this Agreement will be valid or effective unless made in writing and signed by each of the Parties. The failure of a Party to enforce any rights or provisions of the Agreement shall not be construed to be a waiver of such rights or provisions, or a waiver by such Party to thereafter enforce such rights or provisions or any other rights or provisions hereunder.

7.14 Further Assurances. Each Party agrees to execute, acknowledge, and deliver such further instruments and to do all such other acts as may be necessary or appropriate in order to carry out the express provisions of this Agreement.

7.15 Force Majeure. Neither Party shall be held responsible for any delay or failure in performance hereunder caused by embargoes, unexpected government requirements, civil or military authorities, acts of God, earthquake, or by the public enemy or other causes reasonably beyond such Party's control and without such Party's fault or negligence (collectively, "Force Majeure"); *provided, however*, that the Party so prevented shall continue to take all commercially reasonable actions within its power to comply with its obligations hereunder as fully as possible and to mitigate possible damages. The Party so prevented shall without undue delay notify the other Party in writing thereof. Should the event of Force Majeure continue for more than sixty (60) calendar days, the Parties shall promptly discuss their further performance under this Agreement and whether to modify or terminate this Agreement in view of the effect of the event of Force Majeure. If no agreement can be reached within thirty (30) calendar days after expiration of such sixty (60) day period, the Party not affected by the event of Force Majeure may terminate this Agreement effective immediately upon written notice to the other Party.

7.16 Assignments. Neither this Agreement nor any interest hereunder may be assigned, nor any other obligation delegated, by a Party without the prior written consent of the other Party. Notwithstanding the foregoing, (a) Ligand may monetize the value of its royalty stream and other payments under the Agreement by assigning to a Third Party the right to receive royalties and other payments and right to receive royalty reports from Licensee, *provided* that Ligand gives sixty (60) days' prior written notice to Licensee; and (b) either Party shall have the right to assign this Agreement without consent of the other Party to an Affiliate of the assigning Party or to any successor in interest to the assigning Party by operation of law, merger, consolidation, or other business reorganization or the sale of all or substantially all of its assets relating to the subject matter of this Agreement in a manner such that the assigning Party will remain liable and responsible for the performance and observance of all of its duties and obligations hereunder. This Agreement shall be binding upon successors and permitted assigns of the Parties. Any assignment not in accordance with this Section 11.5 (Assignments) will be null and void.

7.17 Performance by Affiliates. The Parties recognize that each may perform some or all of its obligations under this Agreement through its Affiliates or may exercise some or all of its rights under this Agreement through its Affiliates; *provided*, that each Party shall remain responsible and be the 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; provided, however, that Ligand will first use reasonable efforts to seek payments due under this Agreement from the applicable Affiliate prior to requiring payment from Licensee. In particular and without limitation, all Affiliates of a Party that receive Confidential Information of the other Party pursuant to this Agreement shall be governed and bound by all obligations set forth in ARTICLE 6 (CONFIDENTIALITY). Each Party will prohibit all of its Affiliates from taking any action that such Party is prohibited from taking under this Agreement as if such Affiliates were parties to this Agreement.

7.18 Relationship of the Parties. The Parties shall perform their obligations under this Agreement as independent contractors and nothing in this Agreement is intended or will be deemed to constitute a partnership, agency or employer-employee relationship between the Parties. Neither Party will have any right, power or authority to assume, create, or incur any expense, liability, or obligation, express or implied, on behalf of the other.

7.19 No Use of Names. Except as otherwise required under applicable Law, or as otherwise permitted under Section 6.3 (Public Announcements), neither Party will use the name of the other Party in its advertising, press releases or promotional materials without the prior written consent of such other Party.

7.20 Notices. Any notice, request, delivery, approval or consent required or permitted to be given under this Agreement will be in writing and will be deemed to have been sufficiently given if delivered in person (in which case, it will be effective upon delivery), transmitted by e-mail (delivery and read receipts requested; in which case, it will be effective upon receipt of read receipt) or by express courier service (signature required; in which case, it will be effective two (2) business days after being deposited with such courier service), to the Party to which it is directed at its address or e-mail address shown below, or such other address or e-mail address as such Party will have last given by notice to the other Party.

If to Ligand: Ligand Pharmaceuticals Incorporated
3911 Sorrento Valley Blvd #110

San Diego, CA 92121
Attention: General Counsel
E-Mail: CBerkman@ligand.com

With a copy to (which shall not constitute notice hereunder):

Latham & Watkins LLP
12670 High Bluff Drive
San Diego, CA, 92130
Attention: Steven T. Chinowsky, Esq.
Fax: (858) 523-5450

If to Licensee: Roivant Sciences GmbH
Viaduktstrasse 8

4051 Basel
Switzerland
Attention: Head of Global Transactions
E-Mail: sascha.bucher@roivant.com

With a copy to (which shall not constitute notice hereunder):

Roivant Sciences, Inc.

320 37th Street, 5th Floor
New York, NY 10018 USA
Attn: Legal Department
E-Mail: legal@roivant.com

7.21 Governing Law. The rights and obligations of the Parties under this Agreement shall be governed, and shall be interpreted, construed, and enforced, in all respects by the Law of the State of New York, without giving effect to any conflict of Law rule that would result in the application of the Law of any jurisdiction other than the internal Law of the State of New York to the rights and duties of the Parties.

7.22 Dispute Resolution.

(a) Senior Management. With respect to any disputes between the Parties concerning this Agreement, the dispute shall be submitted to escalating levels of Licensee and Ligand senior management for review. If the dispute cannot be resolved despite such escalation, then the matter may be referred by either Party to the Executive Officers, who must have authority to enter an agreement without further approval required by such Party, to be resolved by negotiation in good faith as soon as is practicable but in no event later than thirty (30) days after referral. Such resolution, if any, by the Executive Officers shall be final and binding on the Parties. If the Executive Officers are unable to resolve such dispute within such thirty (30) day period, each Party may initiate arbitration proceedings in accordance with Section 11.11(b) (Arbitration), *provided* that it has complied with this Section 11.11(a) (Senior Management).

(b) Arbitration. All disputes arising out of or relating to this Agreement, or the rights or obligations of the Parties hereunder, or relating in any way to the relationship between the Parties with respect to LGD-6972 or any Product, shall be finally and exclusively settled by arbitration by a panel of three (3) arbitrators, provided such dispute is not an "Excluded Claim." Each Party shall select one (1) arbitrator, and those two (2) arbitrators shall select the third arbitrator. If the two (2) Party-nominated arbitrators are unable to agree upon the third arbitrator within sixty (60) days, the third arbitrator shall be selected as provided in the AAA Rules. All of the arbitrators shall have significant legal or business experience in pharmaceutical licensing matters. The arbitrators shall not be employees, directors or shareholders of either Party or any of their Affiliates. In any arbitration pursuant to this Agreement, the award or decision shall be rendered by a majority of the members of the panel provided for herein, with each member having one (1) vote. The arbitrators shall have the authority to permit discovery for no more than sixty (60) days, to the extent deemed appropriate by the arbitrators, upon reasonable request of a Party. The arbitrators shall hold proceedings during a period of no longer than forty-five (45) calendar days promptly following conclusion of discovery. The arbitrators shall render a written decision with their resolution of the dispute that shall set forth in reasonable detail the facts of the dispute and the reasons for their decision within four (4) months of the filing of the notice of arbitration, and the arbitrator(s) shall agree to comply with this schedule before accepting appointment. However, this time limit may be extended by agreement of the Parties or by the arbitrator(s) if necessary. The decision of the arbitrators shall be final and non-appealable and binding on the Parties. As used in this Section 11.11(b) (Arbitration), the phrase "**Excluded Claim**" shall mean a dispute, controversy or claim

that concerns (a) the validity or infringement of a patent, trademark or copyright; or (b) any antitrust, anti-monopoly or competition law or regulation, whether or not statutory.

(c) Arbitration Proceeding. The arbitration proceeding shall be conducted under the Commercial Arbitration Rules of the American Arbitration Association ("AAA") with such proceedings to be held in New York, New York, United States. The arbitrators will apply the substantive law specified in Section 11.10 (Governing Law). Judgment upon the award rendered by arbitration may be issued and enforced by any court having competent jurisdiction. The arbitrator's fees and expenses shall be shared equally by the Parties. Each Party shall bear and pay its own expenses incurred in connection with any dispute resolution under this Section 11.11 (Dispute Resolution). The arbitration proceedings and the outcome thereof shall be confidential. Notwithstanding the foregoing, either Party shall have the right, without waiving any right or remedy available to such Party under this Agreement or otherwise, to seek and obtain from any court of competent jurisdiction any interim or provisional relief that is necessary or desirable to protect the rights or property of such Party, pending the selection of the arbitrator hereunder or pending the arbitrator's decision of the dispute subject to arbitration.

7.23 Headings. The article, section and subsection headings contained herein are for the purposes of convenience only and are not intended to define or limit the contents of the articles, sections or subsections to which such headings apply.

7.24 Severability. When possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under Law, but, if any provision of this Agreement is held to be prohibited by or invalid under Law, such provision will be ineffective but only to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or of this Agreement. The Parties will make a good faith effort to replace the invalid or unenforceable provision with a valid one which in its economic effect is most consistent with the invalid or unenforceable provision.

7.25 Counterparts. This Agreement may be executed in counterparts (including by pdf or electronic signature), each of which shall be deemed an original and all of which together shall constitute one instrument.

[*Signature Page Follows*]

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

LIGAND PHARMACEUTICALS INCORPORATED	**ROIVANT SCIENCES GMBH**
("Ligand")	**("Licensee")**
By: /s/ John L. Higgins	By: /s/ Sascha Bucher
Name: John L. Higgins	Name: Sascha Bucher
Title: Chief Executive Officer	Title: VP, Head of Global Transactions

EXHIBIT A

LGD-6972

Chemical structure of LGD-6972

[***]

EXHIBIT B

Licensed Patents

[***]

EXHIBIT C
Captisol® SPECIFICATIONS

[***]

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO EXCHANGE ACT RULE 13a-14(a)/15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, John L. Higgins, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Ligand Pharmaceuticals Incorporated;

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

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

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

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

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

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

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

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

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

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

Date: May 9, 2018

/s/ John L. Higgins

John L. Higgins
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO EXCHANGE ACT RULE 13a-14(a)/15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Matthew Korenberg, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Ligand Pharmaceuticals Incorporated;

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

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

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

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

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

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

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

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

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

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

Date: May 9, 2018

/s/ Matthew Korenberg

Matthew Korenberg
Executive Vice President, Finance and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER

In connection with the Quarterly Report of Ligand Pharmaceuticals Incorporated (the "Company") on Form 10-Q for the quarter ended March 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, John L. Higgins, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

Date: May 9, 2018

/s/ John L. Higgins

John L. Higgins
Chief Executive Officer
(Principal Executive Officer)

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. Section 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing. A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER

In connection with the Quarterly Report of Ligand Pharmaceuticals Incorporated (the "Company") on Form 10-Q for the quarter ended March 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Matthew Korenberg, Vice President, Finance and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

Date: May 9, 2018

/s/ Matthew Korenberg

Matthew Korenberg
Executive Vice President, Finance and Chief Financial Officer
(Principal Financial Officer)

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. Section 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing. A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.