UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

☐ **Quarterly Report Pursuant to Section 13 or 15 (d) of the Securities Exchange Act of 1934**

For the quarterly period ended September 30, 2019

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)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class:	Trading symbol:	Name of each exchange on which registered:
Common Stock , par value $0.001 per share	**LGND**	**The Nasdaq Global Market**

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 every Interactive Data File required to be submitted 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 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	☐	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 November 6, 2019, the registrant had 17,563,389 shares of common stock outstanding.

LIGAND PHARMACEUTICALS INCORPORATED
QUARTERLY REPORT

FORM 10-Q

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GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviation	Definition
2018 Annual Report	Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 28, 2019
2019 Notes	$245.0 million aggregate principal amount of convertible senior unsecured notes due 2019
2023 Notes	$750.0 million aggregate principal amount of convertible senior unsecured notes due 2023
Ab Initio	Ab Initio Biotherapeutics, Inc.
Abvivo	Abvivo, LLC
Amgen	Amgen, Inc.
ANDA	Abbreviated New Drug Application
ASC	Accounting Standards Codification
ASU	Accounting Standards Update
Aziyo	Aziyo Med, LLC
BeiGene	BeiGene Switzerland GmbH
BendaRx	BendaRx Corp.
CE	Captisol-enabled
CEO	Chief Executive Officer
Company	Ligand Pharmaceuticals Incorporated, including subsidiaries
COPD	Chronic obstructive pulmonary disease
CorMatrix	CorMatrix Cardiovascular, Inc.
CVR	Contingent value right
Crystal	Crystal Bioscience, Inc.
CStone Pharmaceuticals	CStone Pharmaceuticals (Suzhou) Co., Ltd.
CyDex	CyDex Pharmaceuticals, Inc.
Dianomi Therapeutics	Dianomi Therapeutics, 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
GigaGen	GigaGen, Inc.
GPCR	G-protein coupled receptor
GRA	Glucagon receptor antagonist
Hikma	Hikma Pharmaceuticals PLC
IPR&D	In-process Research and Development
Kira Pharma	Kira Pharmaceuticals Ltd.
Ligand	Ligand Pharmaceuticals Incorporated, including subsidiaries
Marinus Pharmaceuticals	Marinus Pharmaceuticals, Inc.
Metabasis	Metabasis Therapeutics, Inc.
Metavant	Metavant Sciences
Millennium	Millennium Pharmaceuticals, Inc.
NDA	New Drug Application
Novan	Novan, Inc.
Novartis	Novartis AG
Nucorion Pharmaceuticals	Nucorion Pharmaceuticals, Inc.
Opthea	Opthea Limited
OTTI	Other-than-temporary impairment
PFS	Progression-free Survival
Pfizer	Pfizer Inc.
Q3 2018	The Company's fiscal quarter ended September 30, 2018
Q3 2019	The Company's fiscal quarter ended September 30, 2019
Quadriga Bio	Quadriga Biosciences, Inc.
Retrophin	Retrophin, Inc.
Roivant	Roivant Sciences GMBH

Sage Therapeutics	Sage Therapeutics, Inc.
SEC	Securities and Exchange Commission
Seelos Therapeutics	Seelos Therapeutics, Inc.
Selexis	Selexis, SA
Sermonix Pharmaceuticals	Sermonix Pharmaceuticals, LLC
sNDA	Supplemental New Drug Application
SQ Innovation	SQ Innovation, Inc.
Takeda	Takeda Pharmaceutical Company
Talem Therapeutics	Talem Therapeutics LLC
Teva	Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd. and Actavis, LLC, collectively
Vernalis	Vernalis plc
VDP	Vernalis Design Platform
Verona Pharma	Verona Pharma plc
Viking	Viking Therapeutics, Inc.
WuXi	WuXi Biologics Ireland Limited
YTD	Year-to-date

PART I - FINANCIAL INFORMATION

em 1. Condensed Consolidated Financial Statements

LIGAND PHARMACEUTICALS INCORPORATED
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited, in thousands, except par value)

	September 30, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 225,302	$ 117,164
Short-term investments	874,383	601,217
Investment in Viking	49,856	55,448
Accounts receivable, net	21,958	55,850
Inventory	6,565	7,124
Derivative asset	—	22,576
Other current assets	5,039	11,161
Total current assets	1,183,103	870,540
Deferred income taxes, net	—	46,521
Intangible assets, net	216,268	219,793
Goodwill	93,513	86,646
Commercial license and other economic rights, net	35,413	31,460
Property and equipment, net	6,411	5,372
Operating lease right-of-use assets	10,280	—
Other assets	2,488	471
Total assets	$ 1,547,476	$ 1,260,803
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,040	$ 4,183
Accrued liabilities	13,060	19,200
Income tax payable	16,571	—
Current contingent liabilities	1,794	5,717
Deferred revenue	2,230	3,286
2019 convertible senior notes, net	—	26,433
Derivative liability	—	23,430
Total current liabilities	35,695	82,249
2023 convertible senior notes, net	631,533	609,864
Long-term contingent liabilities	7,995	6,825
Deferred income taxes, net	3,761	—
Long-term operating lease liabilities	9,932	—
Other long-term liabilities	7,979	951
Total liabilities	696,895	699,889
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value; 5,000 shares authorized; none issued and outstanding at September 30, 2019 and December 31, 2018	—	—
Common stock, $0.001 par value; 60,000 shares authorized; 17,563 and 20,766 shares issued and outstanding at September 30, 2019 and December 31, 2018, respectively	17	21
Additional paid-in capital	444,587	791,114
Accumulated other comprehensive loss	(1,493)	(1,024)
Retained earnings (accumulated deficit)	407,470	(229,197)
Total stockholders' equity	850,581	560,914
Total liabilities and stockholders' equity	$ 1,547,476	$ 1,260,803

See accompanying notes to unaudited condensed consolidated financial statements.

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

	Three months ended September 30,		Nine months ended September 30,	
	2019	**2018**	**2019**	**2018**
Revenues:				
Royalties	$ 9,767	$ 36,127	$ 35,931	$ 88,343
Material sales	6,849	7,027	24,357	19,030
License fees, milestones and other revenues	8,192	2,509	32,991	84,490
Total revenues	24,808	45,663	93,279	191,863
Operating costs and expenses:				
Cost of material sales	3,147	1,460	9,410	3,382
Amortization of intangibles	3,552	5,725	10,560	12,309
Research and development	13,742	5,483	37,244	19,023
General and administrative	9,525	9,633	31,607	26,571
Total operating costs and expenses	29,966	22,301	88,821	61,285
Gain from sale of Promacta license	—	—	812,797	—
Income (loss) from operations	(5,158)	23,362	817,255	130,578
Other income (expense):				
Gain (loss) from Viking	(10,520)	62,398	(5,592)	124,206
Interest income	7,396	5,474	22,590	9,111
Interest expense	(8,993)	(11,200)	(26,911)	(28,133)
Other expense, net	(2,596)	(808)	(2,528)	(5,643)
Total other income (loss), net	(14,713)	55,864	(12,441)	99,541
Income (loss) before income taxes	(19,871)	79,226	804,814	230,119
Income tax benefit (expense)	4,620	(11,864)	(168,147)	(44,316)
Net income (loss)	$ (15,251)	$ 67,362	$ 636,667	$ 185,803
Basic net income (loss) per share	$ (0.81)	$ 3.19	$ 32.51	$ 8.77
Shares used in basic per share calculations	18,770	21,148	19,586	21,189
Diluted net income (loss) per share	$ (0.81)	$ 2.80	$ 31.29	$ 7.61
Shares used in diluted per share calculations	18,770	24,052	20,349	24,430

See accompanying notes to unaudited condensed consolidated financial statements.

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

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net income (loss):	$ (15,251)	$ 67,362	$ 636,667	$ 185,803
Unrealized net gain (loss) on available-for-sale securities, net of tax	(187)	87	546	73
Foreign currency translation	(764)	—	(1,015)	—
Comprehensive income (loss)	$ (16,202)	$ 67,449	$ 636,198	$ 185,876

See accompanying notes to unaudited condensed consolidated financial statements.

LIGAND PHARMACEUTICALS INCORPORATED
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)
(in thousands)

	Common Stock		Additional paid in capital	Accumulated other comprehensive income (loss)	Retain earnings (Accumulated deficit)	Total stockholders' equity
	Shares	Amount				
Balance at January 1, 2019	20,765	$ 21	$ 791,114	$ (1,024)	$ (229,197)	$ 560,914
Issuance of common stock under employee stock compensation plans, net	135	—	(991)	—	—	(991)
Share-based compensation	—	—	5,347	—	—	5,347
Repurchase of common stock	(1,236)	(1)	(151,584)	—	—	(151,585)
Unrealized net gain on available-for-sale securities, net of deferred tax	—	—	—	230	—	230
Foreign currency translation adjustment	—	—	—	291	—	291
Other tax adjustments	—	—	(569)	—	—	(569)
Net income	—	—	—	—	666,337	666,337
Balance at March 31, 2019	19,664	$ 20	$ 643,317	$ (503)	$ 437,140	$ 1,079,974
Issuance of common stock under employee stock compensation plans, net	17	—	740	—	—	740
Share-based compensation	—	—	6,571	—	—	6,571
Repurchase of common stock	(291)	(1)	(33,716)	—	—	(33,717)
Unrealized net gain on available-for-sale securities, net of deferred tax	—	—	—	503	—	503
Foreign currency translation adjustment	—	—	—	(542)	—	(542)
Other tax adjustments	—	—	2,343	—	—	2,343
Net loss	—	—	—	—	(14,419)	(14,419)
Balance at June 30, 2019	19,390	$ 19	$ 619,255	$ (542)	$ 422,721	$ 1,041,453
Issuance of common stock under employee stock compensation plans, net	7	—	199	—	—	199
Share-based compensation	—	—	6,297	—	—	6,297
Repurchase of common stock	(1,834)	(2)	(181,186)	—	—	(181,188)
Unrealized net loss on available-for-sale securities, net of deferred tax	—	—	—	(187)	—	(187)
Foreign currency translation adjustment	—	—	—	(764)	—	(764)
Other tax adjustments	—	—	22	—	—	22
Net loss	—	—	—	—	(15,251)	(15,251)
Balance at September 30, 2019	17,563	$ 17	$ 444,587	$ (1,493)	$ 407,470	$ 850,581

	Common Stock		Additional paid in capital	Accumulated other comprehensive income (loss)	Accumulated deficit	Total stockholders' equity
	Shares	Amount				
Balance at January 1, 2018	21,149	$ 21	$ 798,205	$ 2,486	$ (400,924)	$ 399,788
Issuance of common stock under employee stock compensation plans, net	166	1	5,118	—	—	5,119
Reclassification of equity component of currently redeemable convertible notes	—	—	2,781	—	—	2,781
Share-based compensation	—	—	4,555	—	—	4,555
Repurchase of common stock	(13)	(1)	(1,894)	—	—	(1,895)
Unrealized net loss on available-for-sale securities, net of deferred tax	—	—	—	(110)	—	(110)
Cumulative-effect adjustment from adoption of ASU 2016-01	—	—	—	(2,662)	2,662	—
Cumulative-effect adjustment from adoption of ASU 2014-09, net of tax	—	—	—	—	25,583	25,583
Net income	—	—	—	—	45,279	45,279
Balance at March 31, 2018	21,302	$ 21	$ 808,765	$ (286)	$ (327,400)	$ 481,100
Issuance of common stock under employee stock compensation plans, net	60	—	3,296	—	—	3,296
Reclassification of equity component of currently redeemable convertible notes	—	—	16,078	—	—	16,078
Share-based compensation	—	—	4,812	—	—	4,812
Repurchase of common stock	(267)	—	(50,832)	—	—	(50,832)
Unrealized net loss on available-for-sale securities, net of deferred tax	—	—	—	(495)	—	(495)
Derivative associated with 2019 Notes and Bond Hedge	—	—	(1,559)	—	—	(1,559)
Loss on settlement of 2019 Notes	—	—	590	—	—	590
Tax effect on 2019 Notes transactions	—	—	67	—	—	67
Derivative associated with 2023 Notes and Bond Hedge	—	—	(1,807)	—	—	(1,807)
Warrant derivative in connection with 2023 Notes	—	—	97,805	—	—	97,805
Tax effect for 2023 Notes transactions	—	—	(3,240)	—	—	(3,240)
Other tax adjustments	—	—	208	630	—	838
Net income	—	—	—	—	73,160	73,160
Balance at June 30, 2018	21,095	$ 21	$ 874,183	$ (151)	$ (254,240)	$ 619,813
Issuance of common stock under employee stock compensation plans, net	131	—	6,788	—	—	6,788
Share-based compensation	—	—	5,470	—	—	5,470
Other comprehensive income	—	—	—	87	—	87
Other tax adjustments	—	—	(2,964)	—	2,964	—
Net income	—	—	—	—	67,362	67,362
Balance at September 30, 2018	21,226	21	883,477	(64)	(183,914)	699,520

See accompanying notes to unaudited condensed consolidated financial statements.

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

	Nine months ended September 30,	
	2019	**2018**
Cash flows from operating activities:		
Net income	$ 636,667	$ 185,803
Adjustments to reconcile net income to net cash provided by operating activities:		
Gain from sale of Promacta license	(812,797)	—
Non-cash change in estimated fair value of contingent liabilities	762	3,637
Depreciation and amortization	12,560	11,421
Amortization of discount on investments, net	(7,477)	(3,780)
Amortization of debt discount and issuance fees	22,562	25,155
Amortization of other economic rights	9,135	—
Share-based compensation	18,215	14,837
Deferred income taxes	57,766	44,149
Loss (gain) from investment in Viking	5,592	(121,679)
Other	(1,249)	(976)
Royalties recorded in retained earnings upon adoption of ASC 606	—	32,707
Changes in operating assets and liabilities, net of effects from acquisition:		
Accounts receivable, net	33,892	(21,380)
Inventory	(1,500)	(3,763)
Accounts payable and accrued liabilities	(3,374)	(42)
Income tax payable	16,571	—
Other economic rights	(12,000)	—
Other	2,678	(4,602)
Net cash provided by (used in) operating activities	(21,997)	161,487
Cash flows from investing activities:		
Proceeds from sale of Promacta license	812,797	—
Purchase of short-term investments	(1,682,586)	(1,158,290)
Proceeds from sale of short-term investments	144,182	75,993
Proceeds from maturity of short-term investments	1,274,851	381,690
Cash paid for acquisition, net of cash acquired	(11,840)	—
Cash paid for equity method investment	(1,000)	—
Other	(6,307)	2,036
Net cash provided by (used in) investing activities	530,097	(698,571)
Cash flows from financing activities:		
Repayment of debt	(27,323)	(21,785)
Gross proceeds from issuance of 2023 Notes	—	750,000
Payment of debt issuance costs	—	(16,900)
Proceeds from issuance of warrants	—	90,000
Purchase of convertible bond hedge	—	(140,250)
Proceeds from convertible bond hedge settlement	12,401	52,129
Payments to convert holders for bond conversion	(12,401)	—
Net proceeds from stock option exercises and ESPP	2,856	18,860
Taxes paid related to net share settlement of equity awards	(2,906)	(3,657)
Share repurchase	(371,106)	(52,727)
Payments to CVR Holders	(3,000)	—
Net cash provided by (used in) financing activities	(401,479)	675,670
Effect of exchange rate changes on cash	(88)	—
Net increase in cash, cash equivalents and restricted cash	106,533	138,586
Cash, cash equivalents and restricted cash at beginning of period	119,780	20,620
Cash, cash equivalents and restricted cash at end of period	$ 226,313	$ 159,206

Supplemental disclosure of cash flow information:				
Interest paid	$	3,015	$	1,513
Taxes paid	$	93,817	$	341
Restricted cash in other current assets	$	1,011	$	—
Supplemental schedule of non-cash activity:				
Accrued fixed asset purchases	$	—	$	4
Unrealized gain on AFS investments	$	699	$	—
Excess of conversion value over the principal amount of 2019 Notes paid in shares	$	—	$	(31,571)
Value of shares reacquired under convertible bond hedge transaction entered into with 2019 Notes	$	—	$	31,571

See accompanying notes to unaudited condensed consolidated financial statements.

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

Unless the context requires otherwise, references in this report to "Ligand," "we," "us," the "Company," and "our" refer to Ligand Pharmaceuticals Incorporated and its consolidated subsidiaries.

1. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation

Our 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 our 2018 Annual Report. Interim financial results are not necessarily indicative of the results that may be expected for the full year.

Reclassifications

Certain amounts in the prior period consolidated financial statements have been reclassified to conform with the current period presentation. Specifically, our investment in Viking warrants was reclassified from "other current assets" to "investment in Viking" in the audited consolidated balance sheet as of December 31, 2018.

Prior Period Immaterial Error

During the second quarter of 2019, in connection with the preparation of our condensed consolidated statement of cash flows for the six months ended June 30, 2019, an immaterial error was identified in our condensed consolidated statement of cash flows for the three months ended March 31, 2019 by including a $4.6 million accrued liability for the share repurchase as of December 31, 2018 that was paid during the first quarter of 2019 in the cash flows for operating activities instead of financing activities. Our condensed consolidated statement of cash flows for the three months ended March 31, 2019 understated cash flows provided by operating activities by $4.6 million and understated cash flows used in financing activities by $4.6 million. We evaluated the materiality of the error considering both quantitative and qualitative factors as required by authoritative guidance and determined the related impact was not material to our previously issued condensed consolidated financial statements. The immaterial error has been corrected in our condensed consolidated statement of cash flows for the six months ended June 30, 2019 included in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2019. The immaterial error did not impact our condensed consolidated balance sheet as of March 31, 2019, nor did it impact our condensed consolidated statements of operations, comprehensive income or equity for the three months ended March 31, 2019.

Significant Accounting Policies

We have described our significant accounting policies in *Note 1, Basis of Presentation and Summary of Significant Accounting Policies*, of Notes to Consolidated Financial Statements in our 2018 Annual Report.

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

Leases - In February 2016, the FASB issued ASU 2016-02,*Leases (Topic 842)*. This standard requires organizations that lease assets to recognize the assets and liabilities created by those leases. The standard also requires disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. In 2018, the FASB issued guidance that provides an optional transition method for adoption of this standard, which allows organizations to initially apply the new requirements at the effective date, recognize a cumulative effect adjustment to the opening balance of retained earnings, and continue to apply the legacy guidance in ASC 840, *Leases (Topic 840)*, including its disclosure

requirements, in the comparative periods presented. We adopted this standard on January 1, 2019 by applying this optional transition method. For leases with a term of 12 months or less, we elected to not recognize lease assets and lease liabilities and expense the leases over a straight-line basis for the term of those leases. In addition, we elected the available package of practical expedients upon adoption, which allowed us to carry forward our historical assessment of whether existing agreements contained a lease and the classification of our existing operating leases. We did not elect to use the hindsight practical expedient to determine the lease term or evaluate impairment for existing leases. We continue to report our financial position as of December 31, 2018 under Topic 840 in our audited consolidated balance sheet. The adoption of this standards update resulted in the recognition of right-of-use assets of approximately $5.2 million and lease liabilities of approximately $5.9 million on our unaudited condensed consolidated balance as of January 1, 2019, with no material impact to our consolidated statement of operations. See *Note 9, Leases*, for further information regarding the impact of the adoption of ASU 2016-02 on our financial statements.

Accounting Standards Not Yet Adopted

Financial Instruments - In June 2016, the FASB issued ASU 2016-13,*Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments (Topic 326)*, 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. ASU 2016-13 is effective for us beginning in the first quarter of 2020, with early adoption permitted. We are currently evaluating the impact of this ASU on our consolidated financial statements. This standard includes our financial instruments, such as accounts receivable, investments that are generally of high credit quality, and commercial license rights. Previously, when credit losses were measured under GAAP, an entity generally only considered past events and current conditions in measuring the incurred loss. The new guidance requires us to identify, analyze, document and support new methodologies for quantifying expected credit loss estimates for our financial instruments, using information such as historical experience and current economic conditions, plus the use of reasonable supportable forecast information.

Goodwill Impairment Testing - In January 2017, the FASB issued ASU 2017-04,*Simplifying the Test for Goodwill Impairment,* which eliminates the requirement to perform a hypothetical purchase price allocation to measure goodwill impairment. Under the new standard the goodwill impairment test is performed by comparing the fair value of a reporting unit with its carrying amount, and recognizing an impairment charge for the amount by which the carrying amount of the reporting unit exceeds its fair value, although it cannot exceed the total amount of goodwill allocated to that reporting unit. This standard is effective for us beginning in the first quarter of 2020, with earlier adoption permitted. We do not expect the adoption to have a material impact on our consolidated financial statements.

Fair Value Measurement - In August 2018, the FASB issued ASU 2018-13,*Fair Value Measurement: Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement (Topic 820)*, which modifies the disclosure requirements on fair value measurements. ASU 2018-13 is effective for us beginning in the first quarter of 2020, with earlier adoption permitted. We are currently evaluating the impact of this ASU on our consolidated financial statements.

Collaborative Arrangements - In November 2018, the FASB issued ASU 2018-18,*Collaborative Arrangements: Clarifying the Interaction between Topic 808 and Topic 606 (Topic 808)*. The new standard clarifies that certain transactions between participants in a collaborative arrangement should be accounted for under Topic 606,*Revenue from Contracts with Customers*, when the counterparty is a customer for a good or service that is a distinct unit of account. The amendments also preclude entities from presenting consideration from transactions with a collaborator that is not a customer together with revenue recognized from contracts with customers. The new standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted in any interim period for entities that have adopted ASC 606. The standard should be applied retrospectively to the period when we initially adopted ASC 606. We do not expect the adoption of this standard to have a material impact on our 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 our partners, Captisol material sales, license fees and development, regulatory and sales based milestone payments, and other service revenue.

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 our 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 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 material 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 and certain service revenue, we generally receive payment at the point we satisfy our obligation or soon after. Therefore, we do not generally carry a contract asset balance. Any fees billed in advance of being earned are recorded as deferred revenue. During the three and nine months ended September 30, 2019, the amount recognized as revenue that was previously deferred was $1.0 million and $5.0 million, respectively. During the three and nine months ended September 30, 2018, the amount recognized as revenue that was previously deferred was not material.

Disaggregation of Revenue

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

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Royalties				
Promacta	$ —	$ 27,812	$ 14,193	$ 68,191
Kyprolis	7,602	6,286	16,317	14,411
Evomela	1,515	1,356	3,570	4,116
Other	650	673	1,851	1,625
	$ 9,767	$ 36,127	$ 35,931	$ 88,343
Material Sales				
Captisol	$ 6,849	$ 7,027	$ 24,357	$ 19,030
License fees, milestones and other				
License Fees	$ 243	$ 265	$ 3,083	$ 75,201
Milestone	4,790	1,308	20,897	6,052
Other	3,159	936	9,011	3,237
	$ 8,192	$ 2,509	$ 32,991	$ 84,490
Total	$ 24,808	$ 45,663	$ 93,279	$ 191,863

Short-term Investments

Our investments consist of the following at September 30, 2019 and December 31, 2018 (in thousands):

	September 30, 2019				December 31, 2018			
	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	$ 490,828	$ 294	$ (11)	$ 491,111	$ 311,066	$ 26	$ (29)	$ 311,063
Corporate bonds	58,581	240	—	58,821	53,223	1	(45)	53,179
Commercial paper	322,160	86	(29)	322,217	225,731	8	(76)	225,663
U.S. Government bonds	—	—	—	—	7,982	—	(9)	7,973
Municipal bonds	—	—	—	—	2,017	—	(4)	2,013
Corporate equity securities[1]	4,505	325	(2,661)	2,169	135	1,191	—	1,326
Warrants	—	65	—	65	—	—	—	—
	$ 876,074	$ 1,010	$ (2,701)	$ 874,383	$ 600,154	$ 1,226	$ (163)	$ 601,217

(1) The amortized cost for corporate equity securities represents the original purchase cost of the equity securities.

Inventory

Inventory, which consists of finished goods, is stated at the lower of cost or net realizable value. We determine cost using the first-in, first-out method or the specific identification method.

Goodwill and Other Identifiable Intangible Assets

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

	September 30, 2019	December 31, 2018
Goodwill	$ 93,513	$ 86,646
Definite lived intangible assets		
Complete technology	242,813	235,413
Less: accumulated amortization [(1)]	(44,786)	(35,070)
Trade name	2,642	2,642
Less: accumulated amortization	(1,147)	(1,048)
Customer relationships	29,600	29,600
Less: accumulated amortization	(12,854)	(11,744)
Total goodwill and other identifiable intangible assets, net	$ 309,781	$ 306,439

(1) accumulated amortization for complete technology includes immaterial amount of foreign currency translation adjustments for the complete technology acquired from the Vernalis acquisition.

Commercial License and Other Economic Rights

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

	September 30, 2019	December 31, 2018
Aziyo and CorMatrix	$ 17,696	$ 17,696
Novan	12,000	—
Palvella	10,000	10,000
Selexis	8,602	8,602
Dianomi	2,000	—
	50,298	36,298
Less: accumulated amortization attributed to principal or research and development	(14,885)	(4,838)
Total commercial license and other economic rights, net	$ 35,413	$ 31,460

Commercial license and other economics rights represent a portfolio of future milestone and royalty payment rights acquired from Selexis in April 2013 and April 2015, CorMatrix in May 2016, Palvella in December 2018, Dianomi in January 2019 and Novan in May 2019. Commercial license rights acquired are accounted for as financial assets and other economic rights are accounted for as funded research and developments as further discussed below.

In May 2017, we entered into a Royalty Agreement with Aziyo pursuant to which we will receive royalties from certain marketed products that Aziyo acquired from CorMatrix. We account for the Aziyo commercial license right as a financial asset, and in accordance with ASC 310, *Receivables*, we amortize the commercial license right using the effective interest method whereby we forecast 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 September 30, 2019 is 23%. Revenue is calculated by multiplying the carrying value of the commercial license right by the effective interest.

In December 2018, we entered into a development funding and royalties agreement with Palvella. Pursuant to the agreement, we may receive up to $8.0 million of milestone payments upon the achievement by Palvella of certain corporate, financing and regulatory milestones for PTX-022, a product candidate being developed to treat pachyonychia congentia. In addition to the milestone payments, Palvella will pay us tiered royalties from 5.0% to 9.8% based on any aggregate annual worldwide net sales of any PTX-022 products, subject to Palvella's right to reduce the royalty rates by making payments in certain circumstances. We paid Palvella an upfront payment of $10.0 million, which Palvella is required to use to fund the development of PTX-022. We are not obligated to provide additional funding to Palvella for the development or commercialization of PTX-022. We determined the economic rights related to Palvella should be characterized as a funded research and development arrangement, thus we account for it in accordance with ASC 730-20, *Research and Development Arrangements*, and will reduce our asset as the funds are expended by Palvella. We will evaluate the remaining asset basis for impairment on an ongoing basis. As it is

anticipated, prior to the receipt of any payments from Palvella that the cost basis will be reduced to zero, we will recognize milestones and royalties as revenue when earned.

In May 2019, we entered into a development funding and royalties agreement with Novan, pursuant to which we will receive certain payments at specified milestones, as well as royalties on any future net sales of SB206, a product candidate being developed to treat molluscum contagiosum, and any other Novan products used for the treatment of molluscum ("Novan Molluscum Products"). We paid Novan an upfront payment of $12.0 million, which Novan is required to use to fund the development of SB206. We are not obligated to provide additional funding to Novan for the development or commercialization of SB206. Pursuant to the agreement, we will receive up to $20.0 million of milestone payments upon the achievement by Novan of certain regulatory milestones for SB206 or any other Novan Molluscum Product and commercial milestones. In addition to the milestone payments, Novan will pay us tiered royalties from 7.0% to 10.0% based on aggregate annual net sales of SB206 or any other Novan Molluscum Product in North America. We determined the economic rights related to Novan should be characterized as a funded research and development arrangement, thus we account for it in accordance with ASC 730-20 and will reduce our asset as the funds are expended by Novan. We will evaluate the remaining asset basis for impairment on an ongoing basis.

See further detail described in *Note 1, Basis of Presentation and Summary of Significant Accounting Policies*, of Notes to Consolidated Financial Statements in our 2018 Annual Report.

Viking

Our equity ownership interest in Viking decreased in the first quarter of 2018 to approximately12.4% due to Viking's financing events in February 2018. As a result, in February 2018, we concluded that we did not exert significant influence over Viking and discontinued accounting for our investment in Viking under the equity method. As of September 30, 2019 and December 31, 2018, we recorded our common stock of Viking at fair value of $41.5 million and $46.2 million, respectively, in "investment in Viking" in our consolidated balance sheets. We also have outstanding warrants to purchase 1.5 million shares of Viking's common stock at an exercise price of $1.50 per share. We recorded the warrants in "investment in Viking" in our condensed consolidated balance sheet at fair value of $8.3 million at September 30, 2019. Our investment in Viking warrants in the amount of $9.3 million was reclassified from "other current assets" to "investment in Viking" in the audited consolidated balance sheet as of December 31, 2018 to conform to the current period presentation.

Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	September 30, 2019	December 31, 2018
Compensation	$ 3,605	$ 4,045
Professional fees	771	942
Amounts owed to former licensees	367	428
Royalties owed to third parties	1,049	1,025
Payments due to broker for share repurchases	—	4,613
Return reserve	3,157	3,590
Restructuring	7	1,093
Current operating lease liabilities	926	—
Other	3,178	3,464
Total accrued liabilities	$ 13,060	$ 19,200

Share-Based Compensation

Share-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 share-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 September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Share-based compensation expense as a component of:				
Research and development expenses	$ 2,481	$ 2,257	$ 7,136	$ 6,120
General and administrative expenses	3,816	3,213	11,079	8,717
	$ 6,297	$ 5,470	$ 18,215	$ 14,837

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 September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Risk-free interest rate	1.6%	N/A	2.4%	2.8%
Dividend yield	—	N/A	—	—
Expected volatility	41%	N/A	43%	34%
Expected term	5.3	N/A	5.2	5.7

Derivatives

On May 22, 2018, we amended our 2019 Notes making an irrevocable election to settle the entire note in cash. As a result, we reclassified from equity to derivative liability the fair value of the conversion premium as of May 22, 2018. Amounts paid in excess of the principal amount would be offset by an equal receipt of cash under the corresponding convertible bond hedge. As a result, we reclassified from equity to derivative asset the fair value of the bond hedge as of May 22, 2018. Changes in the fair value of these derivatives are reflected in other expense, net, in our condensed consolidated statements of operations.

In connection with the payoff of the 2019 Notes on August 15, 2019, the bond hedge was settled and accordingly, the derivative asset and derivative liability were settled to zero. See *Note 5, Convertible Senior Notes*, for further information.

Net Income (loss) Per Share

Basic net income (loss) per share is calculated by dividing net income (loss) by the weighted-average number of common shares outstanding during the period. Diluted net 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.

All of the 0.7 million weighted average shares of outstanding equity awards as of September 30, 2019 were anti-dilutive due to the net loss for the three months ended September 30, 2019.

Potentially dilutive common shares consist of shares issuable under 2019 Notes and 2023 Notes, stock options and restricted stock. 2019 Notes and 2023 Notes have a dilutive impact when the average market price of our common stock exceeds the applicable conversion price of the respective notes. It is our intent and policy to settle conversions through combination settlement, which involves payment in cash equal to the principal portion and delivery of shares of common stock for the excess of the conversion value over the principal portion. In addition, after May 22, 2018, the 2019 Notes can only be settled in cash and therefore there has been no further impact on income per share of these notes since then. 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, the following amounts are assumed to be used to repurchase shares: proceeds from exercise of stock options and the average amount of unrecognized compensation expense for the awards.

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

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Weighted average shares outstanding:	18,770	21,148	19,586	21,189
Dilutive potential common shares:				
Restricted stock	—	83	35	69
Stock options	—	1,248	728	1,167
2019 Convertible Senior Notes	—	—	—	924
Warrants	—	1,573	—	1,081
Shares used to compute diluted income per share	18,770	24,052	20,349	24,430
Potentially dilutive shares excluded from calculation due to anti-dilutive effect	11,549	3,126	8,694	1,789

2. Sale of Promacta License

On March 5, 2019, we entered into an Asset Purchase Agreement (the "Asset Purchase Agreement") with RPI Finance Trust ("RPI"), doing business as "Royalty Pharma", who is not an affiliate. Under the Asset Purchase Agreement, we sold, transferred, assigned and conveyed to RPI, and RPI purchased, acquired and accepted from us, all of our rights, title and interest in and to the Purchased Assets, which include among other things the intellectual property and related know-how generated by us in connection with the license agreement (collectively, the "Purchased Assets"), dated December 29, 1994, by and between Novartis (as successor in interest to SmithKline Beecham Corporation) and Ligand, which allowed us to receive a royalty on net sales of Promacta. We concluded the sale does not qualify as a sale of a business, but as a sale of a non-financial asset. At the closing on March 6, 2019, RPI paid us $827.0 million in cash and we do not have any remaining performance obligations related to Novartis or RPI for Promacta. The carrying value of our Promacta asset as of March 6, 2019 was zero. Of the total cash proceeds from the sale, $14.2 million was recorded to revenue related to the Promacta royalty for the period between January 1, 2019 and March 6, 2019, and the remaining $812.8 million was recorded to income from operations in accordance with ASC 610-20, *Other Income - Gains and Losses from the Derecognition of Nonfinancial Assets*.

3. Fair Value Measurements

Assets and Liabilities Measured on a Recurring Basis

The following table presents the hierarchy for our assets and liabilities measured at fair value (in thousands):

	September 30, 2019				December 31, 2018			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Short-term investments[1]	2,171	872,147	65	874,383	1,326	599,891	—	601,217
Investment in Viking common stock	41,542	—	—	41,542	46,191	—	—	46,191
Investment in Viking warrants [2]	8,314	—	—	8,314	9,257	—	—	9,257
Total assets	$ 52,027	$ 872,147	$ 65	$ 924,239	$ 56,774	$ 599,891	$ —	$ 656,665
Liabilities:								
Crystal contingent liabilities[3]	$ —	$ —	$ 1,826	$ 1,826	$ —	$ —	$ 6,477	$ 6,477
CyDex contingent liabilities	—	—	465	465	—	—	514	514
Metabasis contingent liabilities[4]	—	7,498	—	7,498	—	5,551	—	5,551
Amounts owed to former licensor	61	—	—	61	199	—	—	199
Total liabilities	$ 61	$ 7,498	$ 2,291	$ 9,850	$ 199	$ 5,551	$ 6,991	$ 12,741

1. Short-term investments in marketable debt securities with original maturities greater than 90 days are classified as available-for-sale securities based on management's intentions and are at 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. We have classified marketable securities with original maturities of greater than one year as short-term investments based upon our ability and intent to use any and all of those marketable securities to satisfy the liquidity needs of our current operations. In addition, we have investment in warrants resulting from Seelos milestone payments that were settled in shares during the first quarter of 2019 and are at level 3 of the fair value hierarchy, based on intrinsic value estimated by management as of September 30, 2019.
2. Investment in warrants, which we received as a result of Viking's partial repayment of the Viking note receivable and our 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 "Gain (loss) from Viking" in our condensed consolidated statement of operations.
3. 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. During the three months ended September 30, 2019, we paid a $3.0 million contingent liability on development milestones to former Crystal shareholders. At September 30, 2019, most of the development and regulatory milestones were estimated to be highly probable of being achieved by 2019. Changes in these estimates may materially affect the fair value.
4. In connection with our acquisition of Metabasis in January 2010, we issued Metabasis stockholders four tradable CVRs, one CVR from each of four respective series of CVR, for each Metabasis share. The CVRs entitle Metabasis stockholders to cash payments as frequently as every six months as cash is received by us from proceeds from the sale or partnering of any of the Metabasis drug development programs, among other triggering events. The liability for the CVRs is determined using quoted prices in a market that is not active for the underlying CVR. The carrying amount of the liability may fluctuate significantly based upon quoted market prices and actual amounts paid under the agreements may be materially different than the carrying amount of the liability. Several of the Metabasis drug development programs have been outlicensed to Viking, including VK2809. VK2809 is a novel selective TR-β agonist with potential in multiple indications, including hypercholesterolemia, dyslipidemia, NASH, and X-ALD. Under the terms of the agreement with Viking, we may be entitled to up to $375 million of development, regulatory and commercial milestones and tiered royalties on potential future sales including a $10 million payment upon initiation of a Phase 3 clinical trial. Another Metabasis drug development program, RVT-1502, has been outlicensed to Metavant. RVT-1502 is a novel, orally-bioavailable, small molecule, glucagon receptor antagonist or "GRA."

For the first quarter of 2019, we reduced the contingent liabilities associated with Crystal by $1.5 million based on management's estimates of timing and probability of achievement of certain milestones and revenue thresholds. We made $1.0 million and $3.0 million payments to the former shareholders of Crystal during the first quarter of 2018 and third quarter of 2019, respectively. Other than the payments mentioned, there was no significant change to the fair value of Crystal and CyDex during the third quarter of 2019 or 2018.

Assets Measured on a Non-Recurring Basis

We apply fair value techniques on a non-recurring basis associated with valuing potential impairment losses related to our goodwill, indefinite-lived intangible assets and long-lived assets.

We evaluate goodwill and indefinite-lived intangible assets annually for impairment and whenever circumstances occur indicating that goodwill might be impaired. We determine the fair value of our reporting unit based on a combination of inputs, including the market capitalization of Ligand, as well as Level 3 inputs such as discounted cash flows, which are not observable from the market, directly or indirectly. We determine the fair value of our indefinite-lived intangible assets using the income approach based on Level 3 inputs.

There were no triggering events identified and no indication of impairment of our goodwill, indefinite-lived intangible assets, or long-lived assets during the nine months ended September 30, 2019. Other than a certain indefinite-lived intangible asset, there were no indication of impairment of our goodwill, indefinite-lived intangible assets, or long-lived assets during the nine months ended September 30, 2018.

4. Business Combination

On July 23, 2019, we acquired privately-held Ab Initio Biotherapeutics, Inc., an antigen-discovery company located in South San Francisco, California. The transaction was accounted for as a business combination. We applied the acquisition method of accounting. Accordingly, we recorded the tangible and intangible assets acquired and liabilities assumed at their estimated fair values as of the acquisition date. We did not incur any material acquisition related costs.

The initial purchase price of $12.0 million included $11.86 million cash consideration paid upon acquisition, and $0.15 million cash holdback for potential indemnification claims. As the acquisition is not considered significant, pro forma information has not been provided. The results of Ab Initio have been included in our results of operations since the date of acquisition.

The preliminary allocation of the purchase price consisted of (1) $0.03 million of fair value of tangible assets acquired, (2) $(0.06) million of liabilities assumed, (3) $7.4 million of acquired technologies, (4) $(1.0) million of deferred tax liability in connection with the acquired intangibles, and (5) $5.7 million of goodwill, none of which is deductible for tax purposes. The fair value of the core technology was based on the discounted cash flow method that estimated the present value of the potential royalties, milestones, and collaboration revenue streams derived from the licensing of the related technologies. These projected cash flows were discounted to present value using a discount rate of 12%. The fair value of the core technology is being amortized on a straight-line basis over the weighted average estimated useful life of the approximately 20 years.

The preliminary purchase price allocation falls within the measurement period and therefore we may adjust these provisional amounts to reflect new information obtained about facts and circumstances that exists as of the acquisition date.

5. Convertible Senior Notes

0.75% Convertible Senior Notes due 2019

In August 2014, we issued $245.0 million aggregate principal amount of 2019 Notes. The implied estimated effective rate of the liability component of the 2019 Notes was 5.83% and were convertible into common stock at an initial conversion rate of 13.3251 shares per $1,000 principal amount of 2019 Notes, subject to adjustment upon certain events, which was equivalent to an initial conversion price of approximately $75.05 per share of common stock. The notes accrued cash interest at a rate of 0.75% per year, payable semi-annually.

Holders of the 2019 Notes could have converted 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 our 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 our 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.

On May 22, 2018, we entered into a supplemental indenture whereby we made an irrevocable election to settle the entire 2019 Notes in cash. As such, we would have been required to deliver cash to settle the principal and any premium due upon conversion. As a result of the requirement to deliver cash to settle any premium due upon conversion, on May 22, 2018, we reclassified from equity to liability the conversion option fair value of $341.6 million. In accordance with ASC 815, *Derivatives and Hedging*, the derivative was adjusted to its fair value as of September 30, 2018 of $563.2 million with the resulting $161.9 million and $221.6 million increase reflected in other expense, net, in our condensed consolidated statement of operations for the three and nine months ended September 30, 2018.

In March and April 2018, we received notices for conversion of $21.8 million of principal amount of the 2019 Notes which were settled in May and June 2018. We paid noteholders the conversion value of the notes in cash, up to the principal amount of the 2019 Notes. The excess of the conversion value over the principal amount, totaling $31.6 million, was paid in shares of common stock. This equity dilution upon conversion of the 2019 Notes was offset by the reacquisition of the shares under the convertible bond hedge transactions entered into in connection with the offering of the 2019 Notes as further discussed below. As a result of the conversions, we recorded a $0.6 million loss on extinguishment of debt calculated as the difference between the estimated fair value of the debt and the carrying value of the 2019 Notes as of the settlement dates.

In July and August 2018, we received notices for conversion of $195.9 million of principal amount of the 2019 Notes which were settled in October and November 2018. We paid the noteholders (1) the $195.9 million principal amount, and (2) the excess of conversion value over the principal portion in an amount of $439.6 million in cash.

In June 2019, we received notices for conversion of $1.0 million of principal amount of the 2019 Notes, which were settled in cash upon the 2019 Notes' maturity date in August 2019. As a result, we paid the noteholders (1) the $1.0 million principal amount, and (2) the excess of conversion value over the principal portion in an amount of $0.5 million in cash.

On August 15, 2019, the 2019 Notes maturity date, we paid the noteholders the remaining $26.3 million principal amount and $11.9 million bond premium, which was classified as a derivative liability, in cash. We recorded the decrease in fair value of the derivative liability of $1.9 million and $11.0 million in other expense, net, in our condensed consolidated statements of operations for the three and nine months ended September 30, 2019, respectively.

Convertible Bond Hedge and Warrant Transactions

In August 2014, we entered into convertible bond hedges and sold warrants covering 3,264,643 shares of our common stock to minimize the impact of potential dilution to our stockholders and/or offset the cash payments we are required to make in excess of the principal amount upon conversion of the 2019 Notes.

The convertible bond hedges have an exercise price of $75.05 per share and were exercisable when and if the 2019 Notes were converted. If upon conversion of the 2019 Notes, the price of our common stock was above the exercise price of the convertible bond hedges, the counterparties would have delivered shares of common stock and/or cash with an aggregate value 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 us and are not part of the terms of the 2019 Notes. Holders of the 2019 Notes and warrants do not have any rights with respect to the convertible bond hedges. We paid $48.1 million for these convertible bond hedges and recorded the amount as a reduction to additional paid-in capital.

As a result of the irrevocable cash election, conversion notices received relating to the 2019 Notes after May 22, 2018 must be fully settled in cash and amounts paid in excess of the principal amount would be offset by an equal receipt of cash under the convertible bond hedge. We have accounted for the bond hedge as a derivative asset and marked it to market at the end of each reporting period. Upon the 2019 Notes payoff on August 15, 2019, the bond hedge was settled, with the resulting $1.9 million and $10.2 million fair value decrease reflected in other expense, net, in our condensed consolidated statements of operations for the three and nine months ended September 30, 2019, respectively.

Concurrently with the convertible bond hedge transactions, we entered into warrant transactions whereby we 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. We 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 we do not have the obligation and do not intend to file any registration statement with the SEC registering the issuance of the shares under the warrants. We continue to have the ability to avoid settling the warrants associated with the 2019 Notes in cash after May 22, 2018. Accordingly, the warrants continue to be classified in additional paid in capital. In November 2018, we repurchased a total of 525,000 warrants. As a result, 2,739,643 warrants remained outstanding as of both September 30, 2019 and December 31, 2018.

0.75% Convertible Senior Notes due 2023

In May 2018, we issued $750.0 million aggregate principal amount of 0.75% convertible senior notes. The net proceeds from the offering, after deducting the initial purchasers' discount and offering expenses, were approximately $733.1 million. The 2023 Notes will be convertible into cash, shares of common stock, or a combination of cash and shares of common stock, at our election, based on an initial conversion rate, subject to adjustment, of 4.0244 shares per $1,000 principal amount of the 2023 Notes which represents an initial conversion price of approximately $248.48 per share.

Holders of the 2023 Notes may convert the notes at any time prior to the close of business on the business day immediately preceding November 15, 2022, under any of the following circumstances:

(1) during any fiscal quarter (and only during such fiscal quarter) commencing after September 30, 2018, 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 our 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 our 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.

The notes will have a dilutive effect to the extent the average market price per share of common stock for a given reporting period exceeds the conversion price of $248.48. As of September 30, 2019, the “if-converted value” did not exceed the principal amount of the 2023 Notes. In connection with the issuance of the 2023 Notes, we incurred $16.9 million of issuance costs, which primarily consisted of underwriting, legal and other professional fees. The portion of these costs allocated to the

liability component totaling $13.7 million is amortized to interest expense using the effective interest method over the five year expected life of the 2023 Notes. It is our intent and policy to settle conversions through combination settlement, which essentially involves payment in cash equal to the principal portion and delivery of shares of common stock for the excess of the conversion value over the principal portion.

Convertible Bond Hedge and Warrant Transactions

In conjunction with the 2023 Notes, in May 2018, we entered into convertible bond hedges and sold warrants covering 3,018,327 shares of its common stock to minimize the impact of potential dilution to our common stock and/or offset the cash payments we are required to make in excess of the principal amount upon conversion of the 2023 Notes. The convertible bond hedges have an exercise price of $248.48 per share and are exercisable when and if the 2023 Notes are converted. We paid $140.3 million for these convertible bond hedges. If upon conversion of the 2023 Notes, the price of our 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 us and are not part of the terms of the 2023 Notes. Holders of the 2023 Notes and warrants will not have any rights with respect to the convertible bond hedges.

Concurrently with the convertible bond hedge transactions, we entered into warrant transactions whereby we sold warrants covering approximately 3,018,327 shares of common stock with an exercise price of approximately $315.38 per share, subject to certain adjustments. We received $90.0 million for these warrants. The warrants have various expiration dates ranging from August 15, 2023 to February 6, 2024. 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 common stock issuable upon exercise of the warrants will be in unregistered shares, and we do not have the obligation and do not intend to file any registration statement with the SEC registering the issuance of the shares under the warrants.

The following table summarizes information about the 2019 Notes and 2023 Notes (in thousands):

	September 30, 2019	December 31, 2018
Principal amount of 2019 Notes outstanding	$ —	$ 27,326
Unamortized discount (including unamortized debt issuance cost)	—	(893)
Total current portion of notes payable	$ —	$ 26,433
Principal amount of 2023 Notes outstanding	$ 750,000	$ 750,000
Unamortized discount (including unamortized debt issuance cost)	(118,467)	(140,136)
Total long-term portion of notes payable	$ 631,533	$ 609,864
Carrying value of equity component of 2023 Notes	$ 108,205	$ 127,997
Fair value of both 2019 Notes and 2023 Notes outstanding (Level 2)	$ 625,088	$ 713,533

6. Income Tax

Our 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 and nine months ended September 30, 2019 was 23.2% and 20.9%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three months ended September 30, 2019 was primarily attributable to state taxes and a lower R&D tax credit. The variance from the U.S. federal statutory tax rate of 21% for the nine months ended September 30, 2019 was primarily attributable to tax deductions related to stock award activities and the release of a valuation allowance relating to our R&D tax credits which were recorded as discrete items. The effective tax rate for the three and nine months ended September 30, 2018 was 15.0% and 19.3%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three and nine months ended September 30, 2018 was primarily attributable to tax deductions related to stock award activities which were recorded as discrete items during the periods as well as the release of a valuation allowance relating to our investment in Viking during the first quarter of 2018.

7. Stockholders' Equity

We grant 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 our 2018 Annual Report.

The following is a summary of our 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, 2018	1,736,304	$ 66.71	132,273	$ 130.63
Granted	319,334	$ 117.07	101,404	$ 113.48
Options exercised/RSUs vested	(111,010)	$ 23.67	(70,166)	$ 110.99
Forfeited	(5,000)	$ 136.72	(666)	$ 134.36
Balance as of September 30, 2019	1,939,628	$ 77.24	162,845	$ 128.40

As of September 30, 2019, outstanding options to purchase 1.4 million shares were exercisable with a weighted average exercise price per share of $59.49.

Employee Stock Purchase Plan

The price at which common stock is purchased under the Amended Employee Stock Purchase Plan, or 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 September 30, 2019, 60,642 shares were available for future purchases under the ESPP.

Share Repurchases

During the three and nine months ended September 30, 2019, we repurchased $181.2 million and $366.5 million, respectively, of our common stock under our stock repurchase programs as discussed below.

In September 2018, 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. On January 23, 2019, our Board of Directors increased the share repurchase authorization by $150.0 million. The available amount under the $350.0 million repurchase program was fully utilized during the third quarter of 2019.

On September 11, 2019, our Board of Directors approved a stock repurchase program authorizing, but not obligating, the repurchase of up to $500.0 million of our common stock from time to time over the next three years. We expect to acquire shares primarily through open-market transactions and have entered into a Rule 10b5-1 trading plan, and may enter into additional Rule 10b5-1 trading plans in the future, to facilitate open-market repurchases. The timing and amount of repurchase transactions will be determined by management based on our evaluation of market conditions, share price, legal requirements and other factors. Our prior $350.0 million stock repurchase program mentioned above was terminated in connection with the approval of the new stock repurchase program. Authorization to repurchase $408.7 million of our common stock remained available as of September 30, 2019.

8. Commitment and Contingencies Legal Proceedings

We record 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, we record the minimum estimated liability related to the claim in accordance with ASC 450, *Contingencies.* As additional information becomes available, we assess the potential liability related to our pending litigation and revises our estimates. Revisions in our estimates of potential liability could materially impact our results of operations.

On July 27, 2018, AG Oncon, LLC, AG Ofcon, Ltd., Calamos Market Neutral Income Fund, Capital Ventures International, Citadel Equity Fund Ltd., Opti Opportunity Master Fund, Polygon Convertible Opportunity Master Fund, Wolverine Flagship Fund Trading Limited, as plaintiffs, filed a complaint in the Court of Chancery of the State of Delaware (AG Oncon, LLC v. Ligand Pharmaceuticals Inc.) alleging claims for violation of the Trust Indenture Act, breach of contract, damages and a declaratory judgment that the Supplemental Indenture, dated as of February 20, 2018, entered into by us and Wilmington Trust, National Association, as trustee, is invalid. On October 1, 2018, we filed a motion to dismiss the plaintiffs' complaint. On May 24, 2019, the Court granted the motion and subsequently entered an order dismissing the action with prejudice. On July 12, 2019, plaintiffs filed a notice of appeal in the Delaware Supreme Court. Plaintiffs filed their opening brief on August 29, 2019. We filed our opposition brief on September 30, 2019. Plaintiffs filed their reply brief on October 15, 2019. The court has not yet set a date for oral argument.

In November 2017, CyDex, our wholly-owned subsidiary, received a Paragraph IV certification Notice Letter from Teva stating that Teva had submitted an ANDA to the FDA, seeking approval to manufacture, offer to sell, and sell a generic version of EVOMELA® prior to the expiration of any of U.S. Patent Nos. 8,410,077 ("the '077 patent"); 9,200,088 ("the '088 patent"), or 9,493,582 ("the '582 patent"), and alleging that these patents, each of which relates to Captisol®, are invalid, unenforceable, and/or will not be infringed by Teva's ANDA product. On December 20, 2017, CyDex filed a complaint against Teva in the U.S. District Court for the District of Delaware, asserting that the filing of Teva's ANDA constitutes infringement of each of the '077 patent, the '088 patent, and the '582 patent. On March 22, 2018, Teva filed an answer and counterclaims seeking declarations of non-infringement and invalidity as to each of the asserted patents and, on April 12, 2018, CyDex filed an answer to Teva's counterclaims. On October 31, 2019, CyDex, Teva, and Acrotech Biopharma L.L.C. (the holder of the NDA for EVOMELA®) entered into a Confidential Settlement Agreement, settling this patent litigation. As a result of the settlement, Teva will be permitted to market a generic version of EVOMELA® in the United States on June 1, 2026 or earlier under certain circumstances. The terms of the settlement agreement are otherwise confidential.

On April 9, 2019, CyDex received a Paragraph IV certification Notice Letter from Alembic Global Holdings SA ("Alembic") stating that Alembic had submitted an ANDA to the FDA, seeking approval to manufacture, offer to sell, and sell a generic version of EVOMELA® prior to the expiration of any of the '077 patent; the '088 patent, the '582 patent, or U.S. Patent No. 10,040,872 ("the '872 patent"), and alleging that these patents, each of which relates to Captisol®, are invalid, unenforceable, and/or would not be infringed by Alembic's ANDA product. On May 23, 2019, CyDex filed a complaint against Alembic, Alembic Pharmaceuticals, Ltd., and Alembic Pharmaceuticals, Inc. in the U.S. District Court for the District of Delaware, asserting that the filing of Alembic's ANDA constitutes infringement of each of the '088 patent and the '582 patent. On July 29, 2019, Alembic filed an answer and counterclaims seeking declarations of non-infringement and invalidity as to each of the asserted patents and, on August 19, 2019, CyDex filed an answer to Alembic's counterclaims.

On September 16, 2019, CyDex received a Paragraph IV certification Notice Letter from Lupin Ltd. ("Lupin") stating that Lupin had submitted an ANDA to the FDA, seeking approval to manufacture, offer to sell, and sell a generic version of EVOMELA® prior to the expiration of any of the '077 patent; the '088 patent, the '582 patent, or the '872 patent, and alleging that these patents, each of which relates to Captisol®, are invalid, unenforceable, and/or would not be infringed by Lupin's ANDA product. CyDex filed a complaint on October 29, 2019, alleging patent infringement against Lupin.

On October 31, 2019, we received three civil complaints filed in the US District Court for the Northern District of Ohio on behalf of several Indian tribes. The Northern District of Ohio is the Court that the Judicial Panel on Multi-District Litigation ("JPML") has assigned several hundred civil cases which have been designated as a Multi-District Litigation ("MDL") and captioned In Re: National Prescription Opiate Litigation. The allegations in these complaints focus on the activities of defendants other than the company and no individualized factual allegations have been advanced against us in any of the three complaints. The complaints assert that the defendants deceptively marketed and sold various opioid products. The complaints seek compensatory and exemplary damages against all named defendants. However, no specific damages have been asserted at this time with respect to us. We have been engaged to respond to the complaints by requesting dismissals by the court. Since the MDL was designated and the cases were transferred to the Northern District of Ohio, the multiple litigants have been engaged in largely procedural matters. We reject all claims raised in the complaints and intend to vigorously defend these matters.

9. Leases

We lease certain office facilities and equipment primarily under various operating leases. Our leases have remaining contractual terms up toseven years, some of which include options to extend the leases for up to seven years. Our lease agreements do not contain any material residual value guarantees, material restrictive covenants, or material termination options. Our operating lease costs are primarily related to facility leases for administration offices and research and development facilities, and our finance leases are immaterial.

Lease assets and lease liabilities are recognized at the commencement of an arrangement where it is determined at inception that a lease exists. Lease assets represent the right to use an underlying asset for the lease term, and lease liabilities represent the obligation to make lease payments arising from the lease. These assets and liabilities are initially recognized based on the present value of lease payments over the lease term calculated using our incremental borrowing rate generally applicable to the location of the lease asset, unless the implicit rate is readily determinable. Lease assets also include any upfront lease payments made and lease incentives. Lease terms include options to extend or terminate the lease when it is reasonably certain that those options will be exercised.

In addition to base rent, certain of our operating leases require variable payments, such as insurance and common area maintenance. These variable lease costs, other than those dependent upon an index or rate, are expensed when the obligation for those payments is incurred. Leases with an initial term of 12 months or less are not recorded on the balance sheet, and the expense for these short-term leases and for operating leases is recognized on a straight-line basis over the lease term.

The depreciable life of lease assets and leasehold improvements is limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise.

Operating Lease Assets and Liabilities (in thousands):

		September 30, 2019	Balance Sheet Classification
Lease assets	$	10,280	Operating lease right-of-use assets
Current lease liabilities	$	(926)	Accrued liabilities
Non-current lease liabilities		(9,932)	Long-term operating lease liabilities
Total lease liabilities	$	(10,858)	

During the nine months ended September 30, 2019, we entered into several new lease agreements including our San Diego headquarter expansion and a new UK office lease, which resulted an increase in lease assets and liabilities of $6.1 million and $6.0 million, respectively.

Maturity of Operating Lease Liabilities (in thousands):

Maturity Dates		September 30, 2019
Remaining three months ending December 31, 2019	$	251
2020		1,857
2021		2,142
2022		2,180
2023		1,905
Thereafter		5,257
Total lease payments		13,592
Less imputed interest		(2,734)
Present value of lease liabilities	$	10,858

As of September 30, 2019, our operating leases have a weighted-average remaining lease term of7 years and a weighted-average discount rate of6%. Cash paid for amounts included in the measurement of operating lease liabilities was $0.5 million and $1.6 million, for the three and nine months ended September 30, 2019, respectively. Operating lease expense was $0.5 million (net of sublease income of $0.02 million) and $1.6 million (net of sublease income of $0.7 million) , for the three and nine months ended September 30, 2019, respectively.

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 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 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. We employ research technologies such as antibody discovery technologies, structure-based drug design, formulation science and liver targeted pro-drug technologies to assist companies in their work toward securing prescription drug approvals. We currently have partnerships and license agreements with over 110 pharmaceutical and biotechnology companies. Over 200 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 cancer, seizure, diabetes, cardiovascular disease, muscle wasting, liver disease, and kidney disease, among others. We have over 1,200 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, which we refer to as "shots on goal," 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 and then seek partners to continue development and potential commercialization.

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, sale of Captisol material, and revenue from license, milestone and other service payments. 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

OmniAb Platform Updates

Acquisition and New Licenses

- We acquired Ab Initio for $12 million. Ab Initio has a patented antigen technology that is synergistic with the OmniAb® therapeutic antibody discovery platform, providing our current and potential new partners enhanced capabilities for the discovery of therapeutic antibodies against difficult-to-access cellular targets. Ab Initio has a collaboration agreement with Pfizer to discover novel therapeutic antibodies against an undisclosed target in the GPCR superfamily.
- We entered into new OmniAb license agreements with Takeda, GigaGen, Talem Therapeutics, Kira Pharma and Abvivo.

Select OmniAb Partner Updates

- CStone Pharmaceuticals released pooled safety data from the Phase 1b (GEMSTONE-101) study of their anti-PD-L1 antibody CS1001 in a poster presentation at the European Society of Medical Oncology 2019 Congress, demonstrating the promising safety and tolerability profile of CS1001.
- CStone Pharmaceuticals announced results from the esophageal squamous cell carcinoma cohort of a Phase 1b clinical trial of CS1001 in an oral presentation at the 22nd Annual Meeting of the Chinese Society of Clinical Oncology.

Recent OmniAb Publications

- A paper by our scientists entitled “Discovery of high affinity, pan-allelic, and pan-mammalian reactive antibodies against the myeloid checkpoint receptor SIRPα” was published in the journal *mAbs*.

Other Licensing and Acquisition Events

- We entered a license and supply agreement with SQ Innovation AG for use of our Captisol® technology in the formulation of high-concentration furosemide for the treatment of edema in patients with heart failure. We are eligible to receive potential milestone payments and royalties, as well as revenue from Captisol materials sales.
- We entered into new Captisol clinical use or license and supply agreements with Millennium/Takeda, BendaRx, Hikma, the University of Edinburgh and Quadriga Bio.

Additional Pipeline and Partner Developments

- Kyprolis® third quarter sales totaled $280 million, consisting of Amgen-reported October 29, 2019 Q3 sales of Kyprolis of $266 million and Ono Pharmaceutical Co.-reported October 30, 2019 Q3 sales of Kyprolis in Japan of $14 million.
- On September 13, 2019 Amgen announced the Phase 3 CANDOR study evaluating Kyprolis® in combination with dexamethasone and Darzalex® (KdD) compared to Kyprolis and dexamethasone (Kd) alone met its primary endpoint of progression-free survival. The regimen resulted in a 37% reduction in the risk of progression or death in patients with relapsed or refractory multiple myeloma treated with KdD and the median PFS for patients treated with Kd alone was 15.8 months.
- Amgen announced on October 31, 2019 that it has entered into a strategic collaboration with BeiGene to expand its oncology presence in China. BeiGene is an oncology-focused biotechnology company with an established commercial and clinical development organization in China. Under the agreement, BeiGene will commercialize Kyprolis in China over the next 5 to 7 years along with two other oncology products, Xgeva® and Blincyto®. Amgen and BeiGene will share the profits and losses equally. Kyprolis is currently in a Phase 3 trial in China.
- CASI Pharmaceuticals launched Evomela® in China; Evomela uses our Captisol technology in its formulation.
- Retrophin announced that it will present new data from the Phase 2 DUET Study examining the impact of sparsentan on quality of life in focal segmental glomerulosclerosis at the American Society of Nephrology (ASN) Kidney Week 2019.
- Novan completed patient recruitment in the B-SIMPLE (Berdazimer Sodium In Molluscum Patients with Lesions) Phase 3 pivotal trials with SB206 for the treatment of molluscum contagiosum. Novan affirmed that topline data from these trials are expected in the first quarter of 2020.
- Sage Therapeutics launched Zulresso® (brexanolone) injection. With this launch, Zulresso is the 11th FDA-approved drug to use our Captisol technology.

- Sermonix Pharmaceuticals announced enrollment and dosing of the first patient into a Phase 2 clinical trial of its lead investigational drug, lasofoxifene, and announced completion of a $26 million financing to fund the trial through to completion.
- Verona Pharma presented data from a Phase 2b trial with nebulized ensifentrine in COPD at the CHEST Annual Meeting and presented data from a Phase 2 trial with its dry powder inhaler formulation of ensifentrine in COPD at the European Respiratory Society International Congress.
- Marinus Pharmaceuticals announced that results from its Phase 2 trial of ganaxolone in Refractory Status Epilepticus (RSE) were presented at the Neurocritical Care Society 17th Annual Meeting in Vancouver, BC. Ganaxolone met the primary endpoint in the study with none of the 17 patients progressing to IV anesthetics within 24 hours of treatment initiation.
- In September, results of a randomized Phase 2 study of M6620, an ATR kinase inhibitor in development by Merck KGaA formulated using Captisol, were presented at ESMO 2019 demonstrating that the addition of M6620 to gemcitabine extended PFS without additional toxicity in patients with platinum-resistant, high-grade serous ovarian cancer.
- Takeda Pharmaceutical announced results of a Phase 1 clinical proof-of-concept study of CE TAK-925, a selective orexin type-2 receptor (OX2R) agonist, in individuals with narcolepsy type 1.
- Opthea announced positive Phase 2b results demonstrating that OPT-302 combination therapy met the primary endpoint of superiority in mean visual acuity gain at 24 weeks compared to Lucentis® monotherapy in treatment-naïve patients with wet age-related macular degeneration; these data were presented at the European Society of Retina Specialists 2019 Congress.
- Nucorion Pharmaceuticals closed a $5 million Series B financing to support the Phase 1 clinical development in the U.S. for its lead program, NCO-1010, for the treatment of hepatitis B; NCO-1010 utilizes our LTP Platform™ technology.

Internal R&D

- We announced positive topline results from a Phase 1 clinical trial of its internal CE Iohexol program. Clinical data have been presented at ASN Kidney Week 2019 in Washington, DC on November 8th, 2019 and will be presented at the 2019 Contrast Media Research Symposium in Erice, Italy on November 11th, 2019. Highlights of the data presented on November 8th, 2019 include:

    - In two treatment periods, subjects received each treatment as a single IV dose of 80 milliliters (mL) infused over approximately 20 seconds by a power injector: CE-Iohexol, 755 mg/mL iohexol (350 mg I/mL)/50 mg CAPTISOL®/mL; OMNIPAQUE, 755 mg/mL iohexol (350 mg I/mL).
    - Bioequivalence between CE-Iohexol and OMNIPAQUE was demonstrated for the key pharmacokinetic (PK) parameters of area under the concentration-time curve (AUC) and maximum concentration (C_{max}).
    - Geometric mean ratio of AUCs for CE-Iohexol and OMNIPAQUE was 1.0 with 94% confidence interval of 0.98-1.02. Geometric mean ratio of C_{max} for CE-Iohexol and OMNIPAQUE was 1.0 with 94% confidence interval of 0.95-1.06.
    - The means of AUC, C_{max}, as well as half-life and elimination constant, were similar between treatments; the mean elimination constant was 0.3/hour for both treatments.
    - Based on these results, it can be concluded that CE-Iohexol is bioequivalent to the reference OMNIPAQUE following IV injection in healthy adults.
    - No subject had a serious adverse event or discontinued from the study due to an adverse event. All adverse events were mild to moderate in severity and the incidence of subjects with adverse events was similar in both treatment groups.
    - The most common adverse event was a sensation of warmth, which is an adverse event known to occur during IV administration of iodinated contrast agents such as OMNIPAQUE.
    - There were no clinically significant abnormal physical examination findings, and there were no clinically meaningful changes in vital signs, laboratory parameters., hematology, urinalysis or ECG results.
    - Overall, administration of the Captisol-containing CE-Iohexol following IV injection was safe and well tolerated in normal healthy subjects.

Corporate Events

- We announced the appointment of Sarah Boyce to our Board of Directors, increasing the total number of our directors to nine. Ms. Boyce brings a breadth of commercial and business development experience that will be valuable as we build our portfolio of tools and drug discovery technologies to help serve the pharmaceutical industry.

Results of Operations

Revenue

(Dollars in thousands)	Q3 2019	Q3 2018	Change	% Change	YTD 2019	YTD 2018	Change	% Change
Royalties	**$ 9,767**	$ 36,127	$ (26,360)	(73) %	**$ 35,931**	$ 88,343	$ (52,412)	(59) %
Material sales	**6,849**	7,027	(178)	(3) %	**24,357**	19,030	5,327	28 %
License fees, milestones and other revenue	**8,192**	2,509	5,683	227 %	**32,991**	84,490	(51,499)	(61) %
Total revenue	**$ 24,808**	$ 45,663	$ (20,855)	(46) %	**$ 93,279**	$ 191,863	$ (98,584)	(51) %

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%. On March 6, 2019, we sold all of our rights, title and interest in and to the Promacta license to RPI; therefore, the royalty revenue for Promacta only reflected the revenue prior to the sale. Subsequent to March 6, 2019, we no longer recognize revenue related to Promacta. See *Note 2 - Sale of Promacta License.*

The following tables represent royalty revenue by program:

(in millions)	Q3 2019 Estimated Partner Product Sales	Effective Royalty Rate	Q3 2019 Royalty Revenue	Q3 2018 Partner Product Sales	Effective Royalty Rate	Q3 2018 Royalty Revenue
Promacta	**N/A**	**N/A**	**N/A**	$ 295.0	9.4 %	$ 27.8
Kyprolis	**$ 279.0**	**2.7 %**	**$ 7.6**	243.0	2.6 %	6.3
Evomela	**7.5**	**20.0 %**	**1.5**	6.8	20.0 %	1.3
Other	**50.7**	**1.2 %**	**0.6**	45.7	1.5 %	0.7
Total	**$ 337.2**		**$ 9.7**	$ 590.5		$ 36.1

(in millions)	YTD 2019 Estimated Partner Product Sales	Effective Royalty Rate	YTD 2019 Royalty Revenue	YTD 2018 Partner Product Sales	Effective Royalty Rate	YTD 2018 Royalty Revenue
Promacta [1]	**$ 225.1**	**6.3 %**	**$ 14.2**	$ 844.0	8.1 %	$ 68.2
Kyprolis	**778.0**	**2.1 %**	**16.3**	752.0	1.9 %	14.4
Evomela	**17.7**	**20.0 %**	**3.5**	20.6	20.0 %	4.1
Other	**142.8**	**1.3 %**	**1.9**	131.1	1.2 %	1.6
Total	**$ 1,163.6**		**$ 35.9**	$ 1,747.7		$ 88.3

(1) Promacta YTD 2019 estimated partner product sales represent the pro-rated estimated sales prior to the Promacta sale on March 6, 2019.

Q3 2019 vs. Q3 2018

Total revenue decreased by $20.8 million, or 46%, to $24.8 million in Q3 2019 compared to $45.7 million in Q3 2018 due to the sale of Promacta in the first quarter of 2019, partially offset by an increase in milestone revenue and service revenue from the Vernalis acquisition.

YTD 2019 vs. YTD 2018

Total revenue decreased by $98.6 million, or 51%, to $93.3 million in YTD 2019 compared to $191.9 million in the same period in 2018 due to $20.0 million received from Roivant upon entering into the GRA license agreement and a $47.0 million OmniAb platform license fee received from WuXi during 2018 as well as the sale of Promacta in the first quarter of 2019, partially offset by increased material sales during the nine months ended September 30, 2019 primarily related to timing of customer purchases of Captisol for use in clinical trials and in commercialized products.

Operating Costs and Expenses

(Dollars in thousands)	Q3 2019	% of Revenue	Q3 2018	% of Revenue	YTD 2019	% of Revenue	YTD 2018	% of Revenue
Costs of material sales	**$ 3,147**		$ 1,460		9,410		3,382	
Amortization of intangibles	**3,552**		5,725		10,560		12,309	
Research and development	**13,742**		5,483		37,244		19,023	
General and administrative	**9,525**		9,633		31,607		26,571	
Total operating costs and expenses	**$ 29,966**	121%	$ 22,301	49%	**$ 88,821**	95%	$ 61,285	32%

Q3 2019 vs. Q3 2018

Total operating costs and expenses as a percentage of total revenue increased in Q3 2019 compared to Q3 2018. Total operating costs and expenses increased by $7.7 million or 34%. Cost of material sales increased primarily due to a higher purchase price of the Captisol used for the sales as a result of timing of customer purchases and lower gross margin material sales during Q3 2019 as compared to Q3 2018. Research and development expenses increased due to the Vernalis acquisition and amortization of other economic rights during the three months ended September 30, 2019.

YTD 2019 vs. YTD 2018

Total operating costs and expenses as a percentage of total revenue increased in YTD 2019 compared to the same period in 2018. Total operating costs and expenses increased by $27.5 million or 45%. Cost of material sales increased primarily due to higher costs of the Captisol used for the sales as a result of timing of customer purchases and lower gross margin material sales during the YTD 2019 as compared to YTD 2018. Research and development expenses increased due to timing of internal development costs, the Vernalis acquisition, and amortization of other economic rights during the nine months ended September 30, 2019. General and administrative expenses increased primarily due to the Vernalis acquisition.

Other Income (Expense)

(Dollars in thousands)	Q3 2019	Q3 2018	Change	YTD 2019	YTD 2018	Change
Gain (loss) from Viking	**$ (10,520)**	$ 62,398	$ (72,918)	**$ (5,592)**	$ 124,206	$ (129,798)
Interest income	**7,396**	5,474	1,922	**22,590**	9,111	13,479
Interest expense	**(8,993)**	(11,200)	2,207	**(26,911)**	(28,133)	1,222
Other expense, net	**(2,596)**	(808)	(1,788)	**(2,528)**	(5,643)	3,115
Total other income (expense), net	**$ (14,713)**	$ 55,864	$ (70,577)	**$ (12,441)**	$ 99,541	$ (111,982)

The fluctuation in the gain (loss) from Viking common stock and warrants are driven by the changes in the fair value of the Viking common stock and warrants.

Interest income consists primarily of short-term investment transactions and the change in the fair market value of our investments. The increase in Q3 2019 as compared to Q3 2018 was due to the increase in our short-term investment balance as a result of the proceeds from the sale of the Promacta license in March 2019. The increase in YTD 2019 as compared to YTD 2018 was due to the increase in our short-term investment balance as a result of the proceeds from the 2023 Notes financing on May 22, 2018 and the proceeds from the sale of the Promacta license in March 2019.

Interest expense includes the 0.75% coupon cash interest expense in addition to the non-cash accretion of discount (including the amortization of debt issuance cost) on our 2019 Notes and 2023 Notes for the three and nine months ended September 30, 2019. The quarter over quarter and year over year decreases were primarily due to lower average debt outstanding balance for the three and nine months ended September 30, 2019 as compared to prior periods. The 2019 Notes were paid off upon the maturity date in August 2019. See *Note 5 - Convertible Senior Notes.*

Other expense, net, for the three months ended September 30, 2019 increased as compared to the prior period. The increase was primarily due to a $2.8 million unrealized loss in equity investments during the three months ended September 30, 2019. Other expense, net, for the nine months ended September 30, 2019 decreased as compared to the prior period. The decrease was primarily due to (1) a $1.5 million decrease in fair value of contingent liabilities associated with our Crystal acquisition based on management's estimates of timing and probability of achievement of certain milestones and revenue thresholds during the first quarter of 2019, (2) an increase in the fair value adjustment of contingent liabilities associated with our Metabasis acquisition during the nine months ended September 30, 2018, and (3) a net decrease in our derivative instrument expense associated with our convertible notes and hedge transactions during the nine months ended September 30, 2019 as compared to prior period. See *Note 5 - Convertible Senior Notes.*

Income Tax Benefit (Expense)

(Dollars in thousands)	Q3 2019	Q3 2018	Change	YTD 2019	YTD 2018	Change
Income (loss) before income taxes	**$ (19,871)**	$ 79,226	$ (99,097)	**$ 804,814**	$ 230,119	$ 574,695
Income tax benefit (expense)	**4,620**	(11,864)	16,484	**(168,147)**	(44,316)	(123,831)
Income (loss) from operations	**$ (15,251)**	$ 67,362	$ (82,613)	**$ 636,667**	$ 185,803	$ 450,864
Effective tax rate	23.2 %	15.0 %		20.9 %	19.3 %	

We compute our income tax provision by applying the estimated annual effective tax rate to income from operations and adding the effects of any discrete income tax items specific to the period. Our effective tax rate for the three and nine months ended September 30, 2019 was approximately 23.2% and 20.9%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three months ended September 30, 2019 was primarily attributable to state taxes and a lower R&D tax credit. The variance from the U.S. federal statutory tax rate of 21% for the nine months ended September 30, 2019 was primarily attributable to tax deductions related to stock award activities and the release of a valuation allowance relating to our R&D tax credits which were recorded as discrete items. Our effective tax rate for the three and nine months ended September 30, 2018 was approximately 15.0% and 19.3%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three and nine months ended September 30, 2018 was primarily attributable to tax deductions related to stock award activities which were recorded as discrete items as well as the release of a valuation allowance relating to our investment in Viking during the first quarter of 2018.

Liquidity and Capital Resources

As of September 30, 2019, our cash, cash equivalents, and marketable securities totaled $1.1 billion, which were increased by $375.7 million from the end of last year, due to factors described in the "Cash Flow Summary" below. Our primary source of liquidity, other than our holdings of cash, cash equivalents, and investments which increased during 2019 primarily from the sale of Promacta, has been cash flows from operations. Our ability to generate cash from operations provides us with the financial flexibility we need to meet operating, investing, and financing needs.

Historically, we have liquidated our short-term investments and/or issued debt and equity securities to finance our business needs as a supplement to cash provided by operating activities. As of September 30, 2019, we had $0.9 billion in short-term investments. Our short-term investments include U.S. government debt securities, investment-grade corporate debt securities and certificates of deposit. We have established guidelines relative to diversification and maturities of our investments in order to provide both safety and liquidity. These guidelines are periodically reviewed and modified to take advantage of trends in yields and interest rates. Additionally, we own certain securities which are classified as short-term investments that we received as a result of a milestone and an upfront license payment as well as 6.0 million shares of common stock in Viking.

In August 2014, we issued an aggregate principal amount of $245.0 million of the 2019 Notes. During 2018, $217.7 million in principal of the 2019 Notes were converted into cash. In June 2019, we received notices for conversion of $1.0 million of principal amount of the 2019 Notes, which were settled in cash upon the 2019 Notes' maturity date in August 2019. On August 15, 2019, the 2019 Notes maturity date, we paid the noteholders the remaining $26.3 million principal amount.

In May 2018, we issued an aggregate principal amount of $750.0 million of the 2023 Notes. In conjunction of the 2023 Notes offering, we used a portion of the proceeds from such issuance totaling $49.7 million to repurchase 260,000 shares of our common stock. The 2023 Notes were not convertible as of September 30, 2019. It is our intent and policy to settle conversions through combination settlement, which essentially involves payment in cash equal to the principal portion and delivery of shares of common stock for the excess of the conversion value over the principal portion.

In September 2018, 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. On January 23, 2019, our Board of Directors increased the share repurchase authorization by $150.0 million. This $350.0 million repurchase plan was fully utilized during the third quarter of 2019.

On September 11, 2019, our Board of Directors approved a stock repurchase program authorizing, but not obligating, the repurchase of up to $500.0 million of our common stock from time to time over the next three years. We expect to acquire shares primarily through open-market transactions and have entered into a Rule 10b5-1 trading plan, and may enter into additional Rule 10b5-1 trading plans in the future, to facilitate open-market repurchases. The timing and amount of repurchase transactions will be determined by management based on our evaluation of market conditions, share price, legal requirements and other factors. Our prior $350.0 million stock repurchase program mentioned above was terminated in connection with the approval of the new stock repurchase program. Authorization to repurchase $408.7 million of our common stock remained available as of September 30, 2019.

We anticipate that our current cash, cash equivalents, and short-term investments, together with cash provided by operating activities, are sufficient to fund our near term capital and operating needs for at least the next 12 months. Operating needs include the planned costs to operate our business, including amounts required to fund working capital and capital expenditures. Our primary short-term needs for capital, which are subject to change, include:

- potential early repayment of debt obligations as a result of conversions;
- repurchases of our outstanding common stock;
- the continued advancement of research and development efforts;
- potential strategic acquisitions and investments; and
- the expansion needs of our facilities, including costs of leasing additional facilities.

As of September 30, 2019, we had $9.8 million in fair value of contingent consideration liabilities associated with prior acquisitions to be settled in future periods.

Leases and Off-Balance Sheet Arrangements

We lease our office facilities under operating lease arrangements with varying terms through September 2026. The agreements provide for increases in annual rents based on changes in the Consumer Price Index or fixed percentage increases of 3.0%. See further information in *Note 9, Leases.* We had no off-balance sheet arrangements at September 30, 2019 and December 31, 2018.

Cash Flow Summary

(Dollars in thousands)	YTD 2019	YTD 2018
Net cash provided by (used in):		
Operating activities	$ (21,997)	$ 161,487
Investing activities	$ 530,097	$ (698,571)
Financing activities	$ (401,479)	$ 675,670

During the nine months ended September 30, 2019, we generated $827 million from the sale of the Promacta license (including $14.2 million recorded to revenue related to the Promacta royalty for the period between January 1, 2019 and March 6, 2019), used cash for net purchases of short-term investments, used $371.1 million to repurchase our common stock, used $93.8 million to pay federal and state estimated income taxes, paid off the remaining balance of the 2019 Notes in the amount of $27.3 million, paid $12.0 million for the purchase of Novan economic rights and paid $11.8 million for the Ab Initio acquisition (net of cash acquired). During the nine months ended September 30, 2018, we generated cash from operations, from issuance of common stock under employee stock plans, and from issuance of 2023 Notes, partially offset by cash used for net purchases of short-term investments and $52.7 million used to repurchase our common stock.

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. There have been no material changes in our critical accounting policies and estimates other than the adoption of the Accounting Standards Updates described in Item 1. Condensed Consolidated Financial Statements - *Note 1, "Basis of Presentation and Summary of Significant Accounting Policies,"* as compared to the critical accounting policies and estimates described in our 2018 Annual Report.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

There were no substantial changes to our market risks in the three and nine months ended September 30, 2019, when compared to the disclosures in Item 7A of our 2018 Annual Report.

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.

There have not been any 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

For information that updates the disclosures set forth under Part I, Item 3, “Legal Proceedings” in our 2018 Annual Report, refer to *Note 8, Commitment and Contingencies: Legal Proceedings*, to the Condensed Consolidated Financial Statements contained in Part I, Item 1 of this report.

Item 1A. Risk Factors

There have been no material changes to the risk factors included in “Item 1A. Risk Factors” in our 2018 Annual Report, other than as set forth below:

Our investments are subject to market and credit risks that could diminish their value and these risks could be greater during periods of extreme volatility or disruption in the financial and credit markets, which could adversely impact our business, financial condition, results of operations, liquidity and cash flows.

Our investments are subject to risks of credit defaults and changes in market values. Periods of macroeconomic weakness or recession, heightened volatility or disruption in the financial and credit markets could increase these risks, potentially resulting in other than temporary impairment of assets in our investment portfolio. Any event reducing the estimated fair value of these securities, other than on a temporary basis, could have a material and adverse effect on our business, results of operations, financial condition, liquidity and cash flows. If our investment manager, fails to react appropriately to difficult market, economic and geopolitical conditions, our investment portfolio could incur material losses.

We have a risk management framework in place to identify, assess and prioritize risks, including the market and credit risks to which our investments are subject. As part of that framework, we test our investment portfolio based on various market scenarios. Under certain stressed market scenarios, unrealized losses on our investment portfolio could lead to material reductions in its carrying value.

A decline in fair value below the amortized cost of a security requires management to assess whether an other-than-temporary impairment (OTTI) has occurred. The decision on whether to record an OTTI is determined in part by our assessment of the financial condition and prospects of a particular issuer, projections of future cash flows and recoverability of the particular security as well as management’s assertion of whether it is more likely than not that we will sell the particular security before recovery.

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

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 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.

We rely heavily on collaboration relationships, and any disputes or litigation with our collaboration 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 strategy for developing and commercializing many of our potential products, including products aimed at larger markets, includes entering into collaboration agreements with corporate partners and others. These agreements give our collaboration partners significant discretion when deciding whether or not to pursue any development program. Our existing collaborations may not continue or be successful, and we may be unable to enter into future collaboration arrangements to develop and commercialize our unpartnered assets.

In addition, our collaborators may develop drugs, either alone or with others that compete with the types of drugs they are developing with us (or that we are developing on our own). This would result in increased competition for our or our partners' programs. If products are approved for marketing under our collaboration programs, revenues we receive will depend on the manufacturing, marketing and sales efforts of our collaboration partners, who generally retain commercialization rights under the collaboration agreements. Generally, our current collaboration partners also have the right to terminate their collaborations at will or under specified circumstances. If any of our collaboration partners breach (for example, by not making required payments when due, or at all) or terminate their agreements with us or otherwise fail to conduct their collaboration activities successfully, 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. Such disputes or litigation could adversely affect our rights to one or more of our product candidates. Any such dispute or litigation could delay, interrupt or terminate the collaboration research, development and commercialization of certain potential products, create uncertainty as to ownership rights of intellectual property, or could result in litigation or arbitration. The occurrence of any of these problems could be time-consuming and expensive and could adversely affect our business.

Our collaboration partners may change their strategy or the focus of their development and commercialization efforts with respect to our partnered programs, and the success of our partnered programs could be adversely affected.

If our collaboration partners terminate their collaborations with us or do not commit sufficient resources to the development, manufacture, marketing or distribution of our partnered programs, we could be required to devote additional resources to our partnered programs, seek new collaboration partners or abandon such partnered programs, all of which could have an adverse effect on our business. For example, several of our collaboration partners using our OmniAb antibody platform have terminated their contracts or substantially reduced their investment in the antibodies discovered based on the platform. Although we expect growth in the net number of partners with one more active programs based on antibodies discovered using our OmniAb platform, there can be no assurance that our partners will continue their programs or that we will be able to find new collaboration partners interested in discovering antibodies based on our OmniAb platform.

Our OmniAb antibody platform faces specific risks, including the fact that no drug using antibodies from the platform has been approved by the FDA or similar regulatory agency.

None of our collaboration partners using our OmniAb antibody platform have received approval from the FDA or similar regulatory agency to market a product discovered based on our platform. In addition, only a few of our collaboration partners' product candidates based on the platform have been tested in late stage clinical trials. 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 such failure is 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 five patents within the U.S. and three patents in the European Union and are subject to the same risks as our patent portfolio discussed elsewhere, including the risk that our patents may infringe on third party patent rights or that our patents may be invalidated. As of a result of these factors, the future revenue generated from this platform may be materially lower than what we currently anticipate. 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.

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

During the nine months ended September 30, 2019, we have repurchased 3,361,205 shares, in amount of $366.5 million , of our common stock under our stock repurchase programs approved by our board of directors. See detail in *Note 7, Stockholders' Equity*, to the Condensed Consolidated Financial Statements contained in Part I, Item 1 of this report.

The following tables present information regarding repurchases by us of common stock during the three months ended September 30, 2019 under the stock repurchase programs.

ISSUER PURCHASES OF EQUITY SECURITIES

Prior Stock Repurchase Program

	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Program (in thousands)[1]
July 1 - July 31, 2019	115,296	$ 113.42	115,296	$ 76,870
August 1 - August 31, 2019	822,271	$ 93.45	822,271	$ 29
September 1 - September 30, 2019	—	N/A	—	—
Total	937,567	$ 95.91	937,567	

(1) Our prior $350.0 million stock repurchase program was fully utilized and terminated in connection with the approval of the new stock repurchase program on September 11, 2019.

Current Stock Repurchase Program

	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Program (in thousands)
July 1 - July 31, 2019	—	N/A	—	N/A
August 1 - August 31, 2019	—	N/A	—	N/A
September 1 - September 30, 2019	896,329	$ 101.83	896,329	$ 408,730
Total	896,329	$ 101.83	896,329	

Item 3. Defaults Upon Senior Securities

None.

em 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

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.*
101	The following financial information from our Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in iXBRL (inline eXtensible Business Reporting Language): (i) Consolidated Condensed Balance Sheets, (ii) Consolidated Condensed Statements of Operations, (iii) Consolidated Condensed Statement of Comprehensive Income, (iv) Consolidated Condensed Statements of Stockholders' Equity, (v) Consolidated Condensed Statements of Cash Flows, and (vi) the Notes to Consolidated Condensed Financial Statements.*
104	The cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL and contained in Exhibit 101.

* Filed herewith.

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: November 8, 2019

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

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.

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

Date: November 8, 2019

/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.

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

Date: November 8, 2019

/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 September 30, 2019, 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: November 8, 2019

/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 September 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Matthew Korenberg, Executive 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: November 8, 2019

/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.