UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended March 31, 2021

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 May 3, 2021, the registrant had 16,652,080 shares of common stock outstanding.

LIGAND PHARMACEUTICALS INCORPORATED
QUARTERLY REPORT

FORM 10-Q

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GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviation	Definition
2020 Annual Report	Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 24, 2021
2023 Notes	$750.0 million aggregate principal amount of convertible senior unsecured notes due 2023
Ab Initio	Ab Initio Biotherapeutics, Inc.
Amgen	Amgen, Inc.
ANDA	Abbreviated New Drug Application
ASC	Accounting Standards Codification
ASU	Accounting Standards Update
Aziyo	Aziyo Med, LLC
CE	Captisol-enabled
Company	Ligand Pharmaceuticals Incorporated, including subsidiaries
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
Gilead	Gilead Sciences, Inc.
GRA	Glucagon receptor antagonist
Icagen	Icagen, Inc.
IND	Investigational New Drug
Ligand	Ligand Pharmaceuticals Incorporated, including subsidiaries
Metabasis	Metabasis Therapeutics, Inc.
NDA	New Drug Application
Pfenex	Pfenex Inc.
Pfizer	Pfizer Inc.
Q1 2020	The Company's fiscal quarter ended March 31, 2020
Q1 2021	The Company's fiscal quarter ended March 31, 2021
SBC	Share-based compensation expense
SEC	Securities and Exchange Commission
Selexis	Selexis, SA
sNDA	Supplemental New Drug Application
Taurus	Taurus Biosciences, LLC
Teva	Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd. and Actavis, LLC, collectively
Travere	Travere Therapeutics, Inc.
Viking	Viking Therapeutics, Inc.
xCella	xCella Biosciences, Inc.
YTD	Year-to-date

PART I - FINANCIAL INFORMATION

ɛm 1. Condensed Consolidated Financial Statements

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

	March 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 31,853	$ 47,619
Short-term investments	307,354	363,567
Accounts receivable, net	54,436	56,847
Inventory	36,932	26,487
Income taxes receivable	1,145	2,217
Other current assets	5,708	3,822
Total current assets	437,428	500,559
Deferred income taxes, net	27,432	24,320
Intangible assets, net	583,785	595,330
Goodwill	190,515	189,662
Commercial license and other economic rights, net	10,451	10,979
Property and equipment, net	16,896	14,434
Operating lease right-of-use assets	7,611	6,892
Financing lease right-of-use assets	17,950	15,842
Other assets	3,053	4,267
Total assets	$ 1,295,121	$ 1,362,285
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 9,469	$ 3,784
Accrued liabilities	12,110	18,530
Current contingent liabilities	41,509	39,884
Deferred revenue	25,107	29,435
Current operating lease liabilities	2,173	1,885
Current financing lease liabilities	5,437	6,593
Total current liabilities	95,805	100,111
2023 convertible senior notes, net	352,313	442,293
Long-term contingent liabilities	9,548	9,249
Deferred income taxes, net	56,812	64,598
Long-term operating lease liabilities	6,081	5,643
Other long-term liabilities	28,722	30,866
Total liabilities	549,281	652,760
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value; 5,000 shares authorized; zero issued and outstanding at March 31, 2021 and December 31, 2020	—	—
Common stock, $0.001 par value; 60,000 shares authorized; 16,652 and 16,080 shares issued and outstanding at March 31, 2021 and December 31, 2020, respectively	17	16
Additional paid-in capital	336,621	318,358
Accumulated other comprehensive loss	(856)	(801)
Retained earnings	410,058	391,952
Total stockholders' equity	745,840	709,525
Total liabilities and stockholders' equity	$ 1,295,121	$ 1,362,285

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 March 31,	
	2021	**2020**
Revenues:		
Royalties	$ 7,112	$ 6,565
Captisol	31,272	21,109
Contract revenue	16,766	5,487
Total revenues	55,150	33,161
Operating costs and expenses:		
Cost of Captisol	8,153	4,683
Amortization of intangibles	11,786	3,535
Research and development	17,879	11,891
General and administrative	12,617	9,264
Total operating costs and expenses	50,435	29,373
Income from operations	4,715	3,788
Other income (expense):		
Gain (loss) from short-term investments	13,061	(30,741)
Interest income	296	4,730
Interest expense	(5,831)	(8,548)
Other income (expense), net	(6,477)	356
Total other income (loss), net	1,049	(34,203)
Income (loss) before income taxes	5,764	(30,415)
Income tax benefit	12,342	6,284
Net income (loss)	$ 18,106	$ (24,131)
Basic net income (loss) per share	$ 1.10	$ (1.46)
Shares used in basic per share calculations	16,435	16,529
Diluted net income (loss) per share	$ 1.05	$ (1.46)
Shares used in diluted per share calculations	17,248	16,529

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 March 31,	
	2021	**2020**
Net income (loss):	$ 18,106	$ (24,131)
Unrealized net loss on available-for-sale securities, net of tax	(55)	(2,772)
Foreign currency translation	—	(1,879)
Comprehensive income (loss)	$ 18,051	$ (28,782)

See accompanying notes to unaudited condensed consolidated financial statements.

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

	Common Stock					
	Shares	Amount	Additional paid in capital	Accumulated other comprehensive loss	Retained earnings	Total stockholders' equity
Balance at January 1, 2021	16,080	$ 16	$ 318,358	$ (801)	$ 391,952	$ 709,525
Issuance of common stock under employee stock compensation plans, net	572	1	20,580	—	—	20,581
Share-based compensation	—	—	8,405	—	—	8,405
Unrealized net loss on available-for-sale securities, net of deferred tax	—	—	—	(55)	—	(55)
Reacquisition of equity due to 2023 debt extinguishment, net of tax	—	—	(9,086)	—	—	(9,086)
Warrant and bond hedge unwind transactions	—	—	396	—	—	396
Tax effect for 2023 Notes transactions			(2,032)			(2,032)
Net income	—	—	—	—	18,106	18,106
Balance at March 31, 2021	16,652	$ 17	$ 336,621	$ (856)	$ 410,058	$ 745,840

	Common Stock					
	Shares	Amount	Additional paid in capital	Accumulated other comprehensive loss	Retained earnings (Accumulated deficit)	Total stockholders' equity
Balance at January 1, 2020	16,823	$ 17	$ 367,326	$ (216)	$ 400,105	$ 767,232
Issuance of common stock under employee stock compensation plans, net	105	—	(1,008)	—	—	(1,008)
Share-based compensation	—	—	5,653	—	—	5,653
Repurchase of common stock	(878)	(1)	(73,286)	—	—	(73,287)
Unrealized net gain on available-for-sale securities, net of deferred tax	—	—	—	(2,772)	—	(2,772)
Foreign currency translation adjustment	—	—	—	(1,879)	—	(1,879)
Reacquisition of equity due to 2023 debt extinguishment, net of tax	—	—	(2,745)	—	—	(2,745)
Cumulative-effect adjustment from adoption of ASU 2016-13, net of tax					(5,167)	(5,167)
Net loss	—	—	—	—	(24,131)	(24,131)
Balance at March 31, 2020	16,050	$ 16	$ 295,940	$ (4,867)	$ 370,807	$ 661,896

See accompanying notes to unaudited condensed consolidated financial statements.

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

	March 31,	
	2021	**2020**
Cash flows from operating activities:		
Net income (loss)	$ 18,106	$ (24,131)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Change in estimated fair value of contingent liabilities	1,684	(372)
Depreciation and amortization of intangible assets	12,565	3,422
Amortization of premium (discount) on investments, net	150	830
Amortization of debt discount and issuance fees	4,916	7,203
Amortization of commercial license and other economic rights	528	2,958
Loss (gain) on debt extinguishment	4,840	(659)
Share-based compensation	8,405	5,653
Deferred income taxes	(12,408)	(10,419)
Loss (gain) from short-term investments	(13,090)	25,456
Other	238	5,668
Changes in operating assets and liabilities:		
Accounts receivable, net	2,411	(8,398)
Inventory	(9,670)	1,251
Accounts payable and accrued liabilities	470	2,114
Income tax receivable and payable	1,072	4,081
Deferred revenue	(5,695)	2,215
Other	(3,768)	50
Net cash provided by operating activities	10,754	16,922
Cash flows from investing activities:		
Purchase of short-term investments	(72,148)	(167,374)
Proceeds from sale of short-term investments	109,407	179,431
Proceeds from maturity of short-term investments	31,500	297,005
Other	(3,644)	(526)
Net cash provided by investing activities	65,115	308,536
Cash flows from financing activities:		
Repurchase of 2023 Notes	(108,822)	(203,210)
Payments under financing lease obligations	(3,801)	—
Proceeds from convertible bond hedge settlement	16,855	—
Payments to convertible bond holders for warrant purchases	(16,459)	—
Net proceeds from stock option exercises and ESPP	26,493	421
Taxes paid related to net share settlement of equity awards	(5,901)	(1,429)
Share repurchase	—	(73,287)
Payments to CVR Holders	—	(1,800)
Net cash used in financing activities	(91,635)	(279,305)
Effect of exchange rate changes on cash	—	(169)
Net increase (decrease) in cash, cash equivalents and restricted cash	(15,766)	45,984
Cash, cash equivalents and restricted cash at beginning of period	47,963	72,273
Cash, cash equivalents and restricted cash at end of period	$ 32,197	$ 118,257
Supplemental disclosure of cash flow information:		
Interest paid	$ 241	$ 597
Restricted cash in other current assets	$ 344	$ 730
Supplemental schedule of non-cash activity:		
Accrued fixed asset purchases	$ 87	$ 63
Accrued inventory purchases	$ 775	$ 1,445
Unrealized loss on AFS investments	$ (55)	$ (3,541)

See accompanying notes to unaudited condensed consolidated financial statements.

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 2020 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 condensed consolidated financial statements have been reclassified to conform with the current period presentation. Specifically, "contract revenue" and "service revenue" presented in the condensed consolidated statement of operations for the three months ended March 31, 2020 have been combined into "contract revenue" in the condensed consolidated statement of operations to conform with the current period presentation. In addition, "gain (loss) from Viking" and a portion of "other expense, net" that related to other short-term investments presented in the condensed consolidated statement of operations for the three months ended March 31, 2020 have been combined into "gain (loss) from short-term investments" in the condensed consolidated statement of operations to conform with the current period presentation.

Significant Accounting Policies

We have described our significant accounting policies in *Note 1, Basis of Presentation and Summary of Significant Accounting Policies* of the Notes to Consolidated Financial Statements in our 2020 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.

Impact of COVID-19 Pandemic

The current COVID-19 worldwide pandemic has presented substantial public health and economic challenges and is affecting our employees and partners, patients, communities and business operations, as well as the U.S. and global economy and financial markets. International and U.S. governmental authorities in impacted regions have taken actions in an effort to slow the spread of COVID-19, including issuing varying forms of "stay-at-home" orders, and restricting business functions outside of one's home. In response, we have restricted in-person access to our executive offices, our administrative employees are mostly working remotely, and we have limited the number of staff in our research and development laboratories and other facilities. The continued spread of the COVID-19 pandemic and the measures taken by the governments of countries have affected, and could continue to affect, our business and the business of our partners, including future disruptions to our supply chain and the manufacture or shipment of drug substance and finished drug product for Captisol, delays by us or our partners in the initiation or enrollment of patients in clinical trials, discontinuations by patients enrolled in clinical trials, difficulties launching or commercializing products and other related activities, which could delay ongoing clinical trials, increase development costs, reduce royalty revenues and have a material adverse effect on our business, financial condition and results of operations. Several of our partners have reported that their operations have been impacted including delays in research and development programs and deprioritizing clinical trials in favor of treating patients who have contracted the virus or to prevent the spread of the virus. This may lead to clinical trial protocol deviations or to discontinuation of treatment for patients who are currently enrolled in the clinical trials being conducted by us or our partners. In addition, certain of our partners have reported negative impacts on product sales which will impact our royalty revenues.

Some of our partners are working to develop drugs to treat COVID-19. For example, we are supplying Captisol to partners, including Gilead for Veklury (remdesivir), the first FDA-approved treatment for COVID-19 for the treatment of patients with COVID-19 requiring hospitalization. In addition, certain of our OmniAb partners have initiated antibody discovery programs for the potential treatment of COVID-19.

The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, the businesses of our partners, our results of operations and our financial condition will depend on future developments that are highly uncertain and cannot be accurately predicted, including new information that may emerge concerning COVID-19, the actions taken to contain it or treat its impact, including the timing and extent of governments reopening or further restricting activities, and the economic impact on local, regional, national and international markets.

Accounting Standards Not Yet Adopted

In August 2020, the FASB issued ASU 2020-06,*Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity.* The new guidance simplifies accounting for convertible instruments by removing major separation models required under current GAAP. This standard removes certain settlement conditions that are required for equity contracts to qualify for the derivative scope exception and it also simplifies the diluted earnings per share calculation in certain areas. This standard is effective for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020 and adoption must be as of the beginning of the Company's annual fiscal year. We are currently evaluating the impact of this standard on our consolidated financial statements and related disclosures. We intend to adopt this standard on January 1, 2022.

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

Revenue

Our revenue is generated primarily from royalties on sales of products commercialized by our partners, Captisol material sales, and contract revenue for services, license fees and development, regulatory and sales based milestone payments.

Royalties

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 when the underlying sale occurs. 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.

Contract Revenue

Our contract revenue includes service revenue, license fees and future contingent milestone based payments. We recognize service revenue for contracted R&D services performed for our customers over time. We measure our progress using an input method based on the effort we expend or costs we incur toward the satisfaction of our performance obligation. We estimate the amount of effort we expend, including the time we estimate it will take us to complete the activities, or costs we incur in a given period, relative to the estimated total effort or costs to satisfy the performance obligation. This results in a percentage that we multiply by the transaction price to determine the amount of revenue we recognize each period. This approach requires us to make estimates and use judgement. If our estimates or judgements change over the course of the collaboration, they may affect the timing and amount of revenue that we recognize in the current and future periods.

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.

Captisol 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. We have elected to recognize the cost for freight and shipping when or after control over Captisol material has transferred to the customer as an expense in cost of Captisol. 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.

Deferred Revenue

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.

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 months ended March 31, 2021, the amount recognized as revenue that was deferred at December 31, 2020 was $7.3 million. During the three months ended March 31, 2020, the amount recognized as revenue that was deferred at December 31, 2019 was $1.0 million.

Disaggregation of Revenue

The following table represents disaggregation of royalties, Captisol and contract revenue (in thousands):

		Three months ended March 31,	
		2021	**2020**
Royalties			
	Kyprolis	$ 4,287	$ 4,405
	Evomela	2,333	1,576
	Other	492	584
		$ 7,112	$ 6,565
Captisol		$ 31,272	$ 21,109
Contract revenue			
	Service Revenue	$ 5,462	$ 3,357
	License Fees	1,043	975
	Milestone	8,417	334
	Other	1,844	821
		$ 16,766	$ 5,487
Total		$ 55,150	$ 33,161

Short-term Investments

Our short-term investments consist of the following at March 31, 2021 and December 31, 2020 (in thousands):

	March 31, 2021				December 31, 2020			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Estimated fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Estimated fair value
Bank deposits	$ 51,232	$ 25	$ (4)	$ 51,253	$ 84,120	$ 35	$ (1)	$ 84,154
Corporate bonds	25,853	72	(8)	25,917	30,512	99	(1)	30,610
Agency bonds	4,501	—	(4)	4,497	4,499	2	—	4,501
Commercial paper	19,815	9	—	19,824	45,459	27	(1)	45,485
Corporate equity securities	4,456	3,736	—	8,192	4,466	360	(1,388)	3,438
Mutual fund	151,830	53	—	151,883	151,512	386	—	151,898
Treasury bill	—	—	—	—	3,999	—	—	3,999
Warrants	—	1,422	—	1,422	—	393	—	393
	$ 257,687	$ 5,317	$ (16)	$ 262,988	$ 324,567	$ 1,302	$ (1,391)	$ 324,478
Viking common stock				44,366				32,763
Viking warrants				—				6,326
Total short-term investments				$ 307,354				$ 363,567

During the three months ended March 31, 2021, we sold0.3 million shares of Viking and recognized a realized gain of $2.2 million.

During the three months ended March 31, 2021, we exercised all outstanding Viking warrants to purchase1.5 million shares of Viking's common stock at an exercise price of $1.50 per share. As of March 31, 2021, we havezero Viking warrants outstanding.

Gain (loss) from short-term investments in our condensed consolidated statements of operations includes both realized and unrealized gain (loss) from our short-term investments in public equity and warrant securities.

Allowances are recorded for available-for-sale debt securities with unrealized losses. This limits of the amount of credit losses that can be recognized for available-for-sale debt securities to the amount by which carrying value exceeds fair value and requires the reversal of previously recognized credit losses if fair value increases. The provisions of the credit losses standard did not have a material impact on our available-for-sale debt securities during the three months ended March 31, 2021.

The following table summarizes our available-for-sale debt securities by contractual maturity (in thousands):

	March 31, 2021	
	Amortized Cost	Fair Value
Within one year	$ 77,913	$ 77,981
After one year through five years	23,488	23,509
Total	$ 101,401	$ 101,490

Our investment policy is capital preservation and we only invested in U.S.-dollar denominated investments. We held a total of11 positions which were in an unrealized loss position as of March 31, 2021. We believe that we will collect the principal and interest due on our debt securities that have an amortized cost in excess of fair value. The unrealized losses are largely due to changes in interest rates and not to unfavorable changes in the credit quality associated with these securities that impacted our assessment on collectability of principal and interest. We do not intend to sell these securities and it is not more-likely-than-not that we will be required to sell these securities before the recovery of the amortized cost basis. Accordingly, no credit losses were recognized for the three months ended March 31, 2021.

Accounts Receivable and Allowance for Credit Losses

Our accounts receivable arise primarily from sales on credit to customers. We establish an allowance for credit losses to present the net amount of accounts receivable expected to be collected. The allowance is determined by using the loss-rate method, which requires an estimation of loss rates based upon historical loss experience adjusted for factors that are relevant to determining the expected collectability of accounts receivable. Some of these factors include macroeconomic conditions that correlate with historical loss experience, delinquency trends, aging behavior of receivables and credit and liquidity quality indicators for industry groups, customer classes or individual customers. During the three months ended March 31, 2021, we considered the current and expected future economic and market conditions including, but not limited to, the anticipated unfavorable impacts of the surrounding novel coronavirus (COVID-19) pandemic on our business and recorded an adjustment of $0.02 million of allowance for credit losses as of March 31, 2021.

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):

	March 31, 2021	December 31, 2020
Indefinite-lived intangible assets		
Goodwill	$ 190,515	$ 189,662
Definite lived intangible assets		
Complete technology	277,980	277,740
Less: accumulated amortization	(67,441)	(63,600)
Trade name	2,642	2,642
Less: accumulated amortization	(1,345)	(1,312)
Customer relationships	40,700	40,700
Less: accumulated amortization	(16,264)	(15,597)
Contractual relationships	362,000	362,000
Less: accumulated amortization	(14,487)	(7,243)
Total goodwill and other identifiable intangible assets, net	$ 774,300	$ 784,992

Commercial License and Other Economic Rights

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

	March 31, 2021			December 31, 2020		
	Gross	Adjustments[1]	Net	Gross	Adjustments[2]	Net
Aziyo and CorMatrix	$ 17,696	$ (9,530)	**$ 8,166**	$ 17,696	$ (9,588)	**$ 8,108**
Selexis and Dianomi	10,602	(8,317)	**2,285**	10,602	(7,731)	**2,871**
Total	$ 28,298	$ (17,847)	**$ 10,451**	$ 28,298	$ (17,319)	**$ 10,979**

(1) Amounts represent accumulated amortization to principal of $ 11.9 million and credit loss adjustments of $ 6.0 million as of March 31, 2021.
(2) Amounts represent accumulated amortization to principal of $ 11.3 million and credit loss adjustments of $ 6.0 million as of December 31, 2020.

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, and Dianomi in January 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 and in *Note 1, Basis of Presentation and Summary of Significant Accounting Policies* of the Notes to Consolidated Financial Statements in our 2020 Annual Report.

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 March 31, 2021 is 23%. Revenue is calculated by multiplying the carrying value of the commercial license right by the effective interest.

The payments received during the three months ended March 31, 2021 were accordingly allocated between revenue and the amortization of the commercial license rights.

Prior to 2020, we accounted for commercial license rights related to developmental pipeline products such as Selexis and Dianomi on a non-accrual basis. Starting in 2020, given the expected cash flow from the Selexis program, we started to account for the Selexis commercial license right as a financial asset in accordance with ASC 310, and 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 Selexis as of March 31, 2021 is 21%. Revenue is calculated by multiplying the carrying value of the commercial license right by the effective interest. The payments received during the three months ended March 31, 2021 were accordingly allocated between revenue and the amortization of the commercial license rights.

We recorded a $5.5 million pre-tax reserve for credit losses upon adoption of the credit losses standard (ASU 2016-13) on January 1, 2020. We estimated the credit losses at the individual asset level by considering the performance against the programs, the company operating performance and the macroeconomic forecast. In addition, we have judgmentally applied credit loss risk factors to the future expected payments with consideration given to the timing of the payment. Given the higher inherent credit risk associated with longer term receivables, we applied a lower risk factor to the earlier years and progressively higher risk factors to the later years. During the three months ended March 31, 2021, we further considered the current and expected future economic and market conditions surrounding novel coronavirus (COVID-19) pandemic and concluded no further adjustment was needed on the allowance for credit losses as of March 31, 2021.

Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	March 31, 2021	December 31, 2020
Compensation	$ 3,347	$ 8,810
Professional fees	958	977
Amounts owed to former licensees	468	421
Royalties owed to third parties	102	693
Return reserve	682	687
Acquisition related liabilities	1,500	1,500
Subcontractor	1,034	733
Supplier	788	604
Accrued interest	1,086	464
Other	2,145	3,641
Total accrued liabilities	$ 12,110	$ 18,530

Share-Based Compensation

Share-based compensation expense for awards to employees and non-employee directors is a non-cash expense and 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 March 31,	
	2021	2020
SBC - Research and development expenses	$ 3,939	$ 2,397
SBC - General and administrative expenses	4,466	3,256
	$ 8,405	$ 5,653

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

	Three months ended March 31,	
	2021	**2020**
Risk-free interest rate	0.5%	1.4%
Dividend yield	—	—
Expected volatility	63%	47%
Expected term	5.0	4.7

A limited amount of performance-based restricted stock units (PSUs) contain a market condition based on our relative total shareholder return ranked on a percentile basis against the NASDAQ Biotechnology Index over a three-year performance period, with a range of 0% to 200% of the target amount granted to be issued under the award. Share-based compensation cost for these PSUs is measured using the Monte-Carlo simulation valuation model and is not adjusted for the achievement, or lack thereof, of the performance conditions.

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.

Potentially dilutive common shares consist of shares issuable under the 2023 Notes, stock options and restricted stock. The 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. 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. See *Note 4, Convertible Senior Notes* and *Note 6, Stockholders' Equity*.

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

	Three months ended March 31,	
	2021	**2020**
Weighted average shares outstanding:	16,435	16,529
Dilutive potential common shares:		
Restricted stock	112	—
Stock options	701	—
Shares used to compute diluted income per share	17,248	16,529
Potentially dilutive shares excluded from calculation due to anti-dilutive effect	4,277	10,144

2. 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):

	March 31, 2021				December 31, 2020			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Short-term investments, excluding Viking[1]	$ 8,193	$ 253,373	$ 1,422	$ 262,988	$ 3,438	$ 320,647	$ 393	$ 324,478
Investment in Viking common stock	44,366	—	—	44,366	32,763	—	—	32,763
Investment in Viking warrants [2]	—	—	—	—	6,326	—	—	6,326
Total assets	$ 52,559	$ 253,373	$ 1,422	$ 307,354	$ 42,527	$ 320,647	$ 393	$ 363,567
Liabilities:								
Crystal contingent liabilities[3]	$ —	$ —	$ 800	$ 800	$ —	$ —	$ 800	$ 800
CyDex contingent liabilities	—	—	496	496	—	—	508	508
Metabasis contingent liabilities[4]	—	4,182	—	4,182	—	3,821	—	3,821
Icagen contingent liabilities[5]	—	—	7,439	7,439	—	—	6,404	6,404
Pfenex contingent liabilities[6]	—	—	37,900	37,900	—	—	37,600	37,600
xCella contingent liabilities[7]	—	—	240	240	—	—	—	—
Amounts owed to former licensor	73	—	—	73	60	—	—	60
Total liabilities	$ 73	$ 4,182	$ 46,875	$ 51,130	$ 60	$ 3,821	$ 45,312	$ 49,193

1. Excluding our investment in Viking, our short-term investments in marketable debt and equity securities 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. Short-term investments in mutual funds are valued at their net asset value (NAV) on the last day of the period. 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 Therapeutics Inc. 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 Black Scholes value estimated by management on the last day of the period.
2. Investment in Viking 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 short-term investments" in our condensed consolidated statement of operations. During the three months ended March 31, 2021, we exercised all of the outstanding Viking warrants.
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. 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.
5. The fair value of Icagen contingent liabilities was determined using a probability weighted income approach. Most of the contingent payments are based on certain revenue milestones as defined in the asset purchase agreement with Icagen. 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. Changes in these estimates may materially affect the fair value.
6. The fair value of Pfenex contingent liabilities was determined using a probability-adjusted income approach. These cash flows were then discounted to present value using a discount rate based on the market participants' cost of debt reflective of the Company.
7. The fair value of xCella contingent liabilities is determined when it is probable that the earnout liability will occur and the amount can be reasonably estimated. Management concluded that no earnout liability would be recognized at the acquisition date in September 2020. In the three months ended March 31, 2021, management recorded an earnout liability to be allocated to the cost of the acquired assets due to contingencies being met as part of the acquisition agreement.

A reconciliation of the level 3 financial instruments as of March 31, 2021 is as follows (in thousands):

Fair value of level 3 financial instruments as of December 31, 2020	$	45,312
Fair value adjustments to contingent liabilities		1,323
Contingent liabilities from xCella asset acquisition		240
Fair value of level 3 financial instruments as of March 31, 2021	$	46,875

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 three months ended March 31, 2021.

3. Acquisitions

Pfenex Acquisition

On October 1, 2020, we acquired Pfenex, which develops next-generation and novel protein therapeutics to improve existing therapies and create new therapies for biological targets linked to critical, unmet diseases using a protein expression technology platform.

The preliminary purchase price of $465.1 million included $429.6 million cash consideration paid upon acquisition, and a contingent CVR payment of up to $77.8 million in cash based on a certain specified milestone with an estimated initial fair value of $37.0 million. The CVR will only be paid in full if the milestone is achieved by December 31, 2021. The amount of the CVR included in the purchase price was reduced by $1.5 million that was determined to be post-combination expense. The fair value of the CVR liability was determined using a probability-adjusted income approach. These cash flows were then discounted to present value using a discount rate based on market participants' cost of debt reflective of the Company, which was 7.1%. The liability is periodically assessed based on events and circumstances related to the underlying milestone, and any change in fair value is recorded in our consolidated statements of operations.

In connection with the acquisition, a portion of Pfenex's equity awards that were outstanding and unvested prior to the acquisition became fully vested per the terms of the merger agreement. The acceleration of vesting required us to allocate the fair value of the equity attributable to pre-combination service to the purchase price and the remaining amount was considered our post-combination expense. We paid $17.3 million in cash for equity compensation, which is attributable to pre-combination services and is reflected as a component of the total purchase price paid of $429.6 million. In addition, the fair value of equity compensation attributable to the post-combination service period was $8.7 million. These amounts were associated with the accelerated vesting of stock options previously granted to Pfenex employees and were fully paid in cash, which was recognized as general and administrative expenses during the fourth quarter of 2020.

The following table sets forth an allocation of the preliminary purchase price to the identifiable tangible and intangible assets acquired and liabilities assumed, with the excess recorded to goodwill (in thousands):

Cash	$	51,407
Restricted cash		200
Accounts and unbilled receivables		1,359
Property and equipment, net		7,823
Right-of-use asset		3,070
Other assets		1,338
Intangibles acquired		385,000
Goodwill[(1)]		91,837
Accounts payable		(6,814)
Accrued liabilities		(8,455)
Deferred revenue		(3,908)
Lease liabilities		(3,070)
Other liabilities		(1,382)
Deferred tax liabilities, net		(53,296)
	$	465,109

(1) Goodwill represents the excess of the purchase price over the preliminary fair value of the underlying assets acquired and liabilities assumed. Goodwill is attributable to the assembled workforce of experienced personnel at Pfenex and expected synergies. None of the goodwill is expected to be deductible for tax purposes.

Acquired intangibles include $362 million of contractual relationships and $23 million of core technology. The fair values of the contractual relationships were based on the discounted cash flow method that estimated the present value of the potential royalties, milestones, collaboration and product revenue streams derived from the licensing of the related technologies over the estimated contractual relationship period. The fair value of the contractual relationships is being amortized on a straight-line basis over the weighted average estimated useful life of 12.9 years. The fair values of the acquired technologies were based on the discounted cash flow method that estimated the present value of the potential royalties, milestones, collaboration and product revenue streams derived from the licensing of the related technologies over the estimated useful lives. These projected cash flows were discounted to present value using discount rate, which varies from 12% to 15%. The total acquired intangibles are being amortized on a straight-line basis over the weighted average estimated useful life of 13.0 years.

The estimated fair values of assets acquired and liabilities assumed, including deferred tax assets and liabilities, and purchased intangibles are provisional. The accounting for these amounts falls within the measurement period and therefore we may adjust these provisional amounts to reflect new information obtained about facts and circumstances that existed as of the acquisition date.

The following summary presents our unaudited pro forma consolidated results of operations for the quarter ended March 31, 2020 as if the Pfenex acquisition had occurred on January 1, 2020, which gives effect to certain transaction accounting adjustments, including amortization of acquired intangibles and share based compensation expense for retained Pfenex employees. The pro forma financial information is not necessarily indicative of the operating results that would have occurred had the acquisition been consummated as of the date indicated, nor is it necessarily indicative of future operating results (in thousands, except per share amounts):

		Three Months Ended March 31, 2020
Revenue	$	33,843
Net loss	$	(37,939)
Net loss per common share:		
Basic and diluted	$	(2.30)

Taurus Acquisition

On September 9, 2020, we acquired Taurus, which discovers and develops novel antibodies from immunized cows and cow-derived libraries. The purchase price of $5.1 million included $4.6 million in cash, and a $0.5 million holdback to satisfy indemnification obligations which will be settled by September 2021. We also issued nontransferable CVRs for up to $4.5 million tied to partnered and internal research and development and for up to $25.0 million as a 25% share of post-clinical Taurus product revenues (including milestone payments) received by us. We evaluated this acquisition in accordance with ASC 805, *Business Combinations*, to discern whether the assets and operations of Taurus met the definition of a business. We concluded that substantially all of the fair value of the gross assets acquired is concentrated in the acquired core technology.

Accordingly, we accounted for this transaction as an asset acquisition. Of the $5.1 million consideration transferred, we recognized (1) $0.05 million of tangible assets acquired, and (2) $5.0 million of core completed technology intangibles acquired. The core technology is being amortized on a straight-line basis over the estimated useful life of 10 years. We account for the CVRs in accordance with ASC 450, *Contingencies*, when the contingency is resolved and the liability becomes payable. None of the CVRs are recognized as of March 31, 2021.

xCella Acquisition

On September 8, 2020, we acquired xCella, an antibody discovery company. We paid $7.1 million in cash (including a $0.5 million holdback to satisfy indemnification obligations which will be settled by September 2021), and issued earnout rights for up to $5.0 million tied to our use of the xCella technology for partnered research and development and for up to $25.75 million as a 25% share of any future milestone payments we received under a certain existing xCella partner arrangement. We evaluated this acquisition in accordance with ASC 805, *Business Combinations*, to discern whether the assets and operations of xCella met the definition of a business. We concluded that substantially all of the fair value of the gross assets acquired is concentrated in the acquired core technology. Accordingly, we accounted for this transaction as an asset acquisition. Of the $7.1 million consideration transferred, we recognized (1) $0.2 million of tangible assets acquired, (2) $(0.1) million of liabilities assumed, (3) $7.8 million of core completed technology acquired, and (4) $(0.8) million of deferred tax liability. The core technology is being amortized on a straight-line basis over the estimated useful life of 15 years. We account for the earnout rights in accordance with ASC 450,*Contingencies*, when the contingency is resolved and the liability becomes payable. None of the earnout rights are recognized as of the acquisition date. During the three months ended March 31, 2021, we recognized $0.2 million in earnout rights when certain contingencies were resolved during the period.

Icagen Acquisition

On April 1, 2020, we acquired the core assets, including its partnered programs and ion channel technology, from Icagen and certain of its affiliates. The acquisition was accounted for as a business combination and 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 applicable date of acquisition. We did not incur any material acquisition-related costs.

The purchase price of $19.9 million included $15.1 million cash consideration paid upon acquisition, and a contingent earn-out payment of up to $25.0 million of cash payments based on certain revenue milestones with an estimated fair value of $4.8 million. The fair value of the earn-out liability was determined using a probability weighted income approach incorporating the estimated future cash flows from expected future milestones. These cash flows were then discounted to present value using a discount rate based on the market participants' cost of debt reflective of Icagen. Refer to *Note 2, Fair Value Measurement*, for further discussion. The liability will be periodically assessed based on events and circumstances related to the underlying milestones, and any change in fair value will be recorded in our consolidated statements of operations. The carrying amount of the liability may fluctuate significantly and actual amount paid may be materially different than the carrying amount of the liability. There was no change in the fair value of the contingent liabilities during the second quarter of 2020. As the acquisition is not considered significant, pro forma information has not been provided. The results of Icagen have been included in our results of operations since the date of acquisition.

The allocation of the purchase price consisted of (1) $1.8 million of fair value of tangible assets acquired, (2) $(0.8) million of liabilities assumed, (3) $12.8 million of acquired intangibles, (4) $(3.7) million of deferred revenue in connection with assumed performance obligations under a collaboration agreement, (5) $0.8 million of deferred tax asset associated with the deferred revenue, and (6) $9.0 million of goodwill, the majority of which is deductible for tax purposes.

Acquired intangibles include $11.1 million of customer relationships and $1.7 million of core technology. The fair values of the customer relationships were based on a discounted cash flow analysis incorporating the estimated future cash flows from these relationships during the contractual term. These cash flows were then discounted to present value using a discount rate of 17%. The fair value of the customer relationships is being amortized on a straight-line basis over the weighted average estimated useful life of 9.6 years. 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 17%. The fair value of the core technology is being amortized on a straight-line basis over the estimated useful life of 10 years. The total acquired intangibles are being amortized on a straight-line basis over the estimated useful life of 9.7 years.

4. Convertible Senior Notes

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 March 31, 2021, 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.

In March 2021, we repurchased $104.5 million in principal of the 2023 Notes for $109.1 million in cash, including accrued interest of $0.2 million. We accounted for the repurchase as a debt extinguishment, which resulted in (1) a loss of $4.8 million reflected in other income (expense), net, in our condensed consolidated statement of operations for the three months ended March 31, 2021; (2) a $9.6 million reduction in debt discount, and (3) a $9.1 million reduction to additional paid in capital, net of tax, related to the reacquisition of the equity component in our condensed consolidated balance sheet as of March 31, 2021. After the repurchases, approximately $390.8 million in principal amount of the 2023 Notes remain outstanding.

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 our 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.

In January 2021, we entered into amendments with Barclays Bank PLC, Deutsche Bank AG, and Goldman Sachs & Co. LLC to the convertible note hedges transactions we initially entered into in connection with the issuance of the 2023 Notes. The amendments provide that the options under the convertible note hedges corresponding to such repurchased 2023 Notes will remain outstanding notwithstanding such repurchase.

In March 2021, in connection with the repurchases of $104.5 million in principal of the 2023 Notes for $109.1 million in cash, including accrued interest of $0.2 million, during the quarter ended March 31, 2021, we entered into Warrant Early Unwind Agreements and Bond Hedge Unwind Agreements with Barclays Bank PLC, Deutsche Bank AG, and Goldman Sachs & Co. LLC to unwind a portion of the convertible note hedges transactions we initially entered into in connection with the issuance of the 2023 Notes. We paid $16.5 million as part of the Warrant Early Unwind Agreements reducing the number of shares covered by the warrants from3,018,327 to 2,597,750. We received $16.9 million as part of the Bond Hedge Early Unwind Agreements reducing the number of options under the convertible bond hedges to 645,500. These unwind transactions resulted in a $0.4 million net increase in additional paid-in-capital in our condensed consolidated balance sheet as of March 31, 2021.

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

	March 31, 2021	December 31, 2020
Principal amount of the 2023 Notes outstanding	$ 390,780	$ 495,280
Unamortized discount (including unamortized debt issuance cost)	(38,467)	(52,987)
Total long-term portion of notes payable	$ 352,313	$ 442,293
Carrying value of equity component of the 2023 Notes	$ 35,135	$ 48,397
Fair value of the 2023 Notes outstanding (Level 2)	$ 404,477	$ 466,053

5. 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 months ended March 31, 2021 and 2020 was (214.1)% and 20.7%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three months ended March 31, 2021 was significantly impacted by discrete tax benefits related to net excess tax windfalls from share-based compensation resulting from increased stock option exercise activity, stock award vesting and appreciation of our stock price during the period.

6. 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 9, Stockholders' Equity*, of the Notes to Consolidated Financial Statements in our 2020 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, 2020	2,561,822	$ 85.59	206,202	$ 106.88
Granted	265,529	$ 172.39	153,166	$ 173.32
Options exercised/RSUs vested	(522,172)	$ 51.98	(88,959)	$ 127.16
Forfeited	(58,862)	$ 101.77	(5,024)	$ 110.91
Balance as of March 31, 2021	2,246,317	$ 103.24	265,385	$ 138.85

As of March 31, 2021, outstanding options to purchase1.2 million shares were exercisable with a weighted average exercise price per share of $89.20.

Employee Stock Purchase Plan

The price at which common stock is purchased under the Amended Employee Stock Purchase Plan, or ESPP, is equal to85% of the fair market value of the common stock on the first or last day of the offering period, whichever is lower. As of March 31, 2021, 52,808 shares were available for future purchases under the ESPP.

Share Repurchases

We did not have any share repurchases during the first quarter of 2021.

On September 11, 2019, our Board of Directors approved a stock repurchase program authorizing, but not obligating, the repurchase of up to $100.0 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 may enter into Rule 10b5-1 trading plans, 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. Authorization to repurchase $248.8 million of our common stock remained available as of March 31, 2021.

7. 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 April 9, 2019, CyDex, our wholly-owned subsidiary, 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 April 7, 2020, the Court ordered that the Scheduling Order be amended such that, inter alia, the fact discovery cut off occurred on November 2, 2020, the close of expert discovery was set for March 22, 2021, and that May 17, 2021 would remain the first day of a five-to-six-day bench trial. On November 2, 2020, the District Court issued an order construing the disputed issues of claim construction, adopting the claim construction positions urged by CyDex. On January 13, 2021, the District Court entered an order noting that the parties were engaged in ongoing settlement efforts, and ordering that (i) all deadlines in the litigation be stayed, and (ii) the parties submit a joint status report within 30 days. In early February, and again in early March, the parties submitted status reports stating that they have made substantial progress toward finalizing an agreement. All deadlines are presently stayed.

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. Lupin filed an answer on December 11, 2019 and counterclaimed for declaratory judgments of invalidity and non-infringement as to all four patents and CyDex filed its answer to Lupin's counterclaims on January 2, 2020. The parties entered into a settlement agreement on April 26, 2021 and the lawsuit has been dismissed.

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 more than one thousand 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 thethree complaints. We reject all claims raised in the complaints and intend to vigorously defend these matters.

In May and August of 2019, Pfenex Inc., which was acquired by us in October 2020, filedthree petitions (IPR2019- 01027, IPR2019-01028 and IPR2019-01478) for inter partes review of U.S. Patent No. 9,422,345 ("the '345 patent," entitled "Expression System"), which is owned by GlaxoSmithKline Biologicals S.A. ("GSK") , with the Patent Trial and Appeal Board ("PTAB") of the U.S. Patent and Trademark Office. In November 2019 and February 2020, the Board instituted trial on invalidity grounds in IPR2019-01028, but exercised its discretion not to institute trial on IPR2019-01027 or IPR2019-01478. In May 2020, GSK filed two petitions (IPR2020-00890 and IPR2020-00962) for inter partes review of U.S. Patent No. 8,530,171 ("the '171 patent," entitled "High Level Expression of Recombinant Toxin Proteins"), which is owned by Pfenex, with the PTAB of the U.S. Patent and Trademark Office. On June 29, 2020, GSK filed a motion to withdraw IPR2020-00890, which was granted on August 28, 2020. In October 2020, Pfenex and GSK executed a confidential settlement agreement agreeing to terminate the proceedings before the PTAB resolving these issues. Pfenex and GSK filed a joint motion to terminate IPR2019-01028 and IPR2020-00962 on October 30, 2020, and an amended joint motion to terminate on November 4, 2020. A decision granting the parties' joint motion to terminate in IPR2019-01028 was issued on November 12, 2020. The PTAB subsequently granted the parties' joint motion to terminate in IPR2020-00962 on December 30, 2020.

On January 12, 2021, Abvivo submitted a JAMS arbitration demand naming the Company as respondent. Abvivo claims that the Company is in violation of the assignment provision of that certain Commercial Platform License and Services Agreement ("CPLSA"), dated October 9, 2019, by and among OMT and Crystal, on the one hand, and Abvivo, on the other hand because the Company allegedly withheld its consent to a proposed assignment required for Abvivo to negotiate a discovery and development alliance with certain third parties. On January 26, 2021, we submitted a response to the demand, denying all claims and alleging counterclaims against Abvivo and Brian Lundstrom, a Company employee and the sole owner of Abvivo. We allege that Mr. Lundstrom breached his fiduciary duty of loyalty to the Company and that Abvivo and Mr. Lundstrom fraudulently induced the Company, OMT and Crystal into certain business transactions and contracts. Abvivo and Mr. Lundstrom's response to these counterclaims was due on February 9, 2021, but they did not submit a response. Under JAMS rules, the counterclaims are deemed denied. On February 22, 2021, Abvivo submitted documents to JAMS which indicated that it seeks to dismiss its claim without prejudice, which we oppose. On February 25, 2021, we submitted additional counterclaims against Abvivo and Mr. Lundstrom. These counterclaims allege that Abvivo and Mr. Lundstrom made false promises regarding the CPLSA, Abvivo's breach of and failure to perform under the CPLSA, and Abvivo's infringement of certain Ligand trademarks. On March 11, 2021, Abvivo and Mr. Lundstrom submitted an answer to our amended counterclaims denying all of the claims and asserting various affirmative defenses. The arbitration will be conducted by a three arbitrator panel, the members of which were appointed on March 30, 2021. We intend to vigorously defend ourselves against this action.

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 and manufacturing capacity, our Kyprolis, and other product royalty revenues, the impact of COVID-19, 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 or acquiring technologies that help pharmaceutical companies discover and develop medicines. We employ research technologies such as antibody discovery technologies, ion channel discovery technology, *Pseudomonas fluorescens* protein expression technology, formulation science and liver targeted pro-drug technologies to assist companies in their work toward securing prescription drug and biologic approvals. We currently have partnerships and license agreements with over 130 pharmaceutical and biotechnology companies. Over 300 programs are in various stages of commercialization, development or research and are fully funded by our collaboration partners and licensees. We have contributed novel research and technologies for approved medicines that treat cancer, osteoporosis, fungal infections and postpartum depression, among others. Our collaboration partners and licensees have programs currently in clinical development targeting cancer, seizure, diabetes, cardiovascular disease, muscle wasting, liver disease, and kidney disease, among others. We have over 1,400 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 contract 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.

Impact of COVID-19 Pandemic

Please see *Impact of COVID-19 Pandemic* described in Item 1. Condensed Consolidated Financial Statements -*Note 1, Basis of Presentation and Summary of Significant Accounting Policies*. For additional information on the various risks posed by the COVID-19 pandemic, please read Item 1A.*"Risk Factors"* included in this report.

Portfolio Program Updates

OmniAb® Platform Updates

OmniAb is our industry-leading, AI- and BI- (Biological Intelligence™) powered multi-species antibody platform for the discovery of mono- and bispecific therapeutic human antibodies. 2020 was a year of major investment with the acquisition and development of multiple technologies that enhance the offering for OmniAb partners, including the addition of antigen-generation services as well as deep-sequence analysis of functional antibody repertoires. As of March 31, 2021, 17 different OmniAb-derived antibodies have been studied in approximately 73 active or completed clinical trials. Progress by multiple OmniAb partners during the first quarter of 2021 resulted in more than $4 million in milestone payments being earned by us. We expect the first regulatory approvals for OmniAb-derived antibodies in 2021.

On January 11, 2021, Aptevo Therapeutics provided an update on their ongoing Phase 1/1b trial of APVO436 in AML/HR-MDS, noting that patient dosing in cohorts 1 through 9 has completed and enrollment in cohort 10 is ongoing. APVO436 is an OmniAb-derived bispecific antibody targeting CD123 and CD3 for the potential treatment of hematological malignancies.

On February 8, 2021, CStone Pharmaceuticals announced that the OmniAb-derived anti-PD-L1 antibody sugemalimab was granted Breakthrough Therapy Designation (BTD) in China for the treatment of patients with relapsed or refractory extranodal natural killer/T-cell lymphoma (R/R ENKTL). In October 2020, sugemalimab was granted Orphan Drug Designation in the U.S. for the treatment of T-cell lymphoma and BTD for the treatment of R/R ENKTL. An NDA for sugemalimab is under review in China for Stage IV squamous/non-squamous non-small cell lung cancer, and CStone expects a determination in the second half of 2021.

On January 27, 2021, Harbour BioMed announced that Batoclimab (HBM9161), a novel investigational anti-FcRn antibody, was granted BTD in China for treatment of adult patients with myasthenia gravis.

Pelican Platform Updates

The Pelican Expression Technology™ is our proprietary *Pseudomonas fluorescens* protein expression technology that has major collaborations with Jazz Pharmaceuticals, Merck, Serum Institute of India, Alvogen and Arcellx, each of which has potential to contribute meaningfully to our royalty revenue.

On January 12, 2021, Merck announced that the U.S. FDA accepted for priority review a Biologics License Application (BLA) for V114, Merck's investigational 15-valent pneumococcal conjugate vaccine, for the prevention of invasive pneumococcal disease in adults 18 years of age and older. The FDA set a Prescription Drug User Fee Act (PDUFA), or target action date, of July 18, 2021. The European Medicines Agency is also reviewing an application for licensure of V114 in adults.

On January 18, 2021, Alvogen's partner Thermarex announced the launch of Livogiva® in the EU. Livogiva is a biosimilar of the reference medicine Forsteo® (teriparatide) and therapeutic equivalence has been demonstrated in a Phase 3 clinical study in patients with severe osteoporosis who were treated for 6 months.

On April 6, 2021, Arcellx announced FDA clearance of their Investigational New Drug application for ACLX-001, an engineered cell therapy for the treatment of multiple myeloma. Arcellx presented preclinical data supporting Arcellx's ARC-SparX platform cell therapy ACLX-001, a novel BCMA-targeted CAR-T, at the AACR annual meeting in April of 2021.

Captisol® Business Updates

Captisol is utilized in the formulation of Gilead Sciences' Veklury® (remdesivir). The product has been approved or authorized for temporary use as a treatment for COVID-19 in approximately 50 countries worldwide and is included in more than 40 ongoing interventional or observational clinical studies. In addition to supplying Gilead, we are also supplying Captisol

to Gilead's voluntary licensing generic partners who are manufacturing remdesivir for 127 other countries. Gilead announced the decision to stop its Phase 3 study with intravenous Veklury in high-risk non-hospitalized patients with COVID-19 due to the evolution of the COVID-19 landscape. Gilead stated they continue to develop an investigational inhaled dosage form of remdesivir and expect results from the ongoing proof-of-concept study later this year.

On March 31, 2021, the FDA approved the addition of the anti-CD38 monoclonal antibody (mAb) Sarclisa (isatuximab) to the combination of Kyprolis® (carfilzomib) and dexamethasone to treat adult patients with relapsed or refractory multiple myeloma who have received one to three prior lines of therapy. Kyprolis is also approved in combination with the anti-CD38 mAb Darzalex (daratumumab) plus dexamethasone for the treatment of patients with relapsed or refractory multiple myeloma who have received a maximum of three prior lines of therapy.

On April 27, 2021, Aldeyra announced positive topline results from the Phase 3 INVIGORATE trial of 0.25% reproxalap ophthalmic solution (reproxalap), an investigational, novel small-molecule covalent inhibitor of RASP (reactive aldehyde species), in patients with allergic conjunctivitis. The clinical trial achieved statistical significance ($p<0.0001$) for the primary endpoint of change from baseline in subject-reported ocular itching score, and all secondary endpoints including investigator-assessed ocular redness, patient-reported ocular tearing score and total ocular severity score. Aldeyra plans to meet with the FDA in the second half of 2021 to discuss the INVIGORATE results and the potential submission of an NDA.

Other Business Updates

On April 21, 2021, Sermonix Pharmaceuticals announced a preclinical collaboration with Jay Gertz, Ph.D., a researcher at the Huntsman Cancer Institute and associate professor of oncological sciences at the University of Utah, to examine the potential effects of lasofoxifene on unique models of endometrial cancer that carry ESR1 mutations. Lasofoxifene has shown novel activity in ESR1 mutations, and Sermonix is currently enrolling patients in two Phase 2 Evaluation of Lasofoxifene in ESR1 Mutations (ELAINE) studies in metastatic breast cancer.

On May 3, 2021, we announced that we no longer plan to initiate the next CE-iohexol clinical trial at this time, as we assess the potential partnering or potential future partner involvement in any downstream clinical work.

Results of Operations

Revenue

(Dollars in thousands)	Q1 2021	Q1 2020	Change	% Change
Royalties	**$ 7,112**	$ 6,565	$ 547	8 %
Captisol	**31,272**	21,109	10,163	48 %
Contract revenue	**16,766**	5,487	11,279	206 %
Total revenue	**$ 55,150**	$ 33,161	$ 21,989	66 %

Royalty revenue is a function of our partners' product sales and the applicable royalty rate. Kyprolis royalty rates are under a tiered royalty rate structure with the highest tier being 3.0%. Evomela has a fixed royalty rate of 20%. Contract revenue includes service revenue, license fees and development, regulatory and sales based milestone payments.

Royalty revenue increased slightly in Q1 2021 compared to Q1 2020. Captisol sales increased in Q1 2021 compared to Q1 2020, primarily reflecting higher sales of Captisol for use in the manufacturing of remdesivir. Contract revenue increased in Q1 2021 compared to Q1 2020, with the increase primarily attributable to 1) the timing of partner milestone events and 2) the additional contract revenue of $4.2 million and $3.3 million from the acquisitions of Icagen in April 2020 and Pfenex in October 2020, respectively.

The following table represents royalty revenue by program:

(in millions)	Q1 2021 Estimated Partner Product Sales	Effective Royalty Rate	Q1 2021 Royalty Revenue	Q1 2020 Partner Product Sales	Effective Royalty Rate	Q1 2020 Royalty Revenue
Kyprolis	**$ 266.0**	**1.6 %**	**$ 4.3**	$ 286.0	1.5 %	$ 4.4
Evomela	**11.7**	**20.0 %**	**2.3**	7.9	20.0 %	1.6
Other	**27.1**	**1.8 %**	**0.5**	45.8	1.3 %	0.6
Total	**$ 304.7**		**$ 7.1**	$ 339.7		$ 6.6

Operating Costs and Expenses

(Dollars in thousands)	Q1 2021	% of Revenue	Q1 2020	% of Revenue
Cost of Captisol	**$ 8,153**		$ 4,683	
Amortization of intangibles	**11,786**		3,535	
Research and development	**17,879**		11,891	
General and administrative	**12,617**		9,264	
Total operating costs and expenses	**$ 50,435**	91%	$ 29,373	89%

Total operating costs and expenses increased by $21.1 million, or 72%, primarily due to the acquisition of Pfenex on October 1, 2020 and Icagen on April 1, 2020, as well as increase in Captisol sales revenue for the current period.

Cost of Captisol increased primarily due to higher Captisol sales during Q1 2021 as mentioned above.

Amortization of intangibles increased in 2021 compared to the same period in 2020 primarily due to the amortization of contractual relationships and technologies acquired from Icagen in April 2020 and Pfenex in October 2020.

At any one time, we are working on multiple programs. As such, we generally do not track our R&D expenses on a specific program basis. Our R&D expenses increased year over year in 2021 due to the costs associated with our acquisitions of Icagen in April 2020 and Pfenex in October 2020, which primarily consisted of salaries, lab costs and intangible amortizations associated with Icagen ($3.9 million) and Pfenex ($11.4 million). The increase was partially offset by a $2.5 million year over year decrease in amortization of other economic rights related to economic rights acquired from Palvella in December 2018.

General and administrative expenses increased primarily due to additional expenses from the Icagen and Pfenex acquisitions as well as additional share-based compensation expense during Q1 2021.

Other Income (Expense)

(Dollars in thousands)	Q1 2021	Q1 2020	Change
Gain (loss) from short-term investments	**$ 13,061**	$ (30,741)	$ 43,802
Interest income	**296**	4,730	(4,434)
Interest expense	**(5,831)**	(8,548)	2,717
Other income (expense), net	**(6,477)**	356	(6,833)
Total other income (expense), net	**$ 1,049**	$ (34,203)	$ 35,252

The fluctuation in the gain (loss) from short-term investments is primarily driven by the changes in the fair value of our ownership in Viking common stock and warrants (an unrealized gain of $9.1 million in Q1 2021 as compared to an unrealized loss of $29.7 million in Q1 2020).

Interest income consists primarily of interest earned on our short-term investments. The decreases over the prior period were due to the decrease in our short-term investment balance.

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 2023 Notes for the three months ended March 31, 2021. The decrease over the prior period was primarily due to lower average debt outstanding balance during Q1 2021 as compared to Q1 2020. In Q1 2021, we repurchased $104.5 million in principal of the 2023 Notes for $109.1 million in cash, including accrued interest of $0.2 million. See *Note 4, Convertible Senior Notes.*

Other income (expense), net, in Q1 2021 included a $4.8 million loss on debt extinguishment in connection with the 2023 Notes repurchase during the three months ended March 31, 2021.

Income Tax Benefit

(Dollars in thousands)	Q1 2021	Q1 2020	Change
Income (loss) before income taxes	**$ 5,764**	$ (30,415)	$ 36,179
Income tax benefit	**12,342**	6,284	6,058
Income (loss) from operations	**$ 18,106**	$ (24,131)	$ 42,237
Effective tax rate	(214.1)%	20.7 %	

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. The effective tax rate for the three months ended March 31, 2021 and March 31, 2020 was (214.1)% and 20.7%, respectively. The variance from the U.S. federal statutory tax rate of 21% for the three months ended March 31, 2021 was significantly impacted by discrete tax benefits from share-based compensation resulting from increased stock option exercise activity, stock award vesting and appreciation of our stock price during the period.

Liquidity and Capital Resources

As of March 31, 2021, our cash, cash equivalents, and short-term investments totaled $339.2 million, which decreased by $72.0 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 short-term investments, 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. Our short-term investments include U.S. government debt securities, investment-grade corporate debt securities, mutual funds 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 7,000,000 shares of common stock in Viking.

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. During the first quarter of 2021, we repurchased $104.5 million in principal of the 2023 Notes for $109.1 million in cash, including accrued interest of $0.2 million. After the repurchases, $390.8 million in principal amount of the 2023 Notes remain outstanding. We may continue to use cash on hand to repurchase additional 2023 Notes through open-market transactions, including through Rule 10b5-1 trading plan to facilitate open-market repurchases, or otherwise, from time to time. The timing and amount of repurchase transactions will be determined by management based on the evaluation of market conditions, trading price of the 2023 Notes, legal requirements and other factors. The 2023 Notes were not convertible as of March 31, 2021. 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. See *Note 4, Convertible Senior Notes.*

We believe that our existing funds, cash generated from operations and existing sources of and access to financing are adequate to fund our need for working capital, capital expenditures, debt service requirements, continued advancement of research and development efforts, potential stock repurchases and other business initiatives we plan to strategically pursue, including acquisitions and strategic investments.

As of March 31, 2021, we had $51.1 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%. We had no off-balance sheet arrangements at March 31, 2021 and December 31, 2020.

Cash Flow Summary

(Dollars in thousands)	Q1 2021	Q1 2020
Net cash provided by (used in):		
Operating activities	$ 10,754	$ 16,922
Investing activities	$ 65,115	$ 308,536
Financing activities	$ (91,635)	$ (279,305)

During the three months ended March 31, 2021, we repurchased $104.5 million in principal of the 2023 Notes for $109.1 million in cash, including accrued interest of $0.2 million. During the three months ended March 31, 2020, we repurchased $234.4 million in principal of the 2023 Notes for $203.8 million in cash, including accrued interest of $0.6 million; and used $73.3 million to repurchase our common stock.

Contractual Obligations

There have been no material changes outside the ordinary course of business to the Contractual Obligations table set forth in our 2020 Annual Report.

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 as compared to the critical accounting policies and estimates described in our 2020 Annual Report, 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,* related to allowance for credit losses.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

There were no substantial changes to our market risks in the three months ended March 31, 2021, when compared to the disclosures in Item 7A of our 2020 Annual Report.

Item 4. Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures as of March 31, 2021 were effective to ensure that information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

There were no changes in our internal control over financial reporting that occurred during the quarter ended March 31, 2021 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 2020 Annual Report, refer to*Note 7, 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 Part I. Item 1A. Risk Factors in our 2020 Annual Report, other than as set forth below:

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

Revenues from sales of Captisol material to our collaborative partners, including Amgen and Gilead, represent a significant portion of our current revenues. Any setback that may occur with respect to Captisol could significantly impair our operating results and/or reduce the market price of our stock. Setbacks for Captisol could include problems with shipping, distribution, manufacturing, product safety, marketing, government regulation or reimbursement, licenses and approvals, intellectual property rights, competition with existing or new products and physician or patient acceptance of the products using Captisol. In addition, revenue from Captisol sales related to remdesivir may not continue or materially increase due to a number of factors, including: if Gilead successfully develops or manufactures an alternative formulation of remdesivir that does not incorporate Captisol or uses less Captisol in such formulation; if remdesivir is later shown to not be effective or safe for the treatment of COVID-19; the FDA revises or revokes its approval of remdesivir; if alternative therapies or vaccines are approved; or the risk of COVID-19 infection significantly diminishes, in which case the commercial opportunity could be materially and adversely affected. For example, Gilead has announced plans to develop an inhaled dosage form of remdesivir that uses less Captisol than the current formulation and expects result from an ongoing proof-of-concept study later this year.

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

We obtain Captisol from Hovione, our third party manufacturer, primarily at their facilities in Portugal and Ireland. If Hovione were to cease to be able, for any reason, to supply Captisol to us in the amounts we require, or decline to supply Captisol to us, we would be required to seek an alternative source, which could potentially take a considerable length of time and impact our revenue and customer relationships. In the event of a Captisol supply interruption, we are permitted to designate and, with Hovione's assistance, qualify one or more alternate suppliers, although there is no assurance that we could do so timely or at an acceptable cost, if at all. In addition to manufacturing at Hovione's facilities in Ireland and Portugal, we have now added final step processing capacity for Captisol in both the United States and England.

We maintain inventory of Captisol, which has a five year shelf life, at three geographically dispersed storage locations in the United States and Europe. If we were to encounter problems maintaining our inventory, such as natural disasters, at one or more of these locations, it could lead to supply interruptions. In addition, we will rely on Hovione to expand manufacturing capacity of Captisol and any failure by Hovione to timely implement such increased capacity could adversely affect our ability to supply Captisol to our partners. While we believe we maintain adequate inventory of Captisol to meet our current partner needs, and our planned expansion of Captisol capacity will be sufficient to meet future partner needs, our estimates and projections for Captisol demand may not be correct and any supply interruptions could materially adversely impact our operating results. In addition, our plan to invest additional capital for the expansion of Captisol manufacturing capacity may not yield a return on investment if future Captisol sales fall below our expectations.

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

any of our major customers were to default in the payment of their obligations to us, our business, operating results and cash flows could be adversely affected.

Further, under most of our Captisol outlicenses, the amount of royalties we receive will be reduced or will cease when the relevant patent expires. Our low-chloride patents and foreign equivalents are not expected to expire until 2033, our high purity patents and foreign equivalents are not expected to expire until 2029 and our morphology patents and foreign equivalents are not expected to expire until 2026 in United States, but the initially filed patents relating to Captisol expired starting in 2010 in the United States and in 2016 in most countries outside the United States. If our other intellectual property rights are not sufficient to prevent a generic form of Captisol from coming to market and if in such case our partners choose to terminate their agreements with us, our Captisol revenue may decrease significantly.

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

None.

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
10.1	Call Option Amendment Agreed, dated January 28, 2021, between the Registrant and Barclays Bank PLC (incorporated by reference to Exhibit 10.67 to the Registrant's Annual Report on Form 10-K filed February 24, 2021).
10.2	Call Option Amendment Agreed, dated January 28, 2021, between the Registrant and Deutsche Bank AG, London Branch (incorporated by reference to Exhibit 10.68 to the Registrant's Annual Report on Form 10-K filed February 24, 2021).
10.3	Call Option Amendment Agreed, dated January 28, 2021, between the Registrant and Goldman Sachs & Co. LLC (incorporated by reference to Exhibit 10.69 to the Registrant's Annual Report on Form 10-K filed February 24, 2021.
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 March 31, 2021, 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 March 31, 2021, formatted in Inline XBRL and contained in Exhibit 101.

SIGNATURES

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

Date: May 6, 2021

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.

Date: May 6, 2021

/s/ John L. Higgins

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

Exhibit 31.2

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

I, Matthew Korenberg, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: May 6, 2021

/s/ Matthew Korenberg

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

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER

In connection with the Quarterly Report of Ligand Pharmaceuticals Incorporated (the "Company") on Form 10-Q for the quarter ended March 31, 2021, 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 Compa

Date: May 6, 2021

/s/ John L. Higgins

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

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

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER

In connection with the Quarterly Report of Ligand Pharmaceuticals Incorporated (the "Company") on Form 10-Q for the quarter ended March 31, 2021, 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 Compa

Date: May 6, 2021

/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.