

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-Q

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

For the quarterly period ended September 30, 2019

OR

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

For the transition period from _____ to _____

Commission File Number 000-14656

REPLIGEN CORPORATION

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

41 Seyon Street, Bldg. 1, Suite 100
Waltham, MA
(Address of Principal Executive Offices)

04-2729386
(I.R.S. Employer
Identification No.)

02453
(Zip Code)

(781) 250-0111
Registrant's Telephone Number, Including Area Code

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.01 per share	RGEN	The Nasdaq Global Select 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 the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

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

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

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

The number of shares outstanding of the registrant's common stock on October 28, 2019 was 52,058,850.

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PART I – FINANCIAL INFORMATION
ITEM 1. Financial Statements

REPLIGEN CORPORATION
CONSOLIDATED BALANCE SHEETS
(Unaudited, amounts in thousands, except share data)

	September 30, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 513,454	\$ 193,822
Restricted cash	8,975	—
Accounts receivable, less reserve for doubtful accounts of \$420 and \$227 at September 30, 2019 and December 31, 2018, respectively	41,968	33,015
Royalties and other receivables	68	136
Unbilled receivables	555	2,602
Inventories, net	51,579	42,263
Prepaid expenses and other current assets	4,941	3,901
Total current assets	621,540	275,739
Property, plant and equipment, net	43,034	32,180
Intangible assets, net	216,289	135,438
Goodwill	468,845	326,735
Deferred tax assets	3,917	4,355
Operating lease right of use assets	24,845	—
Other assets	238	174
Total assets	<u>\$ 1,378,708</u>	<u>\$ 774,621</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 9,951	\$ 10,489
Operating lease liability	3,044	—
Accrued liabilities	25,770	15,865
Convertible senior notes, current portion	—	103,488
Total current liabilities	38,765	129,842
Convertible senior notes	230,182	—
Deferred tax liabilities	38,059	25,086
Operating lease liability, long-term	26,056	—
Other liabilities, long-term	528	4,125
Total liabilities	<u>333,590</u>	<u>159,053</u>
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock, \$0.01 par value, 5,000,000 shares authorized, no shares issued or outstanding	—	—
Common stock, \$0.01 par value; 80,000,000 shares authorized; 52,052,581 shares at September 30, 2019 and 43,917,378 shares at December 31, 2018 issued and outstanding	521	439
Additional paid-in capital	1,064,152	642,590
Accumulated other comprehensive loss	(21,794)	(11,893)
Accumulated earnings (deficit)	2,239	(15,568)
Total stockholders' equity	<u>1,045,118</u>	<u>615,568</u>
Total liabilities and stockholders' equity	<u>\$ 1,378,708</u>	<u>\$ 774,621</u>

The accompanying notes are an integral part of these consolidated financial statements.

REPLIGEN CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(Unaudited, amounts in thousands, except per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenue:				
Products	\$69,419	\$49,500	\$200,701	\$142,042
Royalty and other revenue	26	29	70	48
Total revenue	<u>69,445</u>	<u>49,529</u>	<u>200,771</u>	<u>142,090</u>
Costs and operating expenses:				
Cost of product revenue	31,425	22,183	88,978	62,939
Research and development	5,427	3,601	14,278	12,669
Selling, general and administrative	24,629	15,859	67,326	48,347
Total costs and operating expenses	<u>61,481</u>	<u>41,643</u>	<u>170,582</u>	<u>123,955</u>
Income from operations	<u>7,964</u>	<u>7,886</u>	<u>30,189</u>	<u>18,135</u>
Other income (expenses):				
Investment income	1,898	558	3,616	1,251
Loss on extinguishment of debt	(5,650)	—	(5,650)	—
Interest expense	(2,857)	(1,687)	(6,326)	(5,008)
Other income (expenses)	316	(134)	(23)	187
Other expenses, net	<u>(6,293)</u>	<u>(1,263)</u>	<u>(8,383)</u>	<u>(3,570)</u>
Income before income taxes	<u>1,671</u>	<u>6,623</u>	<u>21,806</u>	<u>14,565</u>
Income tax provision	12	1,829	3,999	3,586
Net income	<u>\$ 1,659</u>	<u>\$ 4,794</u>	<u>\$ 17,807</u>	<u>\$ 10,979</u>
Earnings per share:				
Basic	<u>\$ 0.03</u>	<u>\$ 0.11</u>	<u>\$ 0.38</u>	<u>\$ 0.25</u>
Diluted	<u>\$ 0.03</u>	<u>\$ 0.10</u>	<u>\$ 0.37</u>	<u>\$ 0.24</u>
Weighted average common shares outstanding:				
Basic	<u>50,852</u>	<u>43,822</u>	<u>47,087</u>	<u>43,729</u>
Diluted	<u>51,809</u>	<u>45,828</u>	<u>47,930</u>	<u>45,132</u>
Net income	<u>\$ 1,659</u>	<u>\$ 4,794</u>	<u>\$ 17,807</u>	<u>\$ 10,979</u>
Other comprehensive income (loss):				
Foreign currency translation adjustment	(6,741)	(630)	(9,901)	(5,410)
Comprehensive (loss) income	<u>\$ (5,082)</u>	<u>\$ 4,164</u>	<u>\$ 7,906</u>	<u>\$ 5,569</u>

The accompanying notes are an integral part of these consolidated financial statements.

REPLIGEN CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited, amounts in thousands, except share data)

Nine Months Ended September 30, 2019						
	Common Stock			Accumulated Other Comprehensive Income (Loss)	Accumulated Earnings (Deficit)	Total Stockholders' Equity
	Number of Shares	Par Value	Additional Paid- In Capital			
Balance at December 31, 2018	43,917,378	\$ 439	\$ 642,590	\$ (11,893)	\$ (15,568)	\$ 615,568
Net income	—	—	—	—	17,807	17,807
Issuance of common stock for debt conversion	2,316,229	23	198,734	—	—	198,757
Reduction for equity component from debt conversion , net of tax	—	—	(200,079)	—	—	(200,079)
Exercise of stock options and releases of restricted stock	311,299	3	1,055	—	—	1,058
Issuance of common stock pursuant to the acquisition of C Technologies, Inc.	779,221	8	53,930	—	—	53,938
Tax withholding on vesting of restricted stock units	(3,077)	—	(290)	—	—	(290)
Equity component of 0.375% senior convertible notes, net of tax	—	—	38,088	—	—	38,088
Proceeds from issuance of common stock, net of issuance costs of \$18,607	4,731,531	48	320,665	—	—	320,713
Stock-based compensation expense	—	—	9,459	—	—	9,459
Translation adjustment	—	—	—	(9,901)	—	(9,901)
Balance as of September 30, 2019	52,052,581	\$ 521	1,064,152	\$ (21,794)	\$ 2,239	\$ 1,045,118
Three Months Ended September 30, 2019						
	Common Stock			Accumulated Other Comprehensive Income (Loss)	Accumulated Earnings	Total Stockholders' Equity
	Number of Shares	Par Value	Additional Paid- In Capital			
Balance at June 30, 2019	48,086,422	\$ 481	\$ 892,960	\$ (15,053)	\$ 580	\$ 878,968
Net income	—	—	—	—	1,659	1,659
Issuance of common stock for debt conversion	2,316,200	23	198,732	—	—	198,755
Reduction for equity component from debt conversion , net of tax	—	—	(200,079)	—	—	(200,079)
Exercise of stock options and releases of restricted stock	66,036	1	493	—	—	494
Tax withholding on vesting of restricted stock units	(3,077)	—	(290)	—	—	(290)
Equity component of 0.375% senior convertible notes, net of tax	—	—	38,088	—	—	38,088
Proceeds from issuance of common stock, net of issuance costs of \$6,981	1,587,000	16	131,073	—	—	131,089
Stock-based compensation expense	—	—	3,175	—	—	3,175
Translation adjustment	—	—	—	(6,741)	—	(6,741)
Balance as of September 30, 2019	52,052,581	\$ 521	\$ 1,064,152	\$ (21,794)	\$ 2,239	\$ 1,045,118
Nine Months Ended September 30, 2018						
	Common Stock			Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Number of Shares	Par Value	Additional Paid- In Capital			
Balance at December 31, 2017	43,587,079	\$ 436	\$ 628,983	\$ (6,363)	\$ (31,508)	\$ 591,548
Net income	—	—	—	—	10,979	10,979
Issuance of common stock for debt conversion	2	0	0	—	—	0
Exercise of stock options and releases of restricted stock	266,308	3	2,372	—	—	2,375
Stock-based compensation expense	—	—	7,672	—	—	7,672
Cumulative effect of accounting changes	—	—	—	—	(677)	(677)
Translation adjustment	—	—	—	(5,410)	—	(5,410)
Balance as of September 30 , 2018	43,853,389	\$ 439	\$ 639,027	\$ (11,773)	\$ (21,206)	\$ 606,487

REPLIGEN CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY—CONTINUED
(Unaudited, amounts in thousands, except share data)

	Three Months Ended September 30, 2018					
	Common Stock		Additional Paid- In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Number of Shares	Par Value \$				
Balance at June 30, 2018						
	43,798,572	438	\$ 635,364	\$ (11,143)	\$ (26,000)	\$ 598,659
Net income	—	—	—	—	4,794	4,794
Exercise of stock options and releases of restricted stock	54,817	1	884	—	—	885
Stock-based compensation expense	—	—	2,779	—	—	2,779
Translation adjustment	—	—	—	(630)	—	(630)
Balance as of September 30 , 2018	<u>43,853,389</u>	<u>\$ 439</u>	<u>\$ 639,027</u>	<u>\$ (11,773)</u>	<u>\$ (21,206)</u>	<u>\$ 606,487</u>

The accompanying notes are an integral part of these consolidated financial statements.

REPLIGEN CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, amounts in thousands)

	Nine Months Ended September 30,	
	2019	2018
Cash flows from operating activities:		
Net income	\$ 17,807	\$ 10,979
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	14,791	11,775
Non-cash interest expense	4,863	3,160
Stock-based compensation expense	9,459	7,672
Deferred tax es	(9,680)	472
Loss on extinguishment of debt	5,650	—
Other	114	108
Changes in operating assets and liabilities, excluding impact of acquisitions:		
Accounts receivable	(6,734)	(1,583)
Royalties and other receivables	26	(149)
Unbilled receivables	2,047	—
Inventories	(4,891)	(4,805)
Prepaid expenses and other assets	(1,075)	(1,437)
Operating lease right of use assets	787	—
Other assets	(66)	(1,348)
Accounts payable	(780)	3,354
Accrued expenses	7,263	(1,070)
Operating lease liability	(607)	—
Long-term liabilities	10,568	87
Total cash provided by operating activities	<u>49,542</u>	<u>27,215</u>
Cash flows from investing activities:		
Acquisition of C Technologies, Inc., net of cash acquired	(182,154)	—
Additions to capitalized software costs	(4,630)	(1,212)
Purchases of property, plant and equipment	(11,413)	(7,368)
Total cash used in investing activities	<u>(198,197)</u>	<u>(8,580)</u>
Cash flows from financing activities:		
Exercise of stock options	1,058	2,374
Payment of tax withholding obligation on vesting of restricted stock	(290)	—
Proceeds from issuance of convertible debt, net	278,555	—
Proceeds from issuance of common stock, net	320,713	—
Repayment of senior convertible notes	(114,989)	(11)
Total cash provided by financing activities	<u>485,047</u>	<u>2,363</u>
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(7,785)	(4,453)
Net increase in cash, cash equivalents and restricted cash	<u>328,607</u>	<u>16,545</u>
Cash, cash equivalents and restricted cash, beginning of period	<u>193,822</u>	<u>173,759</u>
Cash, cash equivalents and restricted cash, end of period	<u>\$ 522,429</u>	<u>\$ 190,304</u>
Supplemental disclosure of cash flow information:		
Income taxes paid	<u>\$ 4,206</u>	<u>\$ 3,120</u>
Interest paid	<u>\$ 1,484</u>	<u>\$ 1,222</u>
Supplemental disclosure of non-cash investing and financing activities:		
Fair value of 2,316,229 shares of common stock issued for conversion of convertible notes	<u>\$ 198,757</u>	<u>\$ —</u>
Fair value of common stock issued for acquisition of C Technologies, Inc.	<u>\$ 53,938</u>	<u>\$ —</u>
Property, plant and equipment related to lease incentives	<u>\$ —</u>	<u>\$ 2,270</u>
Non-cash effect of adoption of ASU 2016-16	<u>\$ —</u>	<u>\$ 5,609</u>
Business Acquisitions:		
Fair value of tangible assets acquired	\$ 30,756	\$ —
Fair value of accounts receivables	3,044	—
Fair value of other assets	3,929	—
Liabilities assumed	(35,370)	—
Fair value of stock issued	(53,938)	—
Cost in excess of fair value of assets acquired (goodwill)	142,903	—
Acquired identifiable intangible assets	90,830	—
Net cash paid for business acquisitions	<u>\$ 182,154</u>	<u>\$ —</u>

The accompanying notes are an integral part of these consolidated financial statements.

REPLIGEN CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Basis of Presentation

The consolidated financial statements included herein have been prepared by Repligen Corporation (the “Company”, “Repligen” or “we”) in accordance with generally accepted accounting principles in the United States (“GAAP”) and pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”), for Quarterly Reports on Form 10-Q and Article 10 of Regulation S-X and do not include all of the information and footnote disclosures required by GAAP. These consolidated financial statements should be read in conjunction with the audited consolidated financial statements and accompanying notes thereto included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, Repligen Sweden AB, Repligen GmbH, Spectrum LifeSciences, LLC and its subsidiaries (“Spectrum”), C Technologies, Inc. (“C Technologies,” acquired on May 31, 2019), and Repligen Singapore Pte. Ltd. All significant intercompany accounts and transactions have been eliminated in consolidation.

In the opinion of management, the accompanying unaudited consolidated financial statements include all adjustments, consisting of only normal, recurring adjustments necessary for a fair presentation of the financial position, results of operations and cash flows. The results of operations for the interim periods presented are not necessarily indicative of results to be expected for the entire year.

Recent Accounting Standards Updates

We consider the applicability and impact of all Accounting Standards Updates on our consolidated financial statements. Updates not listed below were assessed and determined to be either not applicable or are expected to have minimal impact on our consolidated financial position or results of operations. Recently issued Accounting Standards Updates which we feel may be applicable to us are as follows:

Recently Issued Accounting Standard Updates – Not Yet Adopted

In August 2018, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update No. (“ASU”) 2018-13, “*Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement.*” ASU 2018-13 includes amendments that aim to improve the effectiveness of fair value measurement disclosures. The amendments in this guidance modify the disclosure requirements on fair value measurements based on the concepts in FASB Concepts Statement, “*Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements*,” including the consideration of costs and benefits. The amendments become effective for the Company in the year ending December 31, 2020 and early adoption is permitted. The Company is currently assessing the impact that this guidance will have on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, “*Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract.*” ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance also requires the entity to expense the capitalized implementation costs of a hosting arrangement that is a service contract over the term of the hosting arrangement, which includes reasonably certain renewals. The guidance becomes effective for the Company in the year ending December 31, 2020 and early adoption is permitted. The Company is currently assessing the impact that this guidance will have on its consolidated financial statements.

In November 2018, the FASB issued ASU 2018-18, “*Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606.*” ASU 2018-18 clarifies the interaction between Topic 808, “*Collaborative Arrangements*,” and Topic 606, “*Revenue from Contracts with Customers*,” by making targeted improvements to GAAP for collaborative arrangements and providing guidance on whether certain transactions between collaborative arrangement participants should be accounted for with revenue under Topic 606. This includes improving comparability in the presentation of revenue for certain transactions between collaborative arrangement participants by allowing presentation of the units of account in collaborative arrangements that are within

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the scope of Topic 606 together with revenue accounted for under Topic 606. The guidance becomes effective for the Company in the year ending December 31, 2020 and early adoption is permitted. The Company is currently assessing the impact that this guidance will have on its consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, “*Financial Instruments-Credit Losses (Topic 326)*.” ASU 2016-13 significantly changes how entities will account for credit losses for most financial assets and certain other instruments that are not measured at fair value through net income. ASU 2016-13 replaces the existing incurred loss model with an expected credit loss model that requires entities to estimate an expected lifetime credit loss on most financial assets and certain other instruments, including short-term trade receivables and contract assets, and expands disclosure requirements for credit quality of financial assets. ASU 2016-13 becomes effective for the Company in the year ending December 31, 2020, including interim periods. Early adoption is permitted. The Company is currently assessing the potential impact of the adoption of ASU 2016-13 on its consolidated financial statements.

Recently Issued Accounting Standard Updates – Adopted During the Period

In February 2016, the FASB issued ASU 2016-02, “*Leases (Topic 842)*.” ASU 2016-02, along with subsequent ASUs issued to clarify certain provisions of ASU 2016-02 (collectively known as “ASC 842”), establishes a right-of-use (“ROU”) model that requires a lessee to record a ROU asset and a lease liability on the consolidated balance sheet for all leases with terms longer than 12 months. Certain qualitative and quantitative disclosures are also required. The Company adopted ASU 2016-02 and related amendments on January 1, 2019 using an optional transition method allowed with the issuance of ASU 2018-11, “*Leases – Targeted Improvements (Topic 842)*,” in July 2018. ASU 2018-11 gives entities the option to not provide comparative period financial statements and instead apply the transition requirements as of the effective date of the new standard. Pursuant to additional guidance under ASC 842, the Company also elected the optional package of practical expedients, which allowed the Company to not reassess: (i) whether expired or existing contracts contain leases; (ii) lease classification for any expired or existing leases; and (iii) initial direct costs for any existing leases. As a result, the consolidated balance sheet prior to January 1, 2019 was not restated, continues to be reported under ASC 840, “*Leases*”, which did not require the recognition of operating lease liabilities on the consolidated balance sheet, and is not comparative. Under ASC 842, all leases are required to be recorded on the balance sheet and are classified as either operating leases or finance leases, which is determined at the inception of the lease. The lease classification affects the expense recognition in the consolidated statements of comprehensive income (loss). The expense recognition for operating leases and finance leases under ASC 842 is substantially consistent with ASC 840. Therefore, there is no significant difference in our results of operations presented in our consolidated statements of comprehensive income (loss) for each period presented. The Company also elected under the package of practical expedients, to combine lease and non-lease components and not to record leases with an initial term of 12 months or less on the consolidated balance sheet. The Company adopted ASC 842 using the optional transition method for all leases existing at January 1, 2019. The adoption had a substantial impact on our balance sheet. The most significant impact was the recognition of the operating lease ROU assets and lease liabilities for operating leases. Upon adoption, leases that were classified as operating leases under ASC 840 were classified as operating leases under ASC 842, and we recorded ROU assets of \$17.0 million and lease liabilities of \$21.0 million, before considering deferred taxes. The lease liability is based on the present value of the remaining minimum lease payments, determined under ASC 840, discounted using our incremental borrowing rate at the effective date January 1, 2019. The difference between the ROU assets and the lease liabilities is due to \$4.0 million of unamortized lease incentives and deferred rent at the Company’s Marlborough and Waltham facilities as of December 31, 2018. There was no impact to our beginning retained earnings upon adoption of ASC 842. See Note 5, “*Leases*,” below for more information on the Company’s adoption of ASC 842.

2. Fair Value Measurements

In determining the fair value of its assets and liabilities, the Company uses various valuation approaches. The Company employs a hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company’s assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy is broken down into three levels based on the source of inputs as follows:

- Level 1 – Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access.
- Level 2 – Valuations based on quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active and models for which all significant inputs are observable, either directly or indirectly.
- Level 3 – Valuations based on inputs that are unobservable and significant to the overall fair value measurement.

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The availability of observable inputs can vary among the various types of financial assets and liabilities. To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, for financial statement disclosure purposes, the level in the fair value hierarchy within which the fair value measurement is categorized is based on the lowest level input that is significant to the overall fair value measurement.

As of September 30, 2019 and December 31, 2018, cash and cash equivalents on the Company's consolidated balance sheets included \$414.7 million and \$126.6 million, respectively, in a money market account. These funds are valued on a recurring basis using Level 1 inputs.

In July 2019, the Company issued \$287.5 million aggregate principal amount of the Company's 0.375% Convertible Senior Notes due July 15, 2024 (the "2019 Notes"). Interest is payable semi-annually in arrears on January 15 and July 15 of each year. The 2019 Notes will mature on July 15, 2024 unless earlier converted or repurchased in accordance with their terms. As of September 30, 2019, the carrying value of the 2019 Notes was \$230.2 million, net of unamortized discount, and the fair value of the 2019 Notes was \$287.9 million. The fair value of the 2019 Notes is a Level 1 valuation and was determined based on the most recent trade activity of the 2019 Notes as of September 30, 2019. The 2019 Notes are discussed in more detail in Note 8, "*Convertible Senior Notes*" to these consolidated financial statements.

Nonrecurring Fair Value Measurements

We hold certain assets and liabilities that are measured at fair value on a nonrecurring basis in periods subsequent to initial recognition. Refer to Note 8, "*Convertible Senior Notes*," to these consolidated financial statements for disclosure of the nonrecurring fair value measurement related to the \$5.6 million loss on extinguishment of debt recorded in the third quarter of 2019.

3. Acquisition of C Technologies, Inc.

On April 25, 2019, Repligen agreed to acquire C Technologies, pursuant to the terms of a Stock Purchase Agreement (the "Agreement"), by and among Repligen, C Technologies and Craig Harrison, an individual and sole stockholder of C Technologies (such acquisition, the "C Technologies Acquisition").

C Technologies' business consists of two major product categories (i) biotechnology, or Biotech, and (ii) Legacy and Other. Through its Biotech category, C Technologies sells instruments, consumables and accessories that are designed to allow bioprocessing technicians to measure the protein concentration of a liquid sample using C Technologies' Slope Spectroscopy method, which eliminates the need for manual sample dilution. C Technologies' lead product, the SoloVPE instrument platform, was launched in 2008 for off-line and at-line protein concentration measurements conducted in quality control, process development and manufacturing labs in the production of biological therapeutics. C Technologies' FlowVPE platform, an extension of the SoloVPE technology, was designed to allow end users to make in-line protein concentration measurements in filtration, chromatography and fill-finish applications, designed to allow for real-time process monitoring.

Consideration Transferred

The C Technologies Acquisition was accounted for as a purchase of a business under Accounting Standards Codification No. ("ASC") 805, "*Business Combinations*". The C Technologies Acquisition was funded through payment of approximately \$195.0 million in cash, \$186.0 million of which is consideration transferred pursuant to ASC 805, and \$9.0 million of which will be compensation expense for future employment, and 779,221 unregistered shares of the Company's common stock totaling \$53.9 million for a total purchase price of \$239.9 million. Under the acquisition method of accounting, the assets of C Technologies were recorded as of the acquisition date, at their respective fair values, and consolidated with those of Repligen. The fair value of the net tangible assets acquired is estimated to be approximately \$6.2 million, the fair value of the intangible assets acquired is estimated to be approximately \$90.8 million, and the residual goodwill is estimated to be approximately \$142.9 million. The estimated consideration and preliminary purchase price information has been prepared using a preliminary valuation. The final purchase price allocation will be completed upon closing of the transaction. The preparation of the valuation required the use of significant assumptions and estimates. Critical estimates included, but were not limited to, future expected cash flows, including projected revenues and expenses, and the applicable discount rates. These estimates were based on assumptions that Repligen believes to be reasonable. However, actual results may differ from these estimates.

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Total consideration transferred is as follows (amounts in thousands):

Cash consideration	\$ 185,949
Equity consideration	53,938
Fair value of net assets acquired	<u>\$239,887</u>

Acquisition related costs are not included as a component of consideration transferred but are expensed in the periods in which the costs are incurred. The Company incurred an immaterial amount of acquisition related costs in the third quarter of 2019 and \$4.0 million in transaction costs for the nine-month period ended September 30, 2019. The transaction costs are included in selling, general and administrative expenses in the consolidated statements of comprehensive income (loss). In connection with the transaction, an additional \$9.0 million in cash will be due to employees based on their continued employment with the Company one year after the date of the close of the C Technologies Acquisition.

Fair Value of Net Assets Acquired

The allocation of purchase price is based on the fair value of assets acquired and liabilities assumed as of the acquisition date, based on the preliminary valuation. The Company obtains this information during due diligence and through other sources. In the months after closing, the Company may obtain additional information about these assets and liabilities as it learns more about C Technologies and will refine the estimates of fair value to more accurately allocate the purchase price. Only items identified as of the acquisition date are considered for subsequent adjustment. We will make appropriate adjustments to the purchase price allocation, if any, prior to the completion of the measurement period, which is up to one year from the acquisition date. The components and allocation of the purchase price consists of the following amounts (amounts in thousands):

Cash and cash equivalents	\$ 3,795
Restricted cash	26,933
Accounts receivable	3,044
Inventory	3,783
Prepaid expenses and other current assets	93
Fixed assets	40
Operating lease right of use asset	3,836
Customer relationships	59,680
Developed technology	28,920
Trademark and tradename	1,570
Non-competition agreements	660
Goodwill	142,903
Accounts payable	(436)
Accrued liabilities	(2,461)
Accrued bonus	(26,928)
Deferred revenue	(1,709)
Operating lease liability	(51)
Operating lease liability, long-term	(3,785)
Fair value of net assets acquired	<u>\$239,887</u>

Acquired Goodwill

The goodwill of \$142.9 million represents future economic benefits expected to arise from synergies from combining operations and commercial organizations to increase market presence and the extension of existing customer relationships. Substantially all of the goodwill recorded is expected to be deductible for income tax purposes.

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Intangible Assets

The following table sets forth the components of the identified intangible assets associated with the C Technologies Acquisition and their estimated useful lives:

	Useful Life	Fair Value (Amounts in thousands)
Customer relationships	17 years	\$ 59,680
Developed technology	18 years	28,920
Trademark and tradename	20 years	1,570
Non-competition agreements	4 years	660
		<u>\$ 90,830</u>

Revenue, Net Income and Pro Forma Presentation

The Company recorded revenue from C Technologies of \$7.0 million and a net loss of \$1.2 million for the three months ended September 30, 2019 and revenue of \$9.1 million and a net loss of \$2.7 million from May 31, 2019, the date of acquisition, to September 30, 2019. The Company has included the operating results of C Technologies in its consolidated statements of comprehensive (loss) income since the May 31, 2019 acquisition date. The following pro forma financial information presents the combined results of operations of Repligen and C Technologies as if the acquisition had occurred on January 1, 2018 after giving effect to certain pro forma adjustments. The pro forma adjustments reflected herein include only those adjustments that are directly attributable to the C Technologies Acquisition, factually supportable and have a recurring impact. These pro forma adjustments include a \$3.6 million and a \$4.0 million net increase in amortization expense in 2019 and 2018, respectively, to record amortization expense for the \$90.8 million of acquired identifiable intangible assets, adjustments to stock-based compensation of \$0.5 million in both years, for equity compensation issued to C Technologies employees and the income tax effect of the adjustments made at the blended federal and state statutory tax rate (approximately 25%). In addition, acquisition-related transaction costs of \$4.0 million and a \$1.5 million purchase accounting adjustment to record inventory at fair value were excluded from pro forma net income in 2019.

The following pro forma financial information does not reflect any adjustments for anticipated expense savings resulting from the acquisition and is not necessarily indicative of the operating results that would have actually occurred had the transaction been consummated on January 1, 2018 or of future results:

	Nine Months Ended September 30,	
	2019	2018
	(Amounts in thousands, except per share data)	
Pro forma total revenue	\$ 209,960	\$ 159,173
Pro forma net income	\$ 21,012	\$ 15,205
Pro forma earnings per share:		
Basic	\$ 0.45	\$ 0.32
Diluted	\$ 0.44	\$ 0.31

Prior to the C Technologies Acquisition, C Technologies did not generate monthly or quarterly financial statements that were prepared in accordance with U.S. GAAP.

4. Revenue Recognition

We generate revenue from the sale of bioprocessing products, equipment devices, and related consumables used with these equipment devices to customers in the life science and biopharmaceutical industries. Under ASC 606, "Revenue from Contracts with Customers," revenue is recognized when, or as, obligations under the terms of a contract are satisfied, which occurs when control of the promised products or services is transferred to customers.

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Disaggregation of Revenue

Revenues for the three and nine months ended September 30, 2019 and 2018 were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(Amounts in thousands)			
Product revenue	\$ 69,419	\$ 49,500	\$ 200,701	\$ 142,042
Royalty and other income	26	29	70	48
Total revenue	<u>\$ 69,445</u>	<u>\$ 49,529</u>	<u>\$ 200,771</u>	<u>\$ 142,090</u>

When disaggregating revenue, the Company considered all of the economic factors that may affect its revenues. Because all of its revenues are from bioprocessing customers, there are no differences in the nature, timing and uncertainty of the Company's revenues and cash flows from any of its product lines. However, given that the Company's revenues are generated in different geographic regions, factors such as regulatory and geopolitical factors within those regions could impact the nature, timing and uncertainty of the Company's revenues and cash flows. In addition, a significant portion of the Company's revenues are generated from two customers; therefore, economic factors specific to these two customers could impact the nature, timing and uncertainty of the Company's revenues and cash flows.

Disaggregated revenue from contracts with customers by geographic region can be found in Note 15, "Segment Reporting," below.

Revenue from significant customers is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(Amounts in thousands)			
GE Healthcare	\$ 5,010	\$ 7,743	\$ 23,759	\$ 22,253
MilliporeSigma	\$ 9,458	\$ 8,791	\$ 28,354	\$ 24,181

Filtration Products

The Company's filtration products generate revenue through the sale of KrosFlo[®] hollow fiber ("HF") TFF membranes and modules, ProConnex[®] single-use flow path connectors, flat sheet TFF cassettes and hardware, and XCell[™] alternating tangential flow ("ATF") devices and related consumables.

The Company markets the KrosFlo line of HF cartridges and TFF systems and the ProConnex line of single-use flow path connectors which were acquired as part of the acquisition of Spectrum LifeSciences, LLC (the "Spectrum Acquisition"). These products are used in the filtration, isolation, purification and concentration of biologics and diagnostic products. Sales of large-scale systems generally include components and consumables as well as training and installation services at the request of the customer. Because the initial sale of components and consumables are necessary for the operation of the system, such items are combined with the systems as a single performance obligation. Training and installation services do not significantly modify or customize these systems and therefore represent a distinct performance obligation.

The Company's other filtration product offerings are not highly interdependent of one another and are therefore considered distinct products that represent separate performance obligations. Revenue on these products is generally recognized at a point in time upon transfer of control to the customer. The Company invoices the customer for the installation and training services in an amount that directly corresponds with the value to the customer of the Company's performance to date; therefore, revenue recognized is based on the amount billable to the customer in accordance with the practical expedient under ASC 606-10-55-18.

The Company also markets flat sheet TFF cassettes and hardware. TFF is a rapid and efficient method for separation and purification of biomolecules that is widely used in laboratory, process development and process scale applications in biopharmaceutical manufacturing. The Company's single-use SIUS[™] TFF cassettes and hardware are not highly interdependent of one another and are therefore considered distinct products that represent separate performance obligations. SIUS TFF product revenue is generally recognized at a point in time upon transfer of control to the customer.

The Company also markets the XCell[™] ATF System, a technologically advanced filtration device used in upstream processes to continuously remove cellular metabolic waste products during the course of a fermentation run, freeing healthy cells to continue producing the biologic drug of interest. ATF Systems typically include a filtration system and consumables (i.e., tube devices, metal stands) as well as training and installation services at the request of the customer. The filtration system and consumables are considered distinct products and therefore represent separate performance obligations. First time purchasers of the systems typically purchase a controller that is shipped with the tube device(s) and metal stand(s). The controller is not considered distinct as it is a proprietary product that is highly interdependent with the filtration system; therefore, the controller is combined with the filtration system and accounted for as a single performance obligation. The training and installation services do not significantly modify or customize the ATF system and therefore represent a distinct performance obligation. ATF system product revenue related to the filtration system (including the controller if applicable) and consumables is generally recognized at a point in time upon transfer of

control to the customer. ATF system service revenue related to training and installation services is generally recognized over time, as the customer simultaneously receives and consumes the benefits as the Company performs. The Company invoices the customer for the installation and training services in an amount that directly corresponds with the value to the customer of the Company's performance to date; therefore, revenue recognized is based on the amount billable to the customer in accordance with the practical expedient under ASC 606-10-55-18.

Chromatography Products

The Company's chromatography products include a number of products used in the downstream purification and quality control of biological drugs. The majority of chromatography revenue relates to the OPUS pre-packed chromatography column line and Protein A chromatography resins. OPUS columns typically consist of the outer hardware of the column with a resin as ordered by the customer packed inside of the column. OPUS columns may also be ordered without the packed resin. In either scenario, the OPUS column and resin are not interdependent of one another and are therefore considered distinct products that represent separate performance obligations. Chromatography product revenue is generally recognized at a point in time upon transfer of control to the customer.

Protein Products

The Company's Protein product line generates revenue through the sale of Protein A ligands and growth factors. Protein A ligands are an essential component of Protein A chromatography resins (media) used in the purification of virtually all monoclonal antibody ("mAb")-based drugs on the market or in development. The Company manufactures multiple forms of Protein A ligands under long-term supply agreements with major life sciences companies, who in turn sell their Protein A chromatography media to end users (biopharmaceutical manufacturers). The Company also manufactures growth factors for sale under long-term supply agreements with certain life sciences companies as well as direct sales to its customers. Each protein product is considered distinct and therefore represents a separate performance obligation. Protein product revenue is generally recognized at a point in time upon transfer of control to the customer.

Process Analytics Products

On May 31, 2019, the Company consummated its acquisition of C Technologies and added a fourth franchise, Process Analytics, to our bioprocessing business. The Process Analytics product line generates revenue primarily through the sale of the SoloVPE and FlowVPE systems and consumables. These products will complement and support our existing Filtration, Chromatography and Proteins franchises as they allow end users to make in-line protein concentration measurements in filtration, chromatography and fill-finish applications, designed to allow for real-time process monitoring.

Other Products

The Company's other products include operating room products sold to hospitals. Other product revenue is generally recognized at a point in time upon transfer of control to the customer.

Transaction Price Allocated to Future Performance Obligations

Remaining performance obligations represents the transaction price of contracts for which work has not been performed or has been partially performed. The Company's future performance obligations relate primarily to the installation and training of certain of its systems sold to customers. These performance obligations are completed within one year of receipt of a purchase order from its customers. Accordingly, the Company has elected to not disclose the value of these unsatisfied performance obligations as provided under ASC 606-10-50-14.

Contract Balances from Contracts with Customers

The following table provides information about receivables and deferred revenues from contracts with customers as of September 30, 2019 (amounts in thousands):

	2019
Balances from contracts with customers only:	
Accounts receivable	\$41,968
Deferred revenue (included in accrued liabilities in the consolidated balance sheets)	4,286
Revenue recognized during the nine month period ending September 30, 2019 relating to:	
The beginning deferred revenue balance	\$ 2,768
Changes in pricing related to products or services satisfied in previous periods	—

The timing of revenue recognition, billings and cash collections results in the accounts receivables and deferred revenue balances on the Company's consolidated balance sheets. There were no impairment losses recognized on receivables during the three and nine months ended September 30, 2019.

A contract asset is created when the Company satisfies a performance obligation by transferring a promised good to the customer. Contract assets may represent conditional or unconditional rights to consideration. The right is conditional, and recorded as a contract asset, if the Company must first satisfy another performance obligation in the contract before it is entitled to payment from the customer. Contract assets are transferred to billed receivables once the right becomes unconditional. If the Company has the unconditional right to receive consideration from the customer, the contract asset is accounted for as a billed receivable and presented separately from other contract assets. A right is unconditional if nothing other than the passage of time is required before payment of that consideration is due.

When consideration is received, or such consideration is unconditionally due, from a customer prior to transferring goods or services to the customer under the terms of a contract, a contract liability is recorded. Contract liabilities are recognized as revenue after control of the products or services is transferred to the customer and all revenue recognition criteria have been met.

Costs to Obtain or Fulfill a Customer Contract

The Company's sales commission structure is based on achieving revenue targets. The commissions are driven by revenue derived from customer purchase orders which are short term in nature.

Applying the practical expedient in paragraph 340-40-25-4, the Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that the Company otherwise would have recognized is one year or less. These costs are included in selling, general, and administrative expenses. When shipping and handling costs are incurred after a customer obtains control of the products, the Company accounts for these as costs to fulfill the promise and not as a separate performance obligation.

5. Leases

On January 1, 2019, the Company adopted ASC 842 using the optional transition method which allows entities to initially apply the lease accounting transition requirements at the adoption date and recognize a cumulative effect adjustment to the opening balance sheet of retained earnings in the period of adoption without restating comparative prior periods presented. The Company recorded operating lease right of use assets of \$17.0 million and operating lease liabilities of \$21.0 million as of January 1, 2019. The difference between the right of use assets and the lease liabilities was due to \$4.0 million of unamortized lease incentives and deferred rent at the Company's Waltham and Marlborough facilities as of December 31, 2018.

The Company is a lessee under leases of manufacturing facilities, office spaces, machinery, certain office equipment, vehicles and information technology equipment. A majority of the Company's leases are operating leases with remaining lease terms between two months and 11 years. Finance leases are immaterial to our consolidated financial statements. The Company determines if an arrangement qualifies as a lease and what type of lease it is at inception. The Company elected the package of practical expedients permitted under the transition guidance within the new lease standard, which among other things, allowed it to continue to account for existing leases based on the historical lease classification. The Company also elected the practical expedients to combine lease and non-lease components and to exclude right of use assets and lease liabilities for leases with an initial term of 12 months or less from the balance sheet.

Some of the lease agreements the Company enters into include Company options to either extend and/or early terminate the lease, the costs of which are included in our operating lease liabilities to the extent that such options are reasonably certain of being exercised. Leases with renewal options allow the Company to extend the lease term typically between 1 and 5 years per option, some of its leases have multiple options to extend. When determining if a renewal option is reasonably certain of being exercised, the Company considers several economic factors, including but not limited to, the significance of leasehold improvements incurred on the property, whether the asset is difficult to replace, underlying contractual obligations, or specific characteristics unique to that particular lease that would make it reasonably certain that the Company would exercise such options.

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As of September 30, 2019, operating lease right of use assets were \$24.8 million and operating lease liabilities were \$29.1 million. Two material leases, as defined under ASC 842, to expand our facility in Waltham, Massachusetts commenced during the third quarter of 2019. As a result, the operating right of use asset and operating lease liability balances increased by a total of \$6.2 million on their commencement dates. Amounts related to financing leases were immaterial. The maturity of the Company's operating lease liabilities as of September 30, 2019 are as follows (amounts in thousands):

<u>As of September 30, 2019</u>	<u>Amount</u>
2019 (remaining three months)	\$ 920
2020	4,966
2021	5,388
2022	4,438
2023	3,517
2024 and thereafter	17,530
Total future minimum lease payments	36,759
Less : amount of lease payment representing interest	7,659
Total operating lease liabilities	<u>\$29,100</u>

Total operating lease liabilities is included on the Company's consolidated balance sheet is as follows (amounts in thousands):

	<u>As of September 30, 2019</u>
Operating lease liability	\$ 3,044
Operating lease liability, long-term	26,056
Minimum operating lease payments	<u>\$ 29,100</u>

Lease expense for these leases is recognized on a straight-line basis over the lease term, with variable lease payments recognized in the period those payments are incurred. For the three and nine months ended September 30, 2019, total lease cost is comprised of the following:

<u>Lease Cost</u>	<u>Three Months Ended September 30, 2019</u>	<u>Nine Months Ended September 30, 2019</u>
	<u>(Amounts in thousands)</u>	
Operating lease cost	\$ 1,207	\$ 3,119
Variable operating lease cost	242	902
Lease cost	<u>\$ 1,449</u>	<u>\$ 4,021</u>

The following information represents supplemental disclosure for the consolidated statements of cash flows related to operating leases (amounts in thousands):

	<u>Nine Months Ended September 30, 2019</u>
Operating cash flows from operating leases	\$ (2,962)

Most of the leases do not provide implicit interest rates and therefore we determine the discount rate based on our incremental borrowing rate. The incremental borrowing rate for our leases is determined based on lease term and currency in which the lease payments are made.

The weighted average remaining lease term and the weighted average discount rate used to measure our operating lease liabilities as of September 30, 2019 were:

Weighted average remaining lease term (years)	8.09
Weighted average discount rate	4.89%

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As previously disclosed in the Company's 2018 Annual Report on Form 10-K and under the previous lease accounting standard, ASC 840, "Leases," the total commitment for non-cancelable operating leases was \$ 18.0 million as of December 31, 2018 (amounts in thousands):

For the Years Ended December 31,	Amount
2019	\$ 4,021
2020	3,599
2021	3,263
2022	2,213
2023	1,316
2024 and thereafter	3,622
Minimum operating lease payments	<u>\$18,034</u>

6. Goodwill and Other Intangible Assets

Goodwill

Goodwill represents the difference between the purchase price and the estimated fair value of identifiable assets acquired and liabilities assumed. Goodwill acquired in a business combination and determined to have an indefinite useful life is not amortized, but instead is tested for impairment at least annually in accordance with ASC 350. The following table represents the change in the carrying value of goodwill for the nine months ended September 30, 2019 (amounts in thousands):

Balance as of December 31, 2018	\$326,735
Cumulative translation adjustment	(793)
Acquisition of C Technologies, Inc.	142,903
Balance as of September 30, 2019	<u>\$468,845</u>

During each of the fourth quarters of 2018, 2017 and 2016, we completed our annual impairment assessments and concluded that goodwill was not impaired in any of those years. The Company has not identified any "triggering" events which indicate an impairment of goodwill in the three months ended September 30, 2019.

Other Intangible Assets

Intangible assets, except for the ATF tradename, are amortized over their useful lives using the estimated economic benefit method, as applicable, and the amortization expense is recorded within selling, general and administrative expense in the Company's statements of comprehensive income (loss). The Company reviews its indefinite-lived intangible assets not subject to amortization, including the ATF tradename, to determine if adverse conditions exist or a change in circumstances exists that would indicate an impairment. Intangible assets and their related useful lives are reviewed at least annually to determine if any adverse conditions exist that would indicate the carrying value of these assets may not be recoverable. More frequent impairment assessments are conducted if certain conditions exist, including a change in the competitive landscape, any internal decisions to pursue new or different technology strategies, a loss of a significant customer, or a significant change in the marketplace, including changes in the prices paid for our products or changes in the size of the market for our products. An impairment results if the carrying value of the asset exceeds the estimated fair value of the asset. If the estimate of an intangible asset's remaining useful life is changed, the remaining carrying amount of the intangible asset is amortized prospectively over the revised remaining useful life. The Company continues to believe that its intangible assets are recoverable at September 30, 2019.

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Intangible assets, net consisted of the following at September 30, 2019:

	September 30, 2019			
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Weighted Average Useful Life (in years)
	(Amounts in thousands)			
Finite-lived intangible assets:				
Technology — developed	\$ 82,088	\$ (8,533)	\$ 73,555	19
Patents	240	(240)	—	8
Customer relationships	160,467	(22,769)	137,698	15
Trademarks	3,751	(286)	3,465	20
Other intangibles	1,696	(825)	871	3
Total finite-lived intangible assets	248,242	(32,653)	215,589	16
Indefinite-lived intangible asset:				
Trademarks	700	—	700	—
Total intangible assets	<u>\$ 248,942</u>	<u>\$ (32,653)</u>	<u>\$ 216,289</u>	

Intangible assets consisted of the following at December 31, 2018:

	December 31, 2018			
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Weighted Average Useful Life (in years)
	(Amounts in thousands)			
Finite-lived intangible assets:				
Technology — developed	\$ 53,315	\$ (5,942)	\$ 47,373	19
Patents	240	(240)	—	8
Customer relationships	101,460	(16,609)	84,851	14
Trademarks	2,160	(159)	2,001	20
Other intangibles	1,061	(548)	513	3
Total finite-lived intangible assets	158,236	(23,498)	134,738	16
Indefinite-lived intangible asset:				
Trademarks	700	—	700	—
Total intangible assets	<u>\$ 158,936</u>	<u>\$ (23,498)</u>	<u>\$ 135,438</u>	

The increase in intangible assets during 2019 is related to the acquisition of C Technologies on May 31, 2019. See Note 3, “Acquisition of C Technologies, Inc.” for more information.

Amortization expense for finite-lived intangible assets was \$3.9 million and \$2.6 million for the three months ended September 30, 2019 and 2018, respectively. Amortization expense for finite-lived intangible assets was \$9.6 million and \$7.9 million for the nine months ended September 30, 2019 and 2018, respectively. As of September 30, 2019, the Company expects to record the following amortization expense (amounts in thousands):

<u>Nine Months Ended September 30,</u>	<u>Estimated Amortization Expense</u>
2019 (remaining three months)	\$ 3,918
2020	15,129
2021	14,633
2022	14,631
2023	14,631
2024 and thereafter	152,647
Total	<u>\$ 215,589</u>

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7. Consolidated Balance Sheet Detail

Inventories, net

Inventories, net consists of the following:

	As of	
	September 30, 2019	December 31, 2018
	(Amounts in thousands)	
Raw materials	\$ 29,197	\$ 24,937
Work-in-process	5,438	5,185
Finished products	16,944	12,141
Total inventories, net	<u>\$ 51,579</u>	<u>\$ 42,263</u>

Property, Plant and Equipment

Property, plant and equipment consist of the following:

	As of	
	September 30, 2019	December 31, 2018
	(Amounts in thousands)	
Land	\$ 1,023	\$ 1,023
Buildings	764	764
Leasehold improvements	22,953	16,259
Equipment	31,144	24,092
Furniture and fixtures	14,214	5,448
Construction in progress ⁽¹⁾	5,721	12,906
Other	50	—
Total property, plant and equipment	75,869	60,492
Less—Accumulated depreciation	(32,835)	(28,312)
Total property, plant and equipment, net	<u>\$ 43,034</u>	<u>\$ 32,180</u>

- (1) Construction in progress as of September 30, 2019, includes \$4.9 million, which is primarily related to various manufacturing expansion projects at our Waltham, Massachusetts and Rancho Dominguez, California facilities. Construction in progress as of December 31, 2018 includes \$ 2.1 million of capitalized internal-use software development costs and \$ 7.3 million for the buildout of our Marlborough, Massachusetts facility. Both projects have since been placed into service and as a result, \$6.5 million of internal-use software development costs are now included in furniture and fixtures as of September 30, 2019.

Depreciation expenses totaled \$1.8 million and \$1.3 million for the three months ended September 30, 2019 and 2018, respectively. Depreciation expenses totaled \$5.2 million and \$3.9 million for the nine months ended September 30, 2019 and 2018, respectively.

Accrued Liabilities

Accrued liabilities consist of the following:

	As of	
	September 30, 2019	December 31, 2018
	(Amounts in thousands)	
Employee compensation	\$ 14,451	\$ 9,953
Taxes	3,071	1,024
Royalty and license fees	707	242
Warranties	1,255	546
Professional fees	715	942
Deferred revenue	4,286	1,290
Other	1,285	1,868
Total accrued liabilities	<u>\$ 25,770</u>	<u>\$ 15,865</u>

8. Convertible Senior Notes

0.375% Convertible Senior Notes due 2024

On July 19, 2019, the Company issued \$287.5 million aggregate principal amount of 0.375% Convertible Senior Notes due 2024 (“2019 Notes”), which includes the underwriters’ exercise in full of an option to purchase an additional \$37.5 million aggregate principal amount of 2019 Notes (the “Notes Offering”). The net proceeds of the Notes Offering, after deducting underwriting discounts and commissions and other related offering expenses payable by the Company, were approximately \$278.6 million.

The 2019 Notes are senior, unsecured obligations of the Company, and bear interest at a rate of 0.375% per year. Interest is payable semi-annually in arrears on January 15 and July 15 of each year, beginning on January 15, 2020. The 2019 Notes will mature on July 15, 2024, unless earlier repurchased or converted in accordance with their terms. The initial conversion rate for the 2019 Notes is 8.6749 shares of the Company’s common stock per \$1,000 principal amount of 2019 Notes (which is equivalent to an initial conversion price of approximately \$115.28 per share). Prior to the close of business on the business day immediately preceding April 15, 2024, the 2019 Notes will be convertible at the option of the holders of 2019 Notes only upon the satisfaction of specified conditions and during certain periods. Thereafter until the close of business on the second scheduled trading day immediately preceding the maturity date, the 2019 Notes will be convertible at the options of the holders of 2019 Notes at any time regardless of these conditions. Conversion of the 2019 Notes will be settled in cash, shares of the Company’s common stock or a combination thereof, at the Company’s election. The 2019 Notes are not redeemable by the Company prior to maturity.

Holders of 2019 Notes may require the Company to repurchase their 2019 Notes upon the occurrence of a fundamental change prior to maturity at a repurchase price equal to 100% of the principal amount thereof, plus accrued and unpaid interest to, but excluding, the date of repurchase. In connection with certain corporate events, the Company will, under certain circumstances, increase the conversion rate for holders of 2019 Notes who elect to convert their 2019 Notes in connection with such corporate events.

As of September 30, 2019, the conditions allowing holders of the 2019 Notes to convert have not been met and therefore the 2019 Notes are not yet convertible and are recorded as a long-term liability in our consolidated balance sheet at September 30, 2019.

We account for the 2019 Notes as separate liability and equity components. We determined the carrying amount of the liability component as the present value of its cash flows using a discount rate of 4.5% based on comparative convertible transactions for similar companies. The proceeds allocated to the debt conversion feature were \$52.1 million. This amount was calculated by deducting the carrying value of the liability component from the principal amount of the 2019 Notes as a whole. The difference represents a debt discount that is amortized to interest expense on our consolidated statement of comprehensive income (loss) over the term of the 2019 Notes using the effective interest rate method. The Company will assess the equity classification of the cash conversion feature quarterly, and it is not re-measured as long as it continues to meet the conditions for equity classification.

We allocate transaction costs related to the issuance of the 2019 Notes to the liability and equity components using the same proportions as the initial carrying value of the 2019 Notes. Transaction costs related to the liability component were \$7.3 million and are being amortized to interest expense using the effective interest method over the term of the 2019 Notes. Transaction costs attributable to the equity component were \$1.6 million and are netted with the equity component of the 2019 Notes in stockholders’ equity of our consolidated balance sheet at September 30, 2019.

The net carrying value of the liability component of the 2019 Notes is as follows (amounts in thousands, except percentages):

	September 30, 2019
0.375% Convertible Senior Notes due July 15, 2024	\$ 287,500
Less: unamortized debt discount	(50,247)
Less: unamortized debt issuance costs	(7,071)
Total debt	230,182
Less: current portion	—
Net carrying amount	<u>\$ 230,182</u>

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The net carrying value of the equity component of the 2019 Notes is as follows (amounts in thousands, except percentages):

	September 30, 2019
Proceeds allocated to the conversion feature	\$ 52,062
Less: transaction costs allocated to the conversion feature	(1,621)
Less: deferred taxes	(12,353)
Net carrying value	<u>\$ 38,088</u>

Interest expense recognized on the 2019 Notes for the three and nine months ended September 30, 2019 was \$0.2 million, \$1.8 million and \$0.3 million for the contractual coupon interest, the accretion of the debt discount and the amortization of the debt issuance costs, respectively. The effective interest rate on the 2019 Notes is 5.1%, which included the interest on the 2019 Notes, amortization of the debt discount and debt issuance costs. As of September 30, 2019, the carrying value of the 2019 Notes was \$230.2 million and the fair value of the principal was \$287.9 million. The fair value of the 2019 Notes was determined based on the most recent trade activity of the 2019 Notes as of September 30, 2019.

Conversion of the 2.125% Convertible Senior Notes due 2021

The Company utilized a portion of the proceeds from the issuance of the 2019 Notes to settle its outstanding 2.125% Convertible Senior Notes due 2021 (the "2016 Notes") during the third quarter of 2019. On July 16, 2019, the Company entered into separate privately negotiated agreements with certain holders of the 2016 Notes to exchange an aggregate of \$92.0 million principal aggregate amount of the 2016 Notes for shares of the Company's common stock, together with cash, in private placement transactions (the "Note Exchanges"). On July 19, 2019 and July 22, 2019, the Company used approximately \$92.3 million (including \$0.3 million of accrued interest) and 1,850,155 shares of its common stock valued at \$161.0 million to settle the Note Exchanges for total consideration of \$253.3 million, of which \$163.6 million was allocated to reacquiring the equity component of the 2016 Notes. The Company allocated the consideration transferred to the liability and equity components using the same proportions as the initial carrying value of the 2016 Notes. The transaction resulted in a loss on extinguishment of debt of \$4.5 million in the Company's consolidated statement of comprehensive income (loss) for the three and nine months ended September 30, 2019.

On July 19, 2019, the Company issued a Notice of Redemption in respect of the 2016 Notes, which provided that, on September 23, 2019, the Company would redeem all 2016 Notes that had not been converted, repurchased or exchanged prior to such date at a redemption price in cash equal to 100% of the principal amount thereof plus accrued and unpaid interest. On September 23, 2019, the Company used \$23.0 million and 466,045 shares of its common stock valued at \$37.8 million to settle the remaining 2016 Notes for a total of \$60.8 million, of which \$38.3 million was allocated to reacquiring the equity component of the 2016 Notes. This transaction resulted in a loss on extinguishment of debt of \$1.1 million recorded on the Company's consolidated statement of comprehensive income (loss). The total loss for the three and nine months ended September 30, 2019 of \$5.6 million represents the difference between the fair value of the liability component of the 2016 Notes and its related carrying value immediately before the exchange.

The fair value of the liability component was calculated using a discounted cash flow technique with an effective interest rate of 3.9%, representing the estimated nonconvertible debt borrowing rate with a maturity as of the measurement date consistent with the 2016 Notes maturity date of June 1, 2021. In addition, in accordance with this guidance, a portion of the fair value of the consideration transferred is allocated to the reacquisition of the equity component, which is the difference between the fair value of the consideration transferred and the fair value of the liability component immediately before the exchange. As a result, \$200.1 million was allocated to the reacquisition of the equity component of the original instrument, which is recorded net of deferred taxes within additional paid-in capital on our consolidated balance sheet.

The cash conversion feature of the 2016 Notes required bifurcation from the 2016 Notes and was initially accounted for as an equity instrument classified to stockholders' equity, as the conversion feature was determined to be clearly and closely related to the Company's stock. Based on market data available for publicly traded, senior, unsecured corporate bonds issued by companies in the same industry and asset base and with similar maturity, the Company estimated the implied interest rate, assuming no conversion option. Assumptions used in the estimate represent what market participants would use in pricing the liability component, including market interest rates, credit standing, and yield curves, all of which are defined as Level 2 observable inputs. The estimated implied interest rate was applied to the 2016 Notes, which resulted in a fair value of the liability component of \$96.3 million upon issuance, calculated as the present value of implied future payments based on the \$115 million aggregate principal amount. The equity component of the 2016 Notes was recognized as a debt discount, recorded in additional paid-in capital, and represents the difference between the aggregate principal of the 2016 Notes and the fair value of the 2016 Notes without conversion option on their issuance date. The debt discount was amortized to interest expense using the effective interest method over five years, or the life of the 2016 Notes.

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Interest expense recognized on the 2016 Notes for the three months ended September 30, 2019 prior to conversion was \$0.1 million, \$0.5 million and \$0.1 million for the contractual coupon interest, the accretion of the debt discount and the amortization of the debt issuance costs, respectively. Interest expense recognized on the 2016 Notes for the nine months ended September 30, 2019 was \$1.3 million, \$2.4 million and \$0.4 million for the contractual coupon interest, the accretion of the debt discount and the amortization of the debt issuance costs, respectively. The effective interest rate on the 2016 Notes was 6.6%, which included the interest on the 2016 Notes, amortization of the debt discount and debt issuance costs.

9. Stockholders' Equity

Public Offerings of Common Stock

On July 19, 2019, the Company completed a public offering in which 1,587,000 shares of its common stock, including the underwriters' exercise in full of an option to purchase an additional 207,000 shares, were sold to the public at a price of \$87.00 per share (the "Stock Offering"). The net proceeds of the Stock Offering, after deducting underwriting discounts and commissions and other estimated offering expenses payable by the Company, were approximately \$131.1 million.

On May 3, 2019, the Company completed a public offering in which 3,144,531 shares of its common stock, which includes the underwriters' exercise in full of an option to purchase up to an additional 410,156 shares, were sold to the public at a price of \$64.00 per share. The total proceeds received by the Company from this offering, net of underwriting discounts and commissions and other estimated offering expenses payable by the Company, totaled approximately \$189.6 million.

Stock Option and Incentive Plans

At our 2018 annual meeting of shareholders held on May 16, 2018, our shareholders approved the 2018 Stock Option and Incentive Plan (the "2018 Plan"). Under the 2018 Plan the number of shares of our common stock that are reserved and available for issuance is 2,778,000 plus the number of shares of common stock available for issuance under our Amended and Restated 2012 Stock Option and Incentive Plan (the "2012 Plan"). The shares of common stock underlying any awards under the 2018 Plan, 2012 Plan and the Second Amended and Restated 2001 Repligen Corporation Stock Plan (the "2001 Plan," and together with the 2018 Plan and 2012 Plan, the "Plans") that are forfeited, canceled or otherwise terminated (other than by exercise) shall be added back to the shares of stock available for issuance under the 2018 Plan. At September 30, 2019, 2,571,611 shares were available for future grant under the 2018 Plan.

Stock-Based Compensation

For the three months ended September 30, 2019 and 2018, the Company recorded stock-based compensation expense of \$3.2 million and \$2.8 million, respectively, for share-based awards granted under the Plans. The Company recorded stock-based compensation expense of \$9.5 million and \$7.7 million for the nine - month periods ended September 30, 2019 and 2018. The following table presents stock-based compensation expense in the Company's consolidated statements of comprehensive income (loss):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(Amounts in thousands)			
Cost of product revenue	\$ 375	\$ 277	\$ 992	\$ 777
Research and development	351	253	992	650
Selling, general and administrative	2,449	2,249	7,475	6,245
Total stock-based compensation	\$			
	\$ 3,175	\$ 2,779	\$ 9,459	\$ 7,672

The 2018 Plan allows for the granting of incentive and nonqualified options to purchase shares of common stock, restricted stock and other equity awards. Employee grants under the Plans generally vest over a three to five year period, with 20 %-33% vesting on the first anniversary of the date of grant and the remainder vesting in equal yearly installments thereafter. Nonqualified options issued to non-employee directors and consultants under the Plans generally vest over one year. In the first quarter of 2018, to create a longer-term retention incentive, the Company's Compensation Committee granted long-term incentive compensation awards to its Chief Executive Officer consisting of both stock options and restricted stock units ("RSUs") that are subject to time-based vesting over nine years. Options granted under the Plans have a maximum term of ten years from the date of grant and generally, the exercise price of the stock options equals the fair market value of the Company's common stock on the date of grant. At September 30, 2019, options to purchase 959,916 shares and 740,213 RSUs were outstanding under the Plans.

The Company uses the Black-Scholes option pricing model to calculate the fair value of stock option awards on the grant date, and the Company uses the value of the common stock as of the grant date to value RSUs. The Company measures stock-based compensation cost at the grant date based on the estimated fair value of the award. The Company recognizes expense on awards

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with service-based vesting over the employee's requisite service period on a straight-line basis. In the third quarter of 2017, the Company issued performance stock units to certain employees related to the Spectrum Acquisition which were tied to the achievement of certain 2018 revenue and gross margin metrics and the passage of time. Additionally, in the first quarter of 2018 and again in the first quarter of 2019, the Company issued performance stock units to certain individuals which are tied to the achievement of certain annual revenue and return on invested capital metrics. The Company recognizes expense on performance-based awards over the vesting period based on the probability that the performance metrics will be achieved. The Company recognizes stock-based compensation expense for options that are ultimately expected to vest, and accordingly, such compensation expense has been adjusted for estimated forfeitures.

Information regarding option activity for the nine months ended September 30, 2019 under the Plans is summarized below:

	Shares	Weighted average exercise price	Weighted- Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in Thousands)
Options outstanding at December 31, 2018	998,226	\$ 27.54		
Granted	44,996	\$ 61.98		
Exercised	(83,306)	\$ 12.70		
Forfeited/expired/cancelled	—	\$ —		
Options outstanding at September 30, 2019	959,916	\$ 30.44	6.93	\$ 44,396
Options exercisable at September 30, 2019	503,934	\$ 24.18	5.64	\$ 26,464
Vested and expected to vest at September 30, 2019 ⁽¹⁾	923,962		6.87	\$ 42,961

- (1) Represents the number of vested options as of September 30, 2019 plus the number of unvested options expected to vest as of September 30, 2019 based on the unvested outstanding options at September 30, 2019 adjusted for estimated forfeiture rates of 8% for awards granted to non-executive level employees and 3% for awards granted to executive level employees.

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value (the difference between the closing price of the common stock on September 30, 2019, the last business day of the third quarter of 2019, of \$76.69 per share and the exercise price of each in-the-money option) that would have been received by the option holders had all option holders exercised their options on September 30, 2019. The aggregate intrinsic value of stock options exercised during the nine months ended September 30, 2019 and 2018 was \$5.2 million and \$3.5 million, respectively.

The weighted average grant date fair value of options granted during the nine months ended September 30, 2019 and 2018 was \$30.07 and \$18.56, respectively. The total fair value of stock options that vested during the nine months ended September 30, 2019 and 2018 was \$2.9 million and \$2.1 million, respectively.

Information regarding RSU activity for the nine months ended September 30, 2019 under the Plans is summarized below:

	Shares	Weighted- Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in Thousands)
Unvested at December 31, 2018	707,413		
Awarded	297,086		
Vested	(228,103)		
Forfeited/expired/cancelled	(36,183)		
Unvested at September 30, 2019	740,213	3.85	\$ 56,767

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value (equal to the closing price of the common stock on September 30, 2019, the last business day of the third quarter of 2019, of \$76.69 per share, as RSUs do not have an exercise price) that would have been received by the RSU holders had all holders exercised on September 30, 2019. The aggregate intrinsic value of RSUs vested during the nine months ended September 30, 2019 and 2018 was \$15.5 million and \$5.2 million, respectively.

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The weighted average grant date fair value of RSUs vested during the nine months ended September 30, 2019 and 2018 was \$33.46 and \$30.21, respectively. The total fair value of RSUs that vested during the nine months ended September 30, 2019 and 2018 was \$7.6 million and \$4.1 million, respectively.

As of September 30, 2019, there was \$37.7 million of total unrecognized compensation cost related to unvested share-based awards. This cost is expected to be recognized over a weighted average remaining requisite service period of 4.13 years. The Company expects 1,676,976 unvested options and RSUs to vest over the next five years.

10. Commitments and Contingencies

Lease Commitments

In May 2019, the Company entered into a fifth amendment of the existing lease to expand the rented space from approximately 76,000 square feet to approximately 108,000 square feet at 41 Seyon Street, Waltham, Massachusetts, the Company's corporate headquarters and primary location for all manufacturing, research and development, sales and marketing and administrative operations. The Company expects to be completely moved into the new space by the third quarter of 2020. Under the terms of the fifth amendment lease, the initial fixed rental rate is \$29.00 per square foot, per annum, of the additional square footage (approximately 32,000 square feet) and will increase at a rate of \$1.00 per annum.

Licensing and Research Agreements

The Company licenses certain technologies that are, or may be, incorporated into its technology under several agreements and also has entered into several clinical research agreements which require the Company to fund certain research projects. Generally, the license agreements require the Company to pay annual maintenance fees and royalties on product sales once a product has been established using the technologies. Research and development expenses associated with license agreements were immaterial amounts for the three months ended September 30, 2019 and 2018.

In September 2018, we entered into a collaboration agreement with Sartorius Stedim Biotech, a leading international supplier for the biopharmaceutical industry, to integrate XCell™ ATF cell retention control technology into Sartorius's BIOSTAT® STR large-scale, single-use bioreactors to create novel perfusion-enabled bioreactors. As a result of this collaboration, end-users will stand to benefit from a single control system for 50L to 2,000L bioreactors used in perfusion cell culture applications. The single interface is designed to control cell growth, fluid management and cell retention in continuous and intensified bioprocessing and, ultimately, simplify the development and manufacture of biotechnological drugs under current good manufacturing practices.

In June 2018, we secured an agreement with Navigo for the exclusive co-development of multiple affinity ligands for which Repligen holds commercialization rights. We are manufacturing and have agreed to supply the first of these ligands, NGL-Impact™ A, exclusively to Purolite Life Sciences ("Purolite"), who will pair our high-performance ligand with Purolite's agarose jetting base bead technology used in their Jetted A50 Protein A resin product. We also signed a long-term supply agreement with Purolite for NGL-Impact A and other potential additional affinity ligands that may advance from our Navigo collaboration. The Navigo and Purolite agreements are supportive of our strategy to secure and reinforce our proteins business. We made payments to Navigo of \$2.4 million during the year ended December 31, 2018 in connection with this program, which were recorded to research and development expenses in our consolidated statements of comprehensive income (loss).

11. Accumulated Other Comprehensive Loss

The following shows the changes in the components of accumulated other comprehensive loss for the nine months ended September 30, 2019 which consisted of only foreign currency translation adjustments for the periods shown (amounts in thousands):

	Foreign Currency Translation Adjustment
Balance as of December 31, 2018	\$ (11,893)
Other comprehensive loss	(9,901)
Balance as of September 30, 2019	<u>\$ (21,794)</u>

12. Income Taxes

The Company's effective tax rate for the three and nine months ended September 30, 2019 was an income tax provision of 0.7% and 18.3%, respectively, compared to income tax provisions of 27.6% and 24.6% for the corresponding periods in the prior year. The effective tax rate for the three and nine months ended September 30, 2019 was lower than the U.S. statutory rate of 21% due primarily to

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windfall benefits on stock option exercises and the vesting of RSUs. The effective tax rate for the three and nine months ended September 30, 2018 was higher than the U.S. statutory rate of 21% due to state tax effects and the impact of the Global Intangible Low-Taxed Income (“GILTI”) tax enacted as part of the Tax Cuts and Jobs Act enacted in December 2017.

ASU 2016-16, “*Intra-Entity Transfers of Assets Other Than Inventory*,” requires the income tax consequences of intra-entity transfers of assets other than inventory to be recognized when the intra-entity transfer occurs rather than deferring recognition of income tax consequences until the transfer was made with an outside party. The Company adopted the provisions of this ASU in the first quarter of 2018. The adoption resulted in a decrease of \$5.7 million to other assets, a decrease of \$5.0 million to deferred tax liabilities and a decrease of \$0.7 million to accumulated deficit at January 1, 2018.

At December 31, 2018, the Company had federal business tax credit carryforwards of \$2.9 million and state business tax credit carryforwards of \$0.4 million available to reduce future domestic income taxes, if any. The business tax credits carryforwards will expire at various dates through December 2038. The net operating loss and business tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and may be limited in the event of certain changes in the ownership interest of significant stockholders.

On December 22, 2017, President Trump signed into law the Act. The Act made significant changes to federal tax law, including, but not limited to, a reduction in the federal income tax rate from 35% to 21%, taxation of certain global intangible low-taxed income, allowing for immediate expensing of qualified assets, stricter limits on deductions for interest and certain executive compensation, and a one-time transition tax on previously deferred earnings of certain foreign subsidiaries.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118 to address the application of GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of H.R.1. The Company recognized the provisional tax impacts related to deemed repatriated earnings and the revaluation of deferred tax assets and liabilities and included these amounts in its consolidated financial statements for the year ended December 31, 2017. During 2018, final adjustments noted below were made to the provisional amounts recorded during 2017, and the Company completed its accounting for various tax impacts of the Act.

The Act lowered the Company’s U.S. statutory federal tax rate from 35% to 21% effective January 1, 2018. The Company recorded a tax benefit of \$12.8 million in the year ended December 31, 2017 for the reduction in its US deferred tax assets and liabilities resulting from the rate change. The accounting for this item is complete and no adjustments were made to this amount during 2018.

The Act included a one-time deemed repatriation transition tax whereby entities that are shareholders of a specified foreign corporation must include in gross income the undistributed and previously untaxed post-1986 earnings and profits of the specified foreign corporation. The Company’s provisional amount recorded at December 31, 2017 increased its tax provision by \$3.3 million. As of December 31, 2018, the accounting for this item was complete and the Company recorded a tax benefit of \$1.3 million as a result of refining our calculations of post-1986 earnings and profits for our foreign subsidiaries.

The Company is subject to a territorial tax system under the Act, in which the Company is required to provide for tax on GILTI earned by certain foreign subsidiaries. The Company has adopted an accounting policy to provide for the tax expense related to GILTI in the year the tax is incurred as a period expense.

The Company’s tax returns are subject to examination by federal, state and international tax authorities for the following periods:

<u>Jurisdiction</u>	<u>Fiscal Years Subject to Examination</u>
United States—federal and state	2015 - 2018
Sweden	2012 - 2018
Germany	2017 - 2018
Netherlands	2012 - 2018

13. Earnings Per Share

The Company reports earnings per share in accordance with ASC 260, “*Earnings Per Share*,” which establishes standards for computing and presenting earnings per share. Basic earnings per share is computed by dividing net income available to common shareholders by the weighted average number of common shares outstanding during the period. Diluted earnings per share is computed by dividing net income available to common shareholders by the weighted-average number of common shares and dilutive common share equivalents then outstanding. Potential common share equivalents consist of restricted stock awards and the

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incremental common shares issuable upon the exercise of stock options. Under the treasury stock method, unexercised “in-the-money” stock options and warrants are assumed to be exercised at the beginning of the period or at issuance, if later. The assumed proceeds are then used to purchase common shares at the average market price during the period. Share-based payment awards that entitle their holders to receive non-forfeitable dividends before vesting are considered participating securities and are considered in the calculation of basic and diluted earnings per share. There were no such participating securities outstanding during the three month periods ended September 30, 2019 and 2018.

Basic and diluted weighted average shares outstanding were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(Amounts in thousands, except per share data)			
Net income			\$	
	\$ 1,659	\$ 4,794	17,807	\$10,979
Weighted average shares used in computing net income per share—basic	50,852	43,822	47,087	43,729
Effect of dilutive shares:				
Stock options and restricted stock awards	957	651	843	511
Convertible senior notes	—	1,355	—	892
Dilutive potential common shares	957	2,006	843	1,403
Weighted average shares used in computing net income per share—diluted	51,809	45,828	47,930	45,132
Earnings per share:				
Basic	\$ 0.03	\$ 0.11	\$ 0.38	\$ 0.25
Diluted			\$	
	\$ 0.03	\$ 0.10	0.37	\$ 0.24

At September 30, 2019, there were outstanding options to purchase 959,916 shares of the Company’s common stock at a weighted average exercise price of \$30.44 per share and 740,213 shares of common stock issuable upon the vesting of RSUs. For the three and nine months ended September 30, 2019, 47,705 and 85,503 options to purchase shares of the Company’s common stock, respectively, were excluded from the calculation of diluted earnings per share because the exercise prices of the stock options were greater than or equal to the average price of the common shares and were therefore anti-dilutive.

At September 30, 2018, there were outstanding options to purchase 1,033,312 shares of the Company’s common stock at a weighted average exercise price of \$26.99 per share and 707,716 shares issuable upon the vesting of RSUs. For the three and nine month periods ended September 30, 2018, 329,409 and 485,520 options to purchase shares of the Company’s common stock, respectively, were excluded from the calculation of diluted earnings per share because the exercise prices of the stock options were greater than or equal to the average price of the common shares and were therefore anti-dilutive.

As provided by the terms of the indenture underlying the 2016 Notes, the Company had a choice to settle the conversion obligation for the 2016 Notes in cash, shares or any combination of the two. During the third quarter of 2019, the Company settled the remaining 2016 Notes for a \$115.0 million total aggregate principal and 2,316,200 shares of its common stock.

In July 2019, the Company issued \$287.5 million aggregate principal amount of the 2019 Notes. As provided by the terms of the indenture underlying the 2019 Notes, conversion of the 2019 Notes will be settled in cash, shares of the Company’s common stock or a combination thereof, at the Company’s election. As of September 30, 2019, the 2019 Notes were not convertible. The Company currently intends to settle the par value of the 2019 Notes in cash and any excess conversion premium in shares. The Company applies the provisions of ASC 260, “Earnings Per Share”, Subsection 10-45-44, to determine the diluted weighted average shares outstanding as it relates to the conversion spread on the 2019 Notes. Accordingly, the par value of the 2019 Notes is not included in the calculation of diluted income per share, but the dilutive effect of the conversion premium is considered in the calculation of diluted net income per share using the treasury stock method. The dilutive impact of the 2019 Notes is based on the difference between the Company’s current period average stock price and the conversion price of the 2019 Notes, provided there is a premium. Pursuant to this accounting standard, there is no dilution from the accreted principal of the 2019 Notes for the periods shown.

14. Related Party Transactions

Certain facilities leased by Spectrum LifeSciences, LLC (“Spectrum”) are owned by the former owner of Spectrum. The former owner held greater than 10% of the Company’s outstanding common stock until the Company completed its public offering of 3,144,531 shares of its common stock on May 3, 2019. The lease amounts paid to this former owner and current shareholder were negotiated in connection with the Spectrum Acquisition. The Company has incurred rent expense totaling \$0.4 million for the nine months ended September 30, 2019 related to these leases.

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As part of the Spectrum Acquisition, the Company was responsible for filing all tax returns for Spectrum for the period from January 1, 2017 through July 31, 2017, the day before the Spectrum Acquisition. The Company was responsible for collecting any tax refunds from federal and state authorities and remitting these refunds to the former shareholders of Spectrum, including the former owner of Spectrum who held greater than 10% of the Company's outstanding common stock prior to May 3, 2019. During 2018, the Company collected \$1.7 million of these tax refunds, which the Company paid to the Spectrum shareholders during the fourth quarter of 2018, net of \$0.2 million of expenses paid by the Company on behalf of Spectrum for tax preparation and other fees.

15. Segment Reporting

The Company views its operations, makes decisions regarding how to allocate resources and manages its business as one operating segment. As a result, the financial information disclosed herein represents all of the material financial information related to the Company's sole operating segment.

Revenue from filtration products includes our XCell ATF Systems and consumables as well as our KrosFlo and SIUS filtration products. Revenue from chromatography products includes our OPUS and OPUS PD chromatography columns, chromatography resins and ELISA test kits. Revenue from protein products includes our Protein A ligands and cell culture growth factors. Revenue from our process analytics products includes the sale of our SoloVPE and FlowVPE systems and consumables. Other revenue primarily consists of revenue from the sale of operating room products to hospitals as well as freight revenue.

The following table represents the Company's total revenue by geographic area (based on the location of the customer):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenue by customers' geographic locations:				
North America	54%	49%	51%	47%
Europe	33%	39%	37%	41%
APAC	13%	12%	12%	12%
Other	0%	0%	0%	0%
Total revenue	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

Concentrations of Credit Risk and Significant Customers

Financial instruments that subject the Company to significant concentrations of credit risk primarily consist of cash and cash equivalents, marketable securities and accounts receivable. Per the Company's investment policy, cash equivalents and marketable securities are invested in financial instruments with high credit ratings and credit exposure to any one issue, issuer (with the exception of U.S. treasury obligations) and type of instrument is limited. At September 30, 2019 and December 31, 2018, the Company had no investments associated with foreign exchange contracts, options contracts or other foreign hedging arrangements.

Concentration of credit risk with respect to accounts receivable is limited to customers to whom the Company makes significant sales. While a reserve for the potential write-off of accounts receivable is maintained, the Company has not written off any significant accounts to date. To control credit risk, the Company performs regular credit evaluations of its customers' financial condition.

Revenue from significant customers as a percentage of the Company's total revenue is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
GE Healthcare	N/A	16%	12%	16%
MilliporeSigma	14%	18%	14%	17%

Significant accounts receivable balances as a percentage of the Company's total trade accounts receivable are as follows:

	September 30, 2019	December 31, 2018
GE Healthcare	10%	17%
MilliporeSigma	N/A	11%

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**Overview**

Repligen and its subsidiaries, collectively doing business as Repligen Corporation (“Repligen”, “we”, “our”, or “the Company”) is a leading provider of advanced bioprocessing technologies and solutions used in the process of manufacturing biologic drugs. Our products are made to substantially increase biopharmaceutical manufacturing efficiencies and flexibility. As the global biologics market continues to experience strong growth and expansion, our customers – primarily large biopharmaceutical companies and contract manufacturing organizations – face critical production cost, capacity, quality and time pressures that our products are made to address. Our commitment to bioprocessing is helping set new standards for the way our customers manufacture biologic drugs – including monoclonal antibodies (“mAb”), recombinant proteins, vaccines and gene therapies. We are dedicated to “inspiring advances in bioprocessing” as a trusted partner in the production of biologic drugs that improve human health worldwide.

Our chromatography products feature pre-packed chromatography (“PPC”) columns under our OPUS[®] brand. OPUS columns, which we deliver to our customers pre-packed with their choice of chromatography resin, are single-campaign (“single-use”) disposable columns that replace the use of traditional and more permanent glass columns used in downstream purification processes. By designing OPUS to be a technologically advanced and flexible option for the purification of biologics from process development through clinical-scale and some commercial manufacturing, Repligen has become a leader in PPC columns.

Our filtration products offer a number of advantages to manufacturers of biologic drugs at volumes that span from pilot studies to clinical and commercial-scale production. XCell ATF[™] systems are used primarily in upstream perfusion, or continuous manufacturing, processes to increase cell concentration and significantly improve biologic product yield from a bioreactor. To address increasing industry demand for “plug-and-play” technology, we developed and launched in 2016 single-use formats of the original stainless steel XCell ATF device. In December 2016, we acquired TangenX Technology Corporation (“TangenX”), balancing our upstream XCell ATF offering with a downstream portfolio of flat-sheet filters and cassettes used in biologic drug purification and formulation processes. The TangenX portfolio includes the single-use SIUS[™] TFF brand, providing customers with a high-performance, low-cost alternative to reusable TFF products. In August 2017, we completed our acquisition of Spectrum LifeSciences, LLC (“Spectrum”). Our Spectrum filtration brands include the KrosFlo[®] family of products, ProConnex[®] disposable flow-path products, TFF systems and others. The Spectrum Acquisition significantly strengthened our Filtration product line and diversifies our end markets beyond mAbs to include vaccine, recombinant protein and gene therapies.

We are a leading OEM manufacturer and supplier of Protein A ligands to life sciences companies. Protein A ligands are an essential “binding” component of Protein A chromatography resins used in the purification of virtually all mAb based drugs on the market or in development that our customers sell to end users, including biopharmaceutical manufacturers, for use in downstream purification of mAbs. We also manufacture and sell growth factor products used to supplement cell culture media in order to increase cell growth and productivity in a bioreactor.

Customers use our products to produce initial quantities of a drug for clinical studies and then scale-up to larger volumes as the drug progresses to commercial production following regulatory approval. Detailed specifications for a drug’s manufacturing process are included in the applications that biopharmaceutical companies file for marketing approval with regulators, such as the U.S. Food and Drug Administration and the European Medicines Agency, throughout the clinical trial process and prior to final commercial approval. As a result, products that become part of the manufacturing specifications of a late-stage clinical or commercial process can be very sensitive given the costs and uncertainties associated with displacing them.

C Technologies Acquisition

On April 25, 2019, we entered into a Stock Purchase Agreement (“Purchase Agreement”) with C Technologies, Inc. (“C Technologies”), a New Jersey corporation, and Craig Harrison, an individual and sole stockholder of C Technologies. The deal was consummated on May 31, 2019, the acquisition date (the “C Technologies Acquisition”).

C Technologies sells instruments, consumables and accessories that are designed to allow bioprocessing technicians to measure the protein concentration of a liquid sample using C Technologies’ Slope Spectroscopy method, which eliminates the need for manual sample dilution. C Technologies’ lead product, the SoloVPE instrument platform, was launched in 2008 for off-line and at-line protein concentration measurements conducted in quality control, process development and manufacturing labs in the production of biological therapeutics. C Technologies’ FlowVPE platform, an extension of the SoloVPE technology, was designed to allow end users to make in-line protein concentration measurements in filtration, chromatography and fill-finish applications, designed to allow for real-time process monitoring.

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The C Technologies Acquisition was accounted for as a purchase of a business under ASC 805, “*Business Combinations*.” The cash paid for the C Technologies Acquisition was \$195.0 million, \$186.0 million of which will be consideration transferred pursuant to ASC 805, and \$9.0 million of which will be compensation expense for future employment, and 779,221 of unregistered common shares totaling \$53.9 million (based on a per share price of \$69.22), for a total purchase price of \$239.9 million.

Critical Accounting Policies and Estimates

A “critical accounting policy” is one which is both important to the portrayal of our financial condition and results and requires management’s most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. For a description of our critical accounting policies that affect our more significant judgments and estimates used in the preparation of our consolidated financial statements, refer to Management’s Discussion and Analysis of Financial Condition and Results of Operations and our significant accounting policies in Note 2 to the consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC.

Results of Operations

The following discussion of the financial condition and results of operations should be read in conjunction with the accompanying consolidated financial statements and the related footnotes thereto.

Revenues

Total revenues for the three and nine months ended September 30, 2019 and 2018 were as follows:

	Three Months Ended September 30,		Increase/ (Decrease)		Nine Months Ended September 30,		Increase/ (Decrease)	
	2019	2018	\$ Change	% Change	2019	2018	\$ Change	% Change
(Amounts in thousands, except for percentage data)								
Revenue:								
Products	\$69,419	\$49,500	\$19,919	40.2%	\$200,701	\$142,042	\$58,659	41.3%
Royalty and other	26	29	(3)	(10.3%)	70	48	22	45.8%
Total revenue	<u>\$69,445</u>	<u>\$49,529</u>	<u>\$19,916</u>	40.2%	<u>\$200,771</u>	<u>\$142,090</u>	<u>\$58,681</u>	41.3%

Product revenues

Since 2016, we have been increasingly focused on selling our products directly to customers in the pharmaceutical industry and to our contract manufacturers. Direct sales represent approximately 80% and 75 % of our product revenue in the three and nine months ended September 30, 2019 , respectively . We expect that direct sales will continue to account for an increasing percentage of our product revenues, as the largest customer of our OEM products diversifies its supply chain starting in 2020. Sales of our bioprocessing products can be impacted by the timing of large-scale production orders and the regulatory approvals for such antibodies, which may result in significant quarterly fluctuations.

Revenue from our chromatography products includes the sale of our OPUS and OPUS PD chromatography columns, chromatography resins and ELISA test kits. Revenue from our filtration products includes the sale of our XCell ATF Systems and consumables, KrosFlo filtration products and SIUS filtration products. Revenue from protein products includes the sale of our Protein A ligands and cell culture growth factors. Revenue from our Process Analytics products includes the sale of our SoloVPE and FlowVPE systems and consumables. Other revenue primarily consists of revenue from the sale of our operating room products to hospitals as well as freight revenue.

During the three and nine months ended September 30, 2019, product revenue increased by \$19.9 million, or 40.2% and \$58.7 million, or 41.3%, respectively, as compared to the same periods of 2018. The increase in both periods is due to the continued adoption of our products by our key bioprocessing customers, particularly our chromatography and filtration products. Sales of our bioprocessing products are impacted by the timing of orders, development efforts at our customers or end-users and regulatory approvals for biologics that incorporate our products, which may result in significant quarterly fluctuations. Such quarterly fluctuations are expected, but they may not be predictive of future revenue or otherwise indicate a trend. Additionally, there was a \$7.0 million and \$9.1 million increase in revenue for the three and nine months ended September 30, 2019, respectively, as compared to the same periods of 2018 due to revenues generated by C Technologies.

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Royalty revenues

Royalty revenues in the three and nine months ended September 30, 2019 and 2018 relate to royalties received from a third-party systems manufacturer associated with our OPUS PD chromatography columns. Royalty revenues are variable and are dependent on sales generated by our partner.

Costs and operating expenses

Total costs and operating expenses for the three and nine months ended September 30, 2019 and 2018 were comprised of the following:

	Three Months Ended September 30,		Increase/ (Decrease)		Nine Months Ended September 30,		Increase/ (Decrease)	
	2019	2018	\$ Change	% Change	2019	2018	\$ Change	% Change
(Amounts in thousands, except for percentage data)								
Cost of product revenue	\$31,425	\$22,183	\$ 9,242	41.7%	\$ 88,978	\$ 62,939	\$ 26,039	41.4%
Research and development	5,427	3,601	1,826	50.7%	14,278	12,669	1,609	12.7%
Selling, general and administrative	24,629	15,859	8,770	55.3%	67,326	48,347	18,979	39.3%
Total costs and operating expenses	<u>\$61,481</u>	<u>\$41,643</u>	<u>\$ 19,838</u>	47.6%	<u>\$170,582</u>	<u>\$123,955</u>	<u>\$ 46,627</u>	37.6%

Cost of product revenue

Cost of product revenue increased 41.7% and 41.4% in the three and nine months ended September 30, 2019, respectively, compared to the same periods of 2018 due primarily to the increase in product revenue mentioned above.

Gross margins were 54.7% and 55.7% in the three and nine months ended September 30, 2019, respectively. The gross margin for the three and nine months ended September 30, 2019 includes \$0.3 million and \$1.5 million, respectively, of amortization on an inventory step-up recorded in purchase accounting related to the C Technologies Acquisition. Excluding this step-up amortization, gross margins for the three and nine months ended September 30, 2019 were 55.2% and 56.4%, respectively. The increase in gross margins is a result of the increase in revenue mentioned above offset by an increase in manufacturing headcount subsequent to September 30, 2018. Gross margins may fluctuate in future quarters based on expected production volume and product mix.

Research and development expenses

Research and development expenses are related to bioprocessing products, which include personnel, supplies and other research expenses. Due to the small size of the Company and the fact that these various programs share personnel and fixed costs, we do not track all of our expenses or allocate any fixed costs by program, and therefore, have not provided historical costs incurred by project. In addition to the legacy product research and development, the current single-use XCell ATF project incurs expenses related to product development, sterilization, validation testing, and other research related expenses.

Research and development expenses increased 50.7% and 12.7% during the three and nine months ended September 30, 2019, respectively, compared to the same periods of 2018. The increases during both periods are primarily due to an increase in research and development headcount, an increase in stock-based compensation expense resulting from the increased headcount and the increase in share price period over period and to the addition of \$0.7 million and \$0.9 million, respectively of research and development expenses related to C Technologies, which was acquired in May 2019. The increase during the nine months ended September 30, 2019, as compared to the same period of 2018 was partially offset by a decrease in research and development expense of \$2.3 million in investments made in the second quarter of 2018 to expand our proteins product offering through our development agreement with Navigo Proteins GmbH compared to an immaterial amount of these costs in the nine months ended September 30, 2019.

We expect our research and development expenses for the rest of the year to increase slightly in order to support new product development.

Selling, general and administrative expenses

Selling, general and administrative (“SG&A”) expenses include the costs associated with selling our commercial products and costs required to support our marketing efforts, including legal, accounting, patent, shareholder services, amortization of intangible assets and other administrative functions.

During the three and nine months ended September 30, 2019, SG&A costs increased by \$8.8 million, or 55.3%, and \$19.0 million, or 39.3%, respectively, as compared to the same periods of 2018. The increase is due to the addition of \$4.7 million and \$6.2 million of SG&A costs from the acquisition of C Technologies in May 2019, to the continued expansion of our customer-facing activities to

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drive sales of our bioprocessing products, and to the continued buildout of our administrative infrastructure, primarily through increased headcount, to support expected future growth. In addition, during the nine months ended September 30, 2019, transaction fees related to the C Technologies Acquisition of \$4.0 million were included in SG&A, for which there were no comparable costs for the same period of 2018. Sales commissions were higher in 2019 due to the increase in revenue and stock compensation expense increased during both periods in 2019 as compared to 2018 resulting from an increase in headcount and higher share prices period over period.

Other expenses, net

The table below provides detail regarding our other expenses, net:

	Three Months Ended September 30,		Increase/ (Decrease)		Nine Months Ended September 30,		Increase/ (Decrease)	
	2019	2018	\$ Change	% Change	2019	2018	\$ Change	% Change
(Amounts in thousands, except for percentage data)								
Investment income	\$ 1,898	\$ 558	\$ 1,340	240.1%	\$ 3,616	\$ 1,251	\$ 2,365	189.0%
Loss on extinguishment of debt	(5,650)	—	(5,650)	100.0%	(5,650)	—	(5,650)	100.0%
Interest expense	(2,857)	(1,687)	(1,170)	69.4%	(6,326)	(5,008)	(1,318)	26.3%
Other income (expenses)	316	(134)	450	(335.8%)	(23)	187	(210)	(112.3%)
Total other expense, net	<u>\$ (6,293)</u>	<u>\$ (1,263)</u>	<u>\$ (5,030)</u>	398.3%	<u>\$(8,383)</u>	<u>\$(3,570)</u>	<u>\$ (4,813)</u>	134.8%

Investment income

Investment income includes income earned on invested cash balances. The increase of \$1.3 million and \$2.4 million for the three and nine months ended September 30, 2019, respectively, as compared to the same periods of 2018 was attributable to higher average invested cash balances and higher interest rates on such invested cash balances. We expect investment income to vary based on changes in the amount of funds invested and fluctuation of interest rates.

Loss on extinguishment of debt

The \$5.6 million loss on extinguishment of debt resulted from the settlement of our outstanding 2.125% Convertible Senior Notes due 2021 (the “2016 Notes”). The loss represents the difference between (i) the fair value of the liability component and (ii) the sum of the carrying value of the debt component and any unamortized debt issuance costs at the time of settlement.

Interest expense

Interest expense primarily includes interest related to our issuance of the 2016 Notes in May 2016, which were settled during the third quarter of 2019, and our issuance of 0.375% Convertible Senior Notes due 2024 (the “2019 Notes”), which were issued in July 2019. Interest expense increased \$1.2 million and \$1.3 million for the three and nine months ended September 30, 2019, respectively, as compared to the same periods in 2018. Interest calculated based on the carrying value related to the 2016 Notes was \$0.1 million and \$1.3 million in the three and nine months ended September 30, 2019, respectively, compared to \$0.6 million and \$1.8 million, respectively for the same periods of 2018. As aforementioned, the 2016 Notes were settled during July 2019. As a result, interest no longer accrued on the 2016 Notes subsequent to their settlement. Interest calculated based on the carrying value related to the 2019 Notes for both the three and nine months ended September 30, 2019 was \$0.2 million and there was no comparable amount for the prior periods.

The amortization of the debt issuance costs on the 2016 Notes was \$0.6 million and \$2.8 million for the three and nine months ended September 30, 2019, respectively, compared to \$1.1 million and \$3.2 million for the same periods of 2018. The decrease in this amortization is a result of the settlement of the 2016 Notes and subsequent write-off of the remaining debt issuance costs in July 2019. Amortization of debt issuance costs on the 2019 Notes was \$2.1 million for both the three and nine months ended September 30, 2019. There were no comparable amounts in 2018 as the 2019 Notes were issued in July 2019.

Other (expenses) income

Changes in other (expenses) income during the three and nine months ended September 30, 2019, compared to the same periods of 2018, are primarily attributable to foreign currency losses related to amounts due from non-Swedish kronor-based customers and cash balance denominated in U.S. dollars and British pounds held by Repligen Sweden AB. In addition, \$0.5 million was included in other (expenses) income for the nine months ended September 30, 2019, which represents a bridge loan commitment fee incurred as part of the C Technologies Acquisition.

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Income tax provision

Income tax provision for the three and nine months ended September 30, 2019 and 2018 was as follows:

	Three Months Ended September 30,		Increase/ (Decrease)		Nine Months Ended September 30,		Increase/ (Decrease)	
	2019	2018	\$ Change	% Change	2019	2018	\$ Change	% Change
(Amounts in thousands, except for percentage data)								
Income tax provision	\$ 12	\$ 1,829	\$ (1,817)	(99.3%)	\$ 3,999	\$ 3,586	\$ 413	11.5%
Effective tax rate	0.7%	27.6%			18.3%	24.6%		

For the three and nine months ended September 30, 2019, we recorded an income tax provision of less than \$0.1 million and \$4.0 million, respectively. The effective tax rate was an income tax provision of 0.7% and 18.3% for the three and nine months ended September 30, 2019, respectively, and is based upon the estimated taxable income for the year ending December 31, 2019 and the composition of the taxable income in different jurisdictions. The effective tax rate was lower than the U.S. statutory rate of 21% due primarily to windfall benefits on stock option exercises and the vesting of restricted stock units.

Non-GAAP Financial Measures

We provide non-GAAP adjusted income from operations; adjusted net income; and adjusted EBITDA as supplemental measures to GAAP measures regarding our operating performance. These financial measures exclude the items detailed below and, therefore, have not been calculated in accordance with GAAP. A detailed explanation and a reconciliation of each non-GAAP financial measure to its most comparable GAAP financial measure is provided below.

We include this financial information because we believe these measures provide a more accurate comparison of our financial results between periods and more accurately reflect how management reviews its financial results. We excluded the impact of certain acquisition-related items because we believe that the resulting charges do not accurately reflect the performance of our ongoing operations for the period in which such charges are incurred.

Non-GAAP adjusted income from operations

Non-GAAP adjusted income from operations is measured by taking income from operations as reported in accordance with GAAP and excluding acquisition and integration costs, intangible amortization and inventory step-up charges booked through our consolidated statements of comprehensive income (loss). The following is a reconciliation of income from operations in accordance with GAAP to non-GAAP adjusted income from operations for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(Amounts in thousands)				
GAAP income from operations	\$ 7,964	\$ 7,886	\$ 30,189	\$ 18,135
Non-GAAP adjustments to income from operations:				
Acquisition and integration costs	2,953	805	9,573	2,313
Intangible amortization	3,900	2,608	9,562	7,906
Inventory step-up charges	314	—	1,483	—
Non-GAAP adjusted income from operations	<u>\$ 15,131</u>	<u>\$ 11,299</u>	<u>\$ 50,807</u>	<u>\$ 28,354</u>

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Non-GAAP adjusted net income

Non-GAAP adjusted net income is measured by taking net income as reported in accordance with GAAP and excluding acquisition and integration costs, intangible amortization, inventory step-up charges, loss on extinguishment of debt, non-cash interest expense and the tax effects of these items. The following are reconciliations of net income in accordance with GAAP to non-GAAP adjusted net income for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,			
	2019		2018	
	Amount	Fully Diluted Earnings per Share	Amount	Fully Diluted Earnings per Share
	(Amounts in thousands, except per share data)			
GAAP net income	\$ 1,659	\$ 0.03	\$ 4,794	\$ 0.10
Non-GAAP adjustments to net income:				
Acquisition and integration costs	2,953	0.06	805	0.02
Intangible amortization	3,900	0.08	2,608	0.06
Loss on extinguishment of debt	5,650	0.11	—	—
Inventory step-up charges	314	0.01	—	—
Non-cash interest expense	2,631	0.05	1,071	0.02
Tax effect of intangible amortization and acquisition costs	(3,781)	(0.07)	(1,063)	(0.02)
Non-GAAP adjusted net income	<u>\$13,326</u>	<u>\$ 0.26</u>	<u>\$ 8,215</u>	<u>\$ 0.18</u>

	Nine Months Ended September 30,			
	2019		2018	
	Amount	Fully Diluted Earnings per Share	Amount	Fully Diluted Earnings per Share
	(Amounts in thousands, except per share data)			
GAAP net income	\$ 17,807	\$ 0.37	\$ 10,979	\$ 0.24
Non-GAAP adjustments to net income:				
Acquisition and integration costs	10,074	0.21	2,313	0.05
Intangible amortization	9,562	0.20	7,906	0.18
Inventory step-up charges	1,483	0.03	—	—
Loss on extinguishment of debt	5,650	0.12	—	—
Non-cash interest expense	4,863	0.10	3,160	0.07
Tax effect of intangible amortization and acquisition costs	(7,742)	(0.16)	(3,171)	(0.07)
Non-GAAP adjusted net income	<u>\$ 41,697</u>	<u>\$ 0.87</u>	<u>\$ 21,187</u>	<u>\$ 0.47</u>

Per share totals may not add due to rounding.

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Adjusted EBITDA

Adjusted EBITDA is measured by taking net income as reported in accordance with GAAP, excluding investment income, interest expense, taxes, depreciation and amortization, acquisition and integration costs, inventory step-up charges and loss on extinguishment of debt booked through our consolidated statements of comprehensive income (loss). The following is a reconciliation of net income in accordance with GAAP to adjusted EBITDA for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	(Amounts in thousands)			
GAAP net income	\$ 1,659	\$ 4,794	\$ 17,807	\$ 10,979
Non-GAAP EBITDA adjustments to net income:				
Investment income	(1,898)	(558)	(3,616)	(1,251)
Interest expense	2,857	1,687	6,326	5,008
Tax provision	12	1,829	3,999	3,586
Depreciation	1,810	1,273	5,147	3,871
Amortization	3,928	2,608	9,644	7,906
EBITDA	8,368	11,633	39,307	30,099
Other non-GAAP adjustments:				
Acquisition and integration costs	2,953	805	10,074	2,313
Loss on extinguishment of debt	5,650	—	5,650	—
Inventory step-up charges	314	—	1,483	—
Adjusted EBITDA	<u>\$ 17,285</u>	<u>\$ 12,438</u>	<u>\$ 56,514</u>	<u>\$ 32,412</u>

Liquidity and Capital Resources

We have financed our operations primarily through revenues derived from product sales, the issuance of the 2016 Notes in May 2016 and our 2019 Notes (defined below) in July 2019 and the issuance of common stock in our July 2019, May 2019 and July 2017 public offerings. Our revenue for the foreseeable future will primarily be limited to our bioprocessing product revenue.

At September 30, 2019, we had non-restricted cash and cash equivalents of \$513.5 million compared to non-restricted cash, cash equivalents of \$193.8 million at December 31, 2018.

We acquired C Technologies on May 31, 2019 for \$239.9 million in cash and shares of our common stock. The C Technologies Acquisition was funded through payment of approximately \$195.0 million in cash and 779,221 unregistered shares of the Company's common stock totaling \$53.9 million.

On May 3, 2019, the Company completed a public offering in which 3,144,531 shares of its common stock, which includes the underwriters' exercise in full of an option to purchase up to an additional 410,156 shares, were sold to the public at a price of \$64.00 per share. The total proceeds received by the Company from this offering, net of underwriting discounts and commissions and other estimated offering expenses payable by the Company, totaled approximately \$189.6 million. Proceeds from this public offering were partially used to fund the C Technologies Acquisition on May 31, 2019.

On July 19, 2019, the Company completed a public offering in which 1,587,000 shares of its common stock, which includes the underwriters' exercise in full of an option to purchase an additional 207,000 shares, were sold to the public at a price of \$87.00 per share for \$131.1 million in net proceeds to the Company, after deducting underwriting discounts and commissions and other estimated offering expenses payable by the Company (the "Stock Offering").

On July 19, 2019, the Company issued \$287.5 million aggregate principal amount of 0.375% Convertible Senior Notes due 2024 ("2019 Notes"), which includes the underwriters' exercise in full of an option to purchase an additional \$37.5 million aggregate principal amount of 2019 Notes (the "Notes Offering" and, together with the Stock Offering, the "Offerings"). The net proceeds of the Notes Offering, after deducting underwriting discounts and commissions and other offering expenses payable by the Company, were \$278.6 million. See Note 8, "Convertible Senior Notes," included in this report for more information on this transaction. The Company utilized a portion of the proceeds from the Offerings to settle its outstanding 2016 Notes during the third quarter of 2019. On July 16, 2019, the Company entered into separate privately negotiated agreements with certain holders of the 2016 Notes to exchange an aggregate of \$92.0 million principal aggregate amount of the 2016 Notes for shares of the Company's common stock, together with cash, in private placement transactions (the "Note Exchanges"). On July 19, 2019 and July 22, 2019, the Company used approximately \$92.3 million (including \$0.3 million of accrued interest) and 1,850,155 shares of its common stock valued at \$161.0 million to settle the Note Exchanges for total consideration of \$253.3 million, of which \$163.6 million was allocated to the equity component of the 2016 Notes. The Company allocated the consideration transferred to the liability and equity components using the same proportions as the initial carrying value of the 2016 Notes. The transaction resulted in a loss on extinguishment of debt of \$4.5 million in the Company's consolidated statement of comprehensive income (loss) as of September 30, 2019.

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During the third quarter of 2019, the closing price of the Company's common stock did not exceed 130% of the conversion price of the 2019 Notes for more than 20 trading days of the last 30 consecutive trading days of the quarter. Therefore, the 2019 Notes are not convertible at the option of the holders of the 2019 Notes during the fourth quarter of 2019 per the First Supplemental Indenture underlying the 2019 Notes. The 2019 Notes have a face value of \$287.5 million and a carrying value of \$230.2 million and are classified as long-term liabilities on the Company's consolidated balance sheet as of September 30, 2019.

We intend to use the remaining net proceeds from the Offerings for working capital and other general corporate purposes, including to fund possible acquisitions of, or investments in, complementary businesses, products, services and technologies. It is the Company's policy and intent to settle the face value of the 2019 Notes in cash and any excess conversion premium in shares of our common stock.

Cash flows

	Nine Months Ended		
	September 30,		Increase/(Decrease)
	2019	2018	\$ Change
	(Amounts in thousands)		
Operating activities	\$ 49,542	\$27,215	\$ 22,327
Investing activities	(198,197)	(8,580)	(189,617)
Financing activities	485,047	2,363	482,684
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(7,785)	(4,453)	(3,332)
Net increase in cash, cash equivalents and restricted cash	\$ 328,607	\$16,545	\$ 312,062

Operating activities

For the nine months ended September 30, 2019, our operating activities provided cash of \$49.5 million reflecting net income of \$17.8 million and non-cash charges totaling \$25.2 million primarily related to depreciation, amortization, non-cash interest expense, deferred taxes, loss on extinguishment of debt and stock-based compensation charges. An increase in accounts receivable consumed \$6.7 million of cash and was primarily driven by the 41.3% year-to-date increase in revenues. An increase in inventory consumed \$4.9 million to support future revenue, due to the addition of C Technologies on May 31, 2019. These were offset by an increase in accounts payable and accrued liabilities of \$6.5 million due to the addition of C Technologies and a decrease in unbilled receivables of \$2.0 million. The remaining cash provided by operating activities resulted from favorable changes in various other operating assets and liabilities.

For the nine months ended September 30, 2018, our operating activities provided cash of \$27.2 million reflecting net income of \$11.0 million and non-cash charges totaling \$23.2 million, primarily related to depreciation, amortization, non-cash interest expense, deferred tax expense and stock-based compensation charges. An increase in accounts receivable consumed \$1.6 million of cash and was primarily driven by the 43% year-to-date increase in revenues. An increase in inventory levels to accommodate future revenue growth consumed \$4.8 million of cash and payment of accrued liabilities consumed \$1.1 million of cash. This utilization of cash is partially offset by \$3.4 million of cash provided by an increase in accounts payable due to the timing of payments to vendors. The remaining cash flow used in operations resulted from net unfavorable changes in various other working capital accounts.

Investing activities

Our investing activities consumed \$198.2 million of cash during the nine months ended September 30, 2019. We used \$182.2 million in cash (net of cash received) for the C Technologies Acquisition on May 31, 2019. Capital expenditures consumed \$16.0 million as we continue to increase our manufacturing capacity worldwide. Of these expenditures, \$4.6 million represented capitalized costs related to our internal-use software.

Financing activities

Cash provided by financing activities of \$485.0 million for the nine months ended September 30, 2019 included \$320.7 million from the issuance of our common stock resulting from our public offerings completed in May and July 2019. In addition, in July 2019 the Company issued \$287.5 million aggregate principal amount of the 2019 Notes for net proceeds of \$278.6 million. Proceeds from stock option exercises during the nine month period were \$1.1 million. Offsetting these was \$115.0 million of cash utilized by the Company in July 2019 to settle the 2016 Notes.

For the nine months ended September 30, 2018, our financing activities provided \$2.4 million of cash, primarily due to proceeds received from stock option exercises, partially offset by cash outlays of \$11,000 related to the conversion of certain 2016 Notes, which settled in the first quarter of 2018.

Working capital increased by approximately \$436.9 million to \$582.8 million at September 30, 2019 from \$145.9 million at December 31, 2018 due to the various changes noted above, including the C Technologies Acquisition.

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Our future capital requirements will depend on many factors, including the following:

- the expansion of our bioprocessing business;
- the ability to sustain sales and profits of our bioprocessing products;
- our ability to acquire additional bioprocessing products;
- our identification and execution of strategic acquisitions or business combinations;
- the resources required to successfully integrate our recently acquired businesses and recognize expected synergies;
- the scope of and progress made in our research and development activities;
- the extent of any share repurchase activity; and
- the success of any proposed financing efforts.

Absent acquisitions of additional products, product candidates or intellectual property, we believe our current cash balances are adequate to meet our cash needs for at least the next 24 months from the date of this filing. We expect operating expenses for the rest of the year to increase as we continue to expand our bioprocessing business. We expect to incur continued spending related to the development and expansion of our bioprocessing product lines and expansion of our commercial capabilities for the foreseeable future. Our future capital requirements may include, but are not limited to, purchases of property, plant and equipment, the acquisition of additional bioprocessing products and technologies to complement our existing manufacturing capabilities, and continued investment in our intellectual property portfolio.

We plan to continue to invest in our bioprocessing business and in key research and development activities associated with the development of new bioprocessing products. We actively evaluate various strategic transactions on an ongoing basis, including licensing or acquiring complementary products, technologies or businesses that would complement our existing portfolio. We continue to seek to acquire such potential assets that may offer us the best opportunity to create value for our shareholders. In order to acquire such assets, we may need to seek additional financing to fund these investments. If our available cash balances and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements, including because of any such acquisition-related financing needs or lower demand for our products, we may seek to sell common or preferred equity or convertible debt securities, enter into a credit facility or another form of third-party funding, or seek other debt funding. The sale of equity and convertible debt securities may result in dilution to our stockholders, and those securities may have rights senior to those of our common shares. If we raise additional funds through the issuance of preferred stock, convertible debt securities or other debt financing, these securities or other debt could contain covenants that would restrict our operations. Any other third-party funding arrangement could require us to relinquish valuable rights. We may require additional capital beyond our currently anticipated amounts. Additional capital may not be available on reasonable terms, if at all.

Off-Balance Sheet Arrangements

We do not have any special purpose entities or off-balance sheet financing arrangements as of September 30, 2019.

Net Operating Loss Carryforwards

At December 31, 2018, we had utilized our remaining \$19.5 million of net operating loss carryforwards. We had business tax credits carryforwards of \$2.9 million available to reduce future federal income taxes, if any. The business tax credits carryforwards will continue to expire at various dates through December 2038. Net operating loss carryforwards and available tax credits are subject to review and possible adjustment by the Internal Revenue Service, state and foreign jurisdictions and may be limited in the event of certain changes in the ownership interest of significant stockholders.

Effects of Inflation

Our assets are primarily monetary, consisting of cash, cash equivalents and marketable securities. Because of their liquidity, these assets are not directly affected by inflation. Since we intend to retain and continue to use our equipment, furniture and fixtures and leasehold improvements, we believe that the incremental inflation related to replacement costs of such items will not materially affect our operations. However, the rate of inflation affects our expenses, such as those for employee compensation and contract services, which could increase our level of expenses and the rate at which we use our resources.

Cautionary Statement Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). The forward-looking statements in this Quarterly Report on Form 10-Q do not constitute guarantees of future

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performance. Investors are cautioned that statements in this Quarterly Report on Form 10-Q which are not strictly historical statements, including, without limitation, express or implied statements or guidance regarding current or future financial performance and position, potential impairment of future earnings, management's strategy, plans and objectives for future operations or acquisitions, product development and sales, product candidate research, development and regulatory approval, selling, general and administrative expenditures, intellectual property, development and manufacturing plans, availability of materials and product and adequacy of capital resources and financing plans constitute forward-looking statements. These forward-looking statements are based on current expectations, estimates, forecasts and projections about the industry and markets in which the Company operates, and management's beliefs and assumptions. The Company undertakes no obligation to publicly update or revise the statements in light of future developments. In addition, other written and oral statements that constitute forward-looking statements may be made by the Company or on the Company's behalf. Words such as "expect," "seek," "anticipate," "intend," "plan," "believe," "could," "estimate," "may," "target," "project," or variations of such words and similar expressions are intended to identify forward-looking statements. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated, including, without limitation, risks associated with: the success of current and future collaborative or supply relationships, including our agreements with GE Healthcare and MilliporeSigma, our ability to successfully grow our bioprocessing business, including as a result of acquisitions, commercialization or partnership opportunities, and our ability to develop and commercialize products, our ability to obtain required regulatory approvals, our compliance with all Food and Drug Administration regulations, our ability to obtain, maintain and protect intellectual property rights for our products, the risk of litigation regarding our patent and other intellectual property rights, the risk of litigation with collaborative partners, our limited manufacturing capabilities and our dependence on third-party manufacturers and value-added resellers, our ability to hire and retain skilled personnel, the market acceptance of our products, reduced demand for our products that adversely impacts our future revenues, cash flows, results of operations and financial condition, our ability to compete with larger, better financed life sciences companies, our history of losses and expectation of incurring losses, our ability to generate future revenues, our ability to successfully integrate our recently acquired businesses, our ability to raise additional capital to fund potential acquisitions, our volatile stock price, and the effects of our anti-takeover provisions. Further information on potential risk factors that could affect our financial results are included in the filings made by us from time to time with the Securities and Exchange Commission including under the section entitled "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2018.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

We have historically held investments in commercial paper, U.S. Government and agency securities as well as corporate bonds and other debt securities. As a result, we have been exposed to potential loss from market risks that may occur as a result of changes in interest rates, changes in credit quality of the issuer or otherwise. We do not have any such investments as of September 30, 2019. As a result, a hypothetical 100 basis point increase in interest rates would have no effect on our cash position as of September 30, 2019.

We generally place our marketable security investments in high quality credit instruments, as specified in our investment policy guidelines. We believe that the conservative nature of our investments mitigates our interest rate exposure, and our investment policy limits the amount of our credit exposure to any one issue, issuer (with the exception of U.S. agency obligations) and type of instrument. We do not expect any material loss from our marketable security investments and therefore believe that our potential interest rate exposure is limited.

Foreign Exchange Risk

The reporting currency of the Company is U.S. dollars, and the functional currency of each of our foreign subsidiaries is its respective local currency. Our foreign currency exposures include the Swedish kronor, Euro, British pound, Chinese yuan, Japanese yen, Singapore dollar, South Korean won and Indian rupee; of these, the primary foreign currency exposures are the Swedish kronor, Euro and British pound. Exchange gains or losses resulting from the translation between the transactional currency and the functional currency are included in net income. Fluctuations in exchange rates may adversely affect our results of operations, financial position and cash flows. We currently do not seek to hedge this exposure to fluctuations in exchange rates.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

The Company's management, with the participation of the principal executive officer and the principal financial officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) or 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based on such evaluation, the principal executive officer and principal financial officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures were effective in ensuring that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, on a timely basis, and is accumulated and communicated to the Company's management, including the Company's principal executive officer and the Company's principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control

We acquired C Technologies on May 31, 2019. The financial results of C Technologies are included in our unaudited consolidated financial statements as of September 30, 2019 and for the quarter then ended. The C Technologies business represented approximately \$7.0 million of revenue and (\$1.2) million of net loss, respectively, for the quarter ended September 30, 2019. As this acquisition occurred in the second quarter of 2019, the scope of our assessment of our internal control over financial reporting does not include C Technologies. This exclusion is in accordance with the Securities and Exchange Commission's general guidance that an assessment of a recently acquired business may be omitted from our scope in the year of acquisition.

In connection with our initiative to integrate and enhance our global information technology systems and business processes, we initiated the phased implementation of a new enterprise resource planning ("ERP") system. The ERP system is being implemented in phases through 2020. The first phase was completed during the third quarter of 2019. As a result of this implementation, we modified certain existing internal controls over financial reporting as well as implemented new controls and procedures related to the new ERP system as of September 30, 2019.

Other than the foregoing, there have been no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Securities Exchange Act Rule 13a-15 or Rule 15d-15 that occurred in the three months ended September 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION**ITEM 1. LEGAL PROCEEDINGS**

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business. We are not currently aware of any such proceedings or claims that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations.

ITEM 1A. RISK FACTORS

The matters discussed in this Quarterly Report on Form 10-Q include forward-looking statements that involve risks or uncertainties. These statements are neither promises nor guarantees, but are based on various assumptions by management regarding future circumstances, over many of which Repligen has little or no control. A number of important risks and uncertainties, including those identified under the caption “Risk Factors” in Item 1A in our Quarterly Report on Form 10-Q for the period ended March 31, 2019 and in subsequent filings, could cause our actual results to differ materially from those in the forward-looking statements. There are no material changes to the risk factors described in our Quarterly Report on Form 10-Q for the period ended March 31, 2019.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS**C Technologies Acquisition**

Pursuant to the Stock Purchase Agreement described in Note 3, “*Acquisition of C Technologies, Inc.*,” to the consolidated financial statements, on May 31, 2019, the Company issued 779,221 unregistered shares of the Company’s common stock totaling \$53.9 million as part of the consideration for the Company’s acquisition of C Technologies. The issuance is not registered under the Securities Act of 1933, as amended, in reliance upon the exemption from registration provided by Rule 506(b) of Regulation D.

Exchange and Redemption of 2016 Notes

On July 16, 2019, the Company entered into separate privately negotiated agreements with certain holders of its outstanding 2.125% Convertible Senior Notes due 2021 (the “2016 Notes”) to exchange an aggregate of \$92.0 million aggregate principal amount of the 2016 Notes for shares of the Company’s common stock, together with cash, in private placement transactions pursuant to Section 4(a)(2) of the Securities Act (the “Note Exchanges”).

Each holder of 2016 Notes that participated in the Note Exchanges represented to the Company that it was either institutional “accredited investor” within the meaning of Rule 501 of Regulation D promulgated under the Securities Act or a “qualified institutional buyer” within the meaning of Rule 144A promulgated under the Securities Act.

On July 19, 2019 and July 22, 2019, the Company used \$92.3 million and 1,850,155 shares of its common stock to settle the Note Exchanges. On September 23, 2019, the Company used \$23.0 million and 466,045 shares of its common stock to settle the remaining 2016 Notes.

For more information regarding our 2016 Notes, see Note 8, “*Convertible Senior Notes*,” to the consolidated financial statements.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

Table of Contents**ITEM 6. EXHIBITS****(a) Exhibits**

Exhibit Number	Document Description
3.1	<u>Restated Certificate of Incorporation, dated September 30, 1992 and amended September 17, 1999 (filed as Exhibit 3.1 to Repligen Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999 and incorporated herein by reference).</u>
3.2	<u>Certificate of Amendment to the Certificate of Incorporation of Repligen Corporation, effective as of May 16, 2014 (filed as Exhibit 3.1 to Repligen Corporation's Current Report on Form 8-K filed on May 19, 2014 and incorporated herein by reference).</u>
3.3	<u>Second Amended and Restated Bylaws (filed as Exhibit 3.1 to Repligen Corporation's Current Report on Form 8-K filed on May 23, 2017 and incorporated herein by reference).</u>
4.1	<u>Base Indenture, dated as of July 19, 2019, by and between Repligen Corporation and Wilmington Trust, National Association (filed as Exhibit 4.1 to Repligen Corporation's Current Report on Form 8-K filed on July 22, 2019 and incorporated herein by reference).</u>
4.2	<u>First Supplemental Indenture, dated as of July 19, 2019, by and between Repligen Corporation and Wilmington Trust, National Association (filed as Exhibit 4.2 to Repligen Corporation's Current Report on Form 8-K filed on July 22, 2019 and incorporated herein by reference).</u>
4.3	<u>Form of 0.375% Convertible Senior Note due 2024 (included in Exhibit 4.2).</u>
31.1 +	<u>Rule 13a-14(a)/15d-14(a) Certification.</u>
31.2 +	<u>Rule 13a-14(a)/15d-14(a) Certification.</u>
32.1 *	<u>Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS+	Inline XBRL Instance Document—the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH+	Inline XBRL Taxonomy Extension Schema Document.
101.CAL+	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF+	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB+	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE+	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104+	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101.*).

† Portions of this exhibit (indicated by asterisks) have been omitted in accordance with the rules of the Securities and Exchange Commission.

Management contract or compensatory plan or arrangement.

+ Filed herewith.

* Furnished herewith.

SIGNATURES

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

REPLIGEN CORPORATION

Date: October 31, 2019

By: **/s/ T ONY J. H UNT**
Tony J. Hunt
President and Chief Executive Officer
(Principal executive officer)
Repligen Corporation

Date: October 31, 2019

By: **/s/ J ON S NODGRES**
Jon Snodgres
Chief Financial Officer
(Principal financial officer)
Repligen Corporation

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a) / RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED**

I, Tony J. Hunt, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Repligen Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent 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: October 31, 2019

/s/ TONY J. HUNT

Tony J. Hunt

**President and Chief Executive Officer
(Principal executive officer)**

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a) / RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED**

I, Jon Snodgres, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Repligen Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent 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: October 31, 2019

/s/ JON SNODGRES

Jon Snodgres
Chief Financial Officer
(Principal financial officer)

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

In connection with the Quarterly Report of Repligen Corporation (the “Company”) on Form 10-Q for the period ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned officers of the Company hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to my knowledge, that:

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

Date: October 31, 2019

By: /s/ TONY J. HUNT
Tony J. Hunt
Chief Executive Officer and President
(Principal executive officer)

Date: October 31, 2019

By: /s/ JON SNODGRES
Jon Snodgres
Chief Financial Officer
(Principal financial officer)

* This certification shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section, nor shall it be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.