CODEXIS INC
Form 10-Q
May 10, 2018
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q
(Mark One)
x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2018
OR
.. TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission file number: 001-34705

Codexis, Inc.
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	71-0872999 (I.R.S. Employer Identification No.)
200 Penobscot Drive, Redwood City, California (Address of principal executive offices)	94063 (Zip Code)

(650) 421-8100
(Registrant's telephone number, including area code)
(Former name, former address and former fiscal year, if changed since last report)

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 ý No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý 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. (Check one):

Large accelerated filer ¨	Accelerated filer x
Non-accelerated filer ¨ (Do not check if a smaller reporting company)	Smaller reporting company ¨
	Emerging growth company ¨

If an emerging growth company, indicate by check mark if the registrant has elected not to use the 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 ý

As of April 30, 2018, there were 53,240,370 shares of the registrant's Common Stock, par value $0.0001 per share, outstanding.

Codexis, Inc.
Quarterly Report on Form 10-Q
For the Quarter Ended March 31, 2018

TABLE OF CONTENTS

		PAGE NUMBER
PART I. FINANCIAL INFORMATION		
ITEM 1:	Financial Statements (Unaudited)	
	Condensed Consolidated Balance Sheets	3
	Condensed Consolidated Statements of Operations	4
	Condensed Consolidated Statements of Comprehensive Loss	5
	Condensed Consolidated Statements of Cash Flows	6
	Notes to Condensed Consolidated Financial Statements	8
ITEM 2:	Management's Discussion and Analysis of Financial Condition and Results of Operations	35
ITEM 3:	Quantitative and Qualitative Disclosures about Market Risk	49
ITEM 4:	Controls and Procedures	49
PART II. OTHER INFORMATION		
ITEM 1:	Legal Proceedings	51
ITEM 1A:	Risk Factors	51
ITEM 2:	Unregistered Sales of Equity Securities and Use of Proceeds	51
ITEM 3:	Default Upon Senior Securities	51
ITEM 4:	Mine Safety Disclosures	51
ITEM 5:	Other Information	51
ITEM 6:	Exhibits	52
Signatures		53

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements
Codexis, Inc.
Condensed Consolidated Balance Sheets
(Unaudited)
(In Thousands, Except Per Share Amounts)

	March 31, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$24,300	$ 31,219
Accounts receivable, net of allowances of $34 at March 31, 2018 and December 31, 2017	8,974	11,800
Inventories	1,212	1,036
Prepaid expenses and other current assets	1,481	984
Total current assets	35,967	45,039
Restricted cash	1,511	1,557
Marketable securities	697	671
Property and equipment, net	2,620	2,815
Goodwill	3,241	3,241
Other non-current assets	470	302
Total assets	$44,506	$ 53,625
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$2,597	$ 3,545
Accrued compensation	6,134	4,753
Other accrued liabilities	5,304	4,362
Deferred revenue	7,518	12,292
Total current liabilities	21,553	24,952
Deferred revenue, net of current portion	5,529	1,501
Lease incentive obligation, net of current portion	354	460
Financing obligation, net of current portion	243	302
Other long-term liabilities	1,759	1,863
Total liabilities	29,438	29,078
Commitments and Contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, $0.0001 par value per share; 5,000 shares authorized; none issued and outstanding	—	—
Common stock, $0.0001 par value per share; 100,000 shares authorized; 48,925 shares and 48,365 shares issued and outstanding at March 31, 2018 and December 31, 2017, respectively	5	5
Additional paid-in capital	339,354	340,079
Accumulated other comprehensive loss	—	(472)
Accumulated deficit	(324,291)	(315,065)
Total stockholders' equity	15,068	24,547
Total liabilities and stockholders' equity	$44,506	$ 53,625

See accompanying notes to the unaudited condensed consolidated financial statements

3

Codexis, Inc.
Condensed Consolidated Statements of Operations
(Unaudited)
(In Thousands, Except Per Share Amounts)

	Three Months Ended March 31,	
	2018	2017
Revenues:		
Product revenue	$6,163	$5,586
Research and development revenue	7,879	2,385
Total revenues	14,042	7,971
Costs and operating expenses:		
Cost of product revenue	3,825	3,002
Research and development	7,178	5,839
Selling, general and administrative	7,746	6,606
Total costs and operating expenses	18,749	15,447
Loss from operations	(4,707)	(7,476)
Interest income	71	18
Other income (expenses)	(60)	22
Loss before income taxes	(4,696)	(7,436)
Provision for (benefit from) income taxes	(2)	24
Net loss	$(4,694)	$(7,460)
Net loss per share, basic and diluted	$(0.10)	$(0.18)
Weighted average common shares used in computing net loss per share, basic and diluted	48,385	41,250

See accompanying notes to the unaudited condensed consolidated financial statements

Codexis, Inc.
Condensed Consolidated Statements of Comprehensive Loss
(Unaudited)
(In Thousands)

	Three Months Ended March 31,	
	2018	2017
Net loss	$(4,694)	$(7,460)
Other comprehensive loss		
Unrealized loss on marketable securities	—	(91)
Other comprehensive loss	—	(91)
Total comprehensive loss	$(4,694)	$(7,551)

See accompanying notes to the unaudited condensed consolidated financial statements

Codexis, Inc.
Condensed Consolidated Statements of Cash Flows
(Unaudited)
(In Thousands)

	Three Months Ended March 31,	
	2018	2017
Operating activities:		
Net loss	$(4,694)	$(7,460)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	238	326
Loss (Gain) on disposal of property and equipment	1	(1)
Stock-based compensation	1,980	1,669
Unrealized gain on investment in marketable securities	(26)	—
Changes in operating assets and liabilities:		
Accounts receivable, net	3,890	543
Inventories	(177)	(299)
Prepaid expenses and other current assets	(427)	(168)
Accounts payable	(975)	(882)
Accrued compensation	1,381	1,020
Other accrued liabilities	705	763
Long term lease incentive	(106)	(106)
Other long term liabilities	(104)	(19)
Deferred revenue	(5,871)	1,048
Net cash used in operating activities	(4,185)	(3,566)
Investing activities:		
Purchase of property and equipment	(16)	(237)
Proceeds from disposal of property and equipment	—	1
Net cash used in investing activities	(16)	(236)
Financing activities:		
Proceeds from exercises of stock options	434	99
Principal payments on capital lease obligations	(58)	(10)
Taxes paid related to net share settlement of equity awards	(3,140)	(1,636)
Net cash used in financing activities	(2,764)	(1,547)
Net decrease in cash, cash equivalents and restricted cash	(6,965)	(5,349)
Cash, cash equivalents and restricted cash at the beginning of the period	32,776	20,864
Cash, cash equivalents and restricted cash at the end of the period	$25,811	$15,515
Supplemental disclosure of cash flow information:		
Interest paid	$22	$3
Income taxes paid	$5	$1
Supplemental non-cash investing and financing activities:		
Equipment acquired under capital leases	$—	$528
Purchase of property and equipment recorded in accounts payable and accrued expenses	$15	$68

6

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the unaudited condensed consolidated balance sheets to the total of the same such amounts shown above:

	Three Months Ended March 31,	
	2018	2017
Cash and cash equivalents	$24,300	$13,923
Restricted cash included in non-current assets	1,511	1,592
Total cash, cash equivalents and restricted cash at the end of the period	$25,811	$15,515

See accompanying notes to the unaudited condensed consolidated financial statements

Notes to Condensed Consolidated Financial Statements
(Unaudited)

Note 1. Description of Business

In these notes to the consolidated financial statements, the "Company," "we," "us," and "our" refers to Codexis, Inc. and its subsidiaries on a consolidated basis.

We discover, develop and sell proteins that deliver value to our clients in a growing set of industries. We view proteins as a vast untapped source of value-creating materials, and we are using our proven technologies, which we have been continuously improving over our sixteen-year history, to commercialize an increasing number of novel proteins, both as proprietary Codexis products and in partnership with our customers.

We are a pioneer in the harnessing of computational technologies to drive biology advancements. Since our inception in 2002, we have made substantial investments in the development of our CodeEvolver® protein engineering technology platform, the primary source of our competitive advantage. Our technology platform is powered by proprietary, artificial intelligence-based, computational algorithms that rapidly mine our large and continuously growing library of protein variants' performance attributes. These computational outputs enable increasingly reliable predictions for next generation protein variants to be engineered, enabling delivery of targeted performance enhancements in a time-efficient manner. In addition to its computational prowess, our CodeEvolver® protein engineering technology platform integrates additional modular competencies, including robotic high-throughput screening and genomic sequencing, organic chemistry and process development, which are all coordinated to create our novel protein innovations.

Our approach to develop commercially viable biocatalytic manufacturing processes begins by conceptually designing the most cost-effective and practical process for a targeted product. We then develop optimized protein catalysts to enable that process design, using our CodeEvolver® protein engineering platform technology. Engineered protein catalyst candidates - many thousands for each protein engineering project - are then rapidly screened and validated in high throughput under relevant manufacturing operating conditions. This approach results in an optimized protein catalyst enabling cost-efficient processes that typically are relatively simple to run in conventional manufacturing equipment. This also allows for the efficient technical transfer of our process to our manufacturing partners.

The successful embodiment of our CodeEvolver® protein engineering technology platform in commercial manufacturing processes requires well-integrated expertise in a number of technical disciplines. In addition to those directly involved in practicing our CodeEvolver® protein engineering platform technology, such as molecular biology, enzymology, microbiology, cellular engineering, metabolic engineering, bioinformatics, biochemistry and high throughput analytical chemistry, our process development projects also involve integrated expertise in organic chemistry, chemical process development, chemical engineering, fermentation process development and fermentation engineering. Our integrated, multi-disciplinary approach to biocatalyst and process development is a critical success factor for our company.

We initially commercialized our CodeEvolver® protein engineering technology platform and products in the pharmaceuticals market, which remains our primary business focus. Our customers, which include several large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development.

We have also used the technology to develop protein catalysts for use in the fine chemicals market. The fine chemicals market consists of several large market verticals, including food and food ingredients, animal feed, flavors, fragrances and agricultural chemicals.

More recently, we are also using the CodeEvolver® protein engineering technology platform to develop early stage, novel biotherapeutic product candidates, both for our customers and for our own business, most notably our lead program for the potential treatment of phenylketonuria ("PKU") disease in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. In October 2017, we entered into a Global Development, Option and License Agreement (the "Nestlé Agreement") with Nestec Ltd. ("Nestlé Health Science") and, solely for the purpose of the integration and the dispute resolution clauses

of the Agreement, Nestlé Health Science S.A., to advance CDX-6114, our enzyme biotherapeutic product candidate for the potential treatment of PKU disease.

We have also used our technology to develop an enzyme for customers using next generation sequencing ("NGS") and polymerase chain reaction ("PCR/qPCR") for in vitro molecular diagnostic and genomic research applications.

Below are brief descriptions of our business segments (See Note 13, "Segment, Geographical and Other Revenue Information"):

Performance Enzymes

We initially commercialized our CodeEvolver® protein engineering technology platform and products in the pharmaceuticals market, and to date this continues to be our largest market served. Our customers, which include many large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development. We have also used the technology to develop customized enzymes for use in other industrial markets. These markets consists of several large industrial verticals, including food and food ingredients, animal feed, flavors, fragrances, and agricultural chemicals. We have also used our technology to develop an enzyme for customers using NGS and PCR/qPCR for in vitro molecular diagnostic and molecular biology research applications.

Novel Biotherapeutics

We are also targeting new opportunities in the pharmaceutical industry to discover, improve and/or develop biotherapeutic drug candidates. We believe that our CodeEvolver® protein engineering platform technology can be used to discover novel biotherapeutic drug candidates that will target human diseases that are in need of improved therapeutic interventions. Similarly, we believe that we can deploy our platform technology to improve specific characteristics of a customer’s pre-existing biotherapeutic drug candidate, such as its activity, stability or immunogenicity. Most notable is our lead program for the potential treatment of PKU in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. In October 2017, we announced a strategic collaboration with Nestec Ltd. ("Nestlé Health Science") to advance CDX-6114, our own novel orally administrable enzyme therapeutic candidate for the potential treatment of PKU disease. We have also developed a pipeline of other biotherapeutic drug candidates in which we expect to continue to make additional investments with the aim of advancing additional product candidates targeting other therapeutic areas.

Note 2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") and the applicable rules and regulations of the Securities and Exchange Commission ("SEC") for interim financial information. Accordingly, they do not include all of the information and notes required by GAAP for complete financial statements. These interim unaudited condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto contained in our Annual Report on Form 10-K for the year ended December 31, 2017. The condensed consolidated balance sheet at December 31, 2017 has been derived from the audited consolidated financial statements at that date, but does not include all disclosures, including notes, required by GAAP for complete financial statements.

The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and, in the opinion of management, reflect all adjustments of a normal recurring nature considered necessary to present fairly our financial position as of March 31, 2018 and results of our operations and comprehensive loss for the three months ended March 31, 2018 and 2017, and cash flows for the three months ended March 31, 2018 and 2017. The interim results are not necessarily indicative of the results for any future interim period or for the entire year. Certain prior period amounts have been reclassified to conform to current period presentation. In connection with the adoption of Accounting Standard Update ("ASU") 2016-01, "Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities", unrealized losses on equity investments in marketable securities, net of taxes, previously included in accumulated other comprehensive loss have been reclassified to beginning accumulated deficit. See "Recently Adopted Accounting Pronouncements" for details regarding the adoption of ASU 2016-01.

Comprehensive loss is equivalent to net loss during the three months ended March 31, 2018 because after adopting ASC 2016-01, we do not have any transactions recorded under comprehensive loss. Prior to our adoption of ASU 2016-01, and during the three months ended March 31, 2017, comprehensive loss included unrealized losses from our equity investments in marketable securities.

The unaudited interim condensed consolidated financial statements include the accounts of Codexis, Inc. and its wholly owned subsidiaries in the United States, India and the Netherlands. All significant intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

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, disclosures of contingent liabilities at the date of the condensed consolidated financial statements, and the reported amounts of revenue and expenses during the reporting period. We regularly assess these estimates which primarily affect revenue recognition, accounts receivable, inventories, the valuation of marketable securities, goodwill arising out of business acquisitions, accrued liabilities, stock awards and the valuation allowances associated with deferred tax assets. Actual results could differ from those estimates and such differences may be material to the condensed consolidated financial statements.

Segment Reporting

We report two business segments, Performance Enzymes and Novel Biotherapeutics, which are based on our operating segments. Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker ("CODM"), or decision making group, in deciding how to allocate resources and in assessing performance. Our CODM is our Chief Executive Officer. Our business segments are primarily based on our organizational structure and our operating results as used by our CODM in assessing performance and allocating resources for our company. We do not allocate or evaluate assets by segment.

Previously, we had managed our business under one business segment. As our biotherapeutics business has emerged as a significant opportunity for us, effective in 2018, we formed Novel Biotherapeutics as a new business segment. The Novel Biotherapeutics segment focuses on new opportunities in the pharmaceutical industry to discover or improve novel biotherapeutic drug candidates that will target human diseases that are in need of improved therapeutic interventions. The Performance Enzymes segment consists of the existing protein catalyst products and services with focus on pharmaceutical, food, molecular diagnostics and other industrial markets.

Foreign Currency Translation

The United States dollar is the functional currency for our operations outside the United States. Accordingly, nonmonetary assets and liabilities originally acquired or assumed in other currencies are recorded in United States dollars at the exchange rates in effect at the date they were acquired or assumed. Monetary assets and liabilities denominated in other currencies are translated into United States dollars at the exchange rates in effect at the balance sheet date. Translation adjustments are recorded in other expense in the unaudited condensed consolidated statements of operations. Gains and losses realized from non-U.S. dollar transactions, including intercompany balances not considered as permanent investments, denominated in currencies other than an entity's functional currency are included in other expense in the accompanying unaudited condensed consolidated statements of operations.

Revenue Recognition

On January 1, 2018, we adopted the provisions of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606) ("ASC 606"). The guidance provides a unified model to determine how revenue is recognized.

Our revenues are derived primarily from product revenue and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services. We account for individual products and services separately if they are distinct-that is, if a product or service is separately identifiable from other items in the contract and if a customer can benefit from it on its own or with other resources that are readily available to the customer.

In determining the appropriate amount of revenue to be recognized as we fulfill our obligations under our product revenue and collaborative research and development agreements, we perform the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) we satisfy each performance obligation.

The majority of our collaborative contracts contain multiple revenue streams such as up-front and/or annual license fees, fees for full time employee ("FTE") research and development services, contingent milestone payments upon achievement of contractual criteria, royalty fees based on the licensees' product revenue or usage, among others. We

determine the stand-alone selling price ("SSP") and allocate consideration to distinct performance obligations. Typically, we base our SSPs on our historical sales. If an SSP is not directly observable, then we estimate the SSP taking into consideration market conditions, forecasted sales, entity-specific factors and available information about the customer.

We account for a contract with a customer when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Non-cancellable purchase orders received from customers to deliver a specific quantity of product, when combined with our order confirmation, in exchange for future consideration, create enforceable rights and obligations on both parties and constitute a contract with a customer.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

The following is a description of principal activities from which we generate revenue:

Product Revenue

Product revenue consist of sales of protein catalysts, pharmaceutical intermediates and Codex® Biocatalyst Panels and Kits. A majority of our product revenue are made pursuant to purchase orders or supply agreements and are recognized at a point in time when the control of the product has been transferred to the customer typically upon shipment. For some of the products that we develop, we recognize revenue over time as we have a right to payment from the customer under a binding, non-cancellable purchase order, and there is no alternate use of the product for us as it is specifically made for the customer's use.

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us to exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the range of discounts that we typically give for that product or service, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We have elected to account for options which provide material rights using the alternative approach available under ASC 606, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimate of future goods to be ordered by customers change.

Research and Development Revenue

We perform research and development activities as specified in each respective customer agreement. We identify each performance obligation in our research and development agreements at contract inception. We allocate the consideration to each distinct performance obligation based on the estimated SSP of each performance obligation. Performance obligations included in our research and services agreements typically include research and development services for a specified term, periodic reports and small samples of enzyme produced.

The majority of our research and development agreements are based on a contractual rate per FTE working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress, typically based on FTE hours incurred.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. Under ASC 606, we must first determine whether the license is distinct from other promises, such as our promise to manufacture a product. If we determine that the customer cannot benefit from the license without our manufacturing capability, the license will be accounted for as combined with other performance obligations. If we determine that a license is distinct, we would recognize revenues from non-refundable, up-front license fees when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using an income approach model which includes the following key assumptions:

the development timelines, revenue forecasts, commercialization expenses, discount rate and the probability of technical and regulatory success. For licenses that have been previously sold to other customers, we use historical information to determine SSP.

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

Our CodeEvolver® platform technology transfer collaboration agreements typically include license fees, upfront fees and variable consideration in the form of milestone payments and sales or usage-based royalties. We recognize revenues from our platform technology transfer agreements over time as our customer learns to use our technology. For agreements that include sales or usage-based royalty payments to us, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

Contract Assets

Contract assets include amounts related to our contractual right to consideration for completed performance obligations not yet invoiced. The contract assets are transferred to the receivables when the rights become unconditional.

Contract Liabilities

Contract liabilities are recorded as deferred revenues and include payments received in advance of performance under the contract. Contract liabilities are realized when the development services are provided to the customer or control of the products has been transferred to the customer. A portion of our contract liabilities relate to supply arrangements that contain material rights that are recognized using the alternative method, under which the aggregate amount invoiced to the customer for shipped products, including annual fees, is higher than the amount of revenue recognized based on the transaction price allocated to the shipped products.

Contract Costs

ASC 606 requires the recognition of an asset for the incremental costs of obtaining a contract with a customer if the entity expects to recover such costs. Incremental costs are costs that would not have been incurred if the contract had not been obtained. Examples of contract costs are commissions paid to sales personnel. We do not typically incur significant incremental costs because the compensation of our salespeople are not based on contracts closed but on a mixture of company goals, individual goals, and sales goals. If a commission paid is directly related to obtaining a specific contract, our policy is to capitalize and amortize such costs over the estimated life of the contract. Fulfillment costs, such as shipping and handling, are recognized at a point in time and are included in cost of product sales.

Contract costs are reported in other non-current assets.

Cost of Product Revenue

Cost of product revenue comprises both internal and third party fixed and variable costs including materials and supplies, labor, facilities and other overhead costs associated with our product sales. Shipping costs are included in our cost of product revenue. Such charges were not significant in any of the periods presented.

Cost of Research and Development Services

Cost of research and development services related to FTE services under research and development agreements approximate the research funding over the term of the respective agreements and are included in research and development expense. Costs of services provided under license and platform technology transfer agreements are included in research and development expenses and are expensed in the periods in which such costs are incurred.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects as well as partner-funded collaborative research and development activities, as well as license and platform technology transfer agreements, as mentioned above. These costs include our direct and research-related overhead expenses, which include salaries and other personnel-related expenses (including stock-based compensation), occupancy-related costs, supplies, depreciation of facilities and laboratory equipment and amortization of acquired technologies, as well as external costs, and are expensed as incurred. Costs to acquire technologies that are utilized in research and development and that have no alternative future use are expensed when incurred.

Advertising

Advertising costs are expensed as incurred and included in selling, general and administrative expenses in the unaudited condensed consolidated statements of operations. Advertising costs were $0.1 million for each of the three months ended March 31, 2018 and 2017.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model to estimate the fair value of options granted under our equity incentive plans. The Black-Scholes-Merton option pricing model requires the use of assumptions, including the expected term of the award and the expected stock price volatility. The expected term is based on historical exercise behavior on similar awards, giving consideration to the contractual terms, vesting schedules and expectations of future employee behavior. We use historical volatility to estimate expected stock price volatility. The risk-free rate assumption is based on United States Treasury instruments whose terms are consistent with the expected term of the stock options. The expected dividend assumption is based on our history and expectation of dividend payouts.

Restricted Stock Units ("RSUs"), Restricted Stock Awards ("RSAs"), performance based options ("PBOs"), and performance-contingent restricted stock units ("PSUs") are measured based on the fair market values of the underlying stock on the dates of grant. The vesting of PBOs and PSUs awarded is conditioned upon the attainment of one or more performance objectives over a specified period and upon continued employment through the applicable vesting date. At the end of the performance period, shares of stock subject to the PBOs and PSUs vest based upon both the level of achievement of performance objectives within the performance period and continued employment through the applicable vesting date.

Stock-based compensation expense is calculated based on awards ultimately expected to vest and is reduced for estimated forfeitures at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The estimated annual forfeiture rates for stock options, RSUs, PSUs, PBOs, and RSAs are based on historical forfeiture experience.

The estimated fair value of stock options, RSUs and RSAs are expensed on a straight-line basis over the vesting term of the grant and the estimated fair value of PSUs and PBOs are expensed using an accelerated method over the term of the award once management has determined that it is probable that the performance objective will be achieved. Compensation expense is recorded over the requisite service period based on management's best estimate as to whether it is probable that the shares awarded are expected to vest. Management assesses the probability of the performance milestones being met on a continuous basis.

Cash and Cash Equivalents

We consider all highly liquid investments with maturity dates of three months or less at the date of purchase to be cash equivalents. Our cash and cash equivalents consist of cash on deposit with banks and money market funds. The majority of cash and cash equivalents is maintained with major financial institutions in North America. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits. Cash and cash equivalents totaled $24.3 million at March 31, 2018 and were comprised of cash of $17.5 million and money market funds of $6.8 million. At December 31, 2017, cash and cash equivalents totaled $31.2 million and were comprised of cash of $24.4 million and money market funds of $6.8 million.

Restricted Cash

In 2016, we began the process of liquidating our Indian subsidiary. The local legal requirements for liquidation required us to maintain our subsidiary's cash balance in an account managed by a legal trustee to satisfy our financial obligations. This balance is recorded as non-current restricted cash on the consolidated balance sheets and totaled $0.8 million at March 31, 2018 and December 31, 2017.

13

In addition, pursuant to the terms of the lease agreement for our Redwood City, CA facilities, our letters of credit are collateralized by deposit balances of $0.7 million as of March 31, 2018 and December 31, 2017, which is recorded as non-current restricted cash on the unaudited condensed consolidated balance sheets (see Note 11, "Commitments and Contingencies" for details).

Marketable Securities

We invest in equity securities that are carried at estimated fair value (see Note 6, "Cash Equivalents and Marketable Securities"), with changes in fair value recognized within earnings. Equity securities with remaining maturities of greater than one year or which we currently do not intend to sell are classified as long-term.

Unrealized holding gains and losses (the adjustment to fair value) and realized gains and losses are included in other income (expense) in the unaudited condensed consolidated statement of operations.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, we utilize valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible and we consider counterparty credit risk in our assessment of fair value. Carrying amounts of financial instruments, including cash equivalents, marketable investments, accounts receivable, accounts payable and accrued liabilities, approximate their fair values as of the balance sheet dates because of their short maturities.

The fair value hierarchy distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, giving the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

- Level 1: Inputs that are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2: Inputs that are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument’s anticipated life.
- Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities and which reflect management’s best estimate of what market participants would use in pricing the asset or liability at the measurement date.

See Note 7, "Fair Value Measurements" to our unaudited condensed consolidated financial statements.

Concentrations of Credit Risk

Financial instruments that potentially subject us to significant concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable, marketable securities and restricted cash. Cash that is not required for immediate operating needs is invested principally in money market funds. Cash and cash equivalents are invested through banks and other financial institutions in the United States, India and Netherlands. Such deposits in those countries may be in excess of insured limits.

Accounts Receivable and Allowance for Doubtful Accounts

We currently sell primarily to pharmaceutical companies throughout the world by the extension of trade credit terms based on an assessment of each customer's financial condition. Trade credit terms are generally offered without collateral and may include a discount for prompt payment for specific customers. To manage our credit exposure, we perform ongoing evaluations of our customers' financial conditions. In addition, accounts receivable includes amounts owed to us under our collaborative research and development agreements. We recognize accounts receivable at invoiced amounts and we maintain a valuation allowance for doubtful accounts.

We estimate an allowance for doubtful accounts through specific identification of potentially uncollectible accounts receivable based on an analysis of our accounts receivable aging. Uncollectible accounts receivable are written off against the allowance for doubtful accounts when all efforts to collect them have been exhausted. Recoveries are recognized when they are

14

received. Actual collection losses may differ from our estimates and could be material to our consolidated financial position, results of operations, and cash flows.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using a weighted-average approach, assuming full absorption of direct and indirect manufacturing costs, or based on cost of purchasing from our vendors. If inventory costs exceed expected net realizable value due to obsolescence or lack of demand, valuation adjustments are recorded for the difference between the cost and the expected net realizable value. These valuation adjustments are determined based on significant estimates.

Concentrations of Supply Risk

We rely on a limited number of suppliers for our products. We believe that other vendors would be able to provide similar products; however, the qualification of such vendors may require substantial start-up time. In order to mitigate any adverse impacts from a disruption of supply, we attempt to maintain an adequate supply of critical single-sourced materials. For certain materials, our vendors maintain a supply for us. We outsource the large scale manufacturing of our products to contract manufacturers with facilities in Austria and Italy.

Impairment of Long-Lived Assets

Our long-lived assets consist of property and equipment.

We evaluate the carrying value of long-lived assets, including property and equipment, whenever events, changes in business circumstances or our planned use of long-lived assets indicate that their carrying amounts may not be fully recoverable or that their useful lives are no longer appropriate. If these facts and circumstances exist, we assess for recovery by comparing the carrying values of long-lived assets with their future net undiscounted cash flows. If the comparison indicates that impairment exists, long-lived assets are written down to their respective fair values based on discounted cash flows. Significant management judgment is required in the forecast of future operating results that are used in the preparation of unexpected undiscounted cash flows.

As of March 31, 2018 and December 31, 2017, there were no events or changes in circumstances which indicated that the carrying amount of our long-lived assets might not be recoverable. No impairment charges for long-lived assets were recorded during the three months ended March 31, 2018 and 2017.

Goodwill

As of March 31, 2018 and December 31, 2017, the carrying amount of our goodwill was $3.2 million. All of our goodwill relates to the Performance Enzymes segment. There were no indicators of impairment identified related to our Performance Enzymes segment during the three months ended March 31, 2018 and 2017.

Income Taxes

We use the liability method of accounting for income taxes, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are provided when necessary to reduce deferred tax assets to the amount that will more likely than not be realized.

We make certain estimates and judgments in determining income tax expense for financial statement purposes. These estimates and judgments occur in the calculation of tax credits, benefits and deductions and in the calculation of certain tax assets and liabilities, which arise from differences in the timing of recognition of revenue and expenses for tax and financial statement purposes. Significant changes to these estimates may result in an increase or decrease to our tax provision in a subsequent period.

In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax assets will be realized on a jurisdiction by jurisdiction basis. The ultimate realization of deferred tax assets is dependent upon the generation of taxable income in the future. We have recorded a valuation allowance against these deferred tax assets in jurisdictions where ultimate realization of deferred tax assets is more likely than not to occur. As of March 31, 2018 and December 31, 2017, we maintain a full valuation allowance in all jurisdictions against the net deferred tax assets as we believe that it is more likely than not that the majority of deferred tax assets will not be realized.

We make estimates and judgments about our future taxable income that are based on assumptions that are consistent with our plans and estimates. Should the actual amounts differ from our estimates, the amount of our valuation allowance may be materially impacted. Any adjustment to the deferred tax asset valuation allowance would be recorded in the income statement for the periods in which the adjustment is determined to be required.

We account for uncertainty in income taxes as required by the provisions of ASC Topic 740, which clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to estimate and measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. It is inherently difficult and subjective to estimate such amounts, as this requires us to determine the probability of various possible outcomes. We consider many factors when evaluating and estimating our tax positions and tax benefits, which may require periodic adjustments and may not accurately anticipate actual outcomes.

The Tax Reform Act of 1986 and similar state provisions limit the use of net operating loss ("NOL") carryforwards in certain situations where equity transactions result in a change of ownership as defined by Code Section 382. In the event we should experience such a change of ownership, utilization of Codexis' federal and state NOL carryforwards could be limited.

The adoption of ASC 606 primarily resulted in less revenue recognized as of January 1, 2018, which in turn generated a decrease in net deferred tax assets. As we fully reserve our net deferred tax assets in the jurisdictions impacted by the adoption of ASC 606, this impact was offset by a corresponding decrease to the valuation allowance.

We recognized income tax benefit of $2 thousand and income tax provision of $24 thousand for the three months ended March 31, 2018 and 2017. The decrease in income tax expense was due a decrease in income from our foreign operations. We continue to maintain a full valuation allowance against our net deferred tax assets as we believe that it is more likely than not that the majority of our deferred tax assets will not be realized.

Changes to Tax Law

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Tax Act") was signed into law making significant changes to the Internal Revenue Code. The Act makes broad and complex changes to the U.S. tax code, including, but not limited to, (i) reducing the U.S. federal statutory tax rate from 35% to 21%; (ii) requiring companies to pay a one-time transition tax on certain un-repatriated earnings of foreign subsidiaries; (iii) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries; (iv) requiring a current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations; (v) eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized; (vi) creating the base erosion anti-abuse tax (BEAT), a new minimum tax; (vii) creating a tax on global intangible low-taxed income (GILTI) of foreign subsidiaries; (viii) creating a new limitation on deductible interest expense; (ix) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2017; and (x) modifying the officer's compensation limitation.

In December 2017, the SEC issued Staff Accounting Bulletin No. 118 ("SAB 118"), which provided a measurement period of up to one year from the enactment date of the Tax Act for companies to complete the accounting for the Tax Act and its related impacts. The income tax effects of the Tax Act for which the accounting is incomplete include: the impact of the transition tax, the revaluation of deferred tax assets and liabilities to reflect the 21% corporate tax rate, and the impact to the aforementioned items on state income taxes. We have made reasonable provisional estimates for each of these items; however these estimates may be affected by other analyses related to the Tax Act, including but not limited to, any deferred adjustments related to the filing of our 2017 federal and state income tax returns and further guidance yet to be issued.

Because ASC 740-10-25-47 requires the effect of a change in tax laws or rates to be recognized as of the date of enactment, we remeasured our deferred tax assets and liabilities, and offsetting valuation allowance in the current period. There was no impact to tax expense as the remeasurement of net deferred tax assets was completely offset by a corresponding change in valuation allowance. The provisional reduction to U.S. deferred tax assets and the offsetting valuation allowance was $34.1 million. While we were able to make a reasonable estimate of the impact of the

reduction in corporate rate, this estimate may be affected by other analyses related to the Tax Act, including, but not limited to, any deferred adjustments related to the filing of our 2017 federal and state tax returns and our calculation of the state tax effect of adjustments made to federal temporary differences. We have not yet completed our calculation of the total post-1986 foreign earnings and profits ("E&P") for our foreign subsidiaries as E&P will not be finalized until the federal income tax return is filed. However, we have prepared a provisional estimate and do not expect to incur a taxable income inclusion from the deemed repatriation of accumulated foreign earnings due to an accumulated deficit in foreign earnings and profits.

The GILTI provisions in the Tax Act will require us to include, in our U.S. income tax return, foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary's tangible assets. We are currently assessing the GILTI provisions and have not yet selected an accounting policy for its application; however, we do not anticipate that it will have a material impact on our future tax expense as the operations of our non-U.S. subsidiaries are not significant.

The BEAT provisions in the Tax Act eliminates the deduction of certain base-erosion payments made to related foreign corporations, and imposes a minimum base erosion anti-abuse tax if greater than regular tax. We do not expect to be subject to this tax based on its assessment of the BEAT provisions.

Recently Adopted Accounting Pronouncements

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASC 606"), amending revenue recognition guidance and requiring more detailed disclosures to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers is effective for annual and interim reporting periods beginning after December 15, 2017, with early adoption permitted for public companies effective for annual and interim reporting periods beginning after December 15, 2016. We adopted ASC 606 on January 1, 2018 by applying the modified retrospective approach to all contracts that were not completed as of January 1, 2018. Results for reporting period beginning January 1, 2018 are presented under ASC 606, while prior periods are not adjusted and continue to be reported under the accounting standards in effect for the prior period. We recorded an increase to the opening accumulated deficit of $4.1 million as of January 1, 2018 due to the cumulative impact of adopting ASC 606. The impact to total revenues for the three months ended March 31, 2018 was an increase of $3.8 million as a result of adopting ASC 606. See Note 3, "Revenue Recognition" for more details.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities." This guidance principally affects accounting standards for equity investments, financial liabilities where the fair value option has been elected, and the presentation and disclosure requirements for financial instruments. Upon the effective date of this new guidance, all equity investments in unconsolidated entities, other than those accounted for using the equity method of accounting, will generally be measured at fair value through earnings. There will no longer be an available-for-sale classification and therefore, no changes in fair value will be reported in other comprehensive income (loss) for equity securities with readily determinable fair values. This new guidance primarily impacts our accounting for equity investments. Prior to the adoption of ASU 2016-01, we recognized unrealized holding gains and losses from our equity investment in CO_2 Solutions in other comprehensive loss. We adopted ASU 2016-01 in the first quarter of 2018 using a modified retrospective approach by means of a cumulative-effect adjustment to accumulated deficit. Upon adoption of ASU 2016-01, we reclassified $0.5 million of unrealized loss (net of $0.6 million tax) from other accumulated comprehensive loss to beginning accumulated deficit. Any changes in the fair value of our equity investments, except those accounted for under the equity method, will be recognized in earnings on a prospective basis.

In August 2016, the FASB issued ASU 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments," which provides the FASB's guidance on certain cash flow statements items. ASU 2016-15 is effective for fiscal reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. We adopted ASU 2016-15 in the first quarter of 2018, and the adoption had no impact on our unaudited condensed consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, "Statement of Cash Flows (Topic 230) Restricted Cash a consensus of the FASB Emerging Issues Task Force." The standard requires restricted cash and restricted cash equivalents to be included with cash and cash equivalents on the statement of cash flows. We adopted ASU 2016-18 in the first quarter of 2018 and the adoption had no material impact on our unaudited condensed consolidated financial statements. The effect of the adoption of ASU 2016-18 on our unaudited condensed consolidated statements of cash flows was to include restricted cash balances in the beginning and end of period balances of cash and cash equivalents

and restricted cash. The change in restricted cash was previously disclosed in operating and investing activities in the unaudited condensed consolidated statements of cash flows.

In January 2017, the FASB issued ASU No. 2017-01 "Business Combinations (Topic 805): Clarifying the Definition of a Business." The guidance requires the use of a framework to determine whether a set of assets and activities constitutes an acquired or a sold business. The guidance is effective for fiscal reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. The amendments should be applied prospectively as of the beginning of the period of adoption. We adopted ASU 2017-01 in the first quarter of 2018, and the adoption had no impact on our unaudited condensed consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, "Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting." The amendments provide guidance on determining which changes to the terms and conditions of share-based payment awards require an entity to apply modification accounting under Topic 718. The new standard is effective for annual periods, including interim periods within those annual periods, beginning after December 15, 2017 with early adoption permitted. We adopted ASU 2017-09 in the first quarter of 2018 and the adoption had no impact on our unaudited condensed consolidated financial statements.

Recently Issued Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standards setting bodies that are adopted by us as of the specified effective date. Unless otherwise discussed, we believe that the impact of recently issued standards that are not yet effective will not have a material impact on our consolidated financial statements upon adoption.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," which replaces prior lease guidance (Topic 840.) This guidance establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the Consolidated Statement of Operations. The guidance also eliminates today’s real estate-specific provisions for all entities. For lessors, the guidance modifies the classification criteria and the accounting for sales-type and direct financing leases. Entities are required to use a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. Entities have the option to use certain practical expedients. Full retrospective application is prohibited. This ASU is effective for public business entities for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted. We are currently evaluating the impact of this accounting standards updated on our Consolidated Financial Statements. We expect that upon adoption, ROU assets and lease liabilities will be recognized in the balance sheet in amounts that will be material.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments," which amends the FASB's guidance on the impairment of financial instruments. The ASU adds to GAAP an impairment model (known as the "current expected credit loss model") that is based on expected losses rather than incurred losses. ASU 2016-13 is effective for annual reporting periods ending after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The adoption of ASU 2016-13 is not expected to have a material impact on our consolidated financial statements and related disclosures.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment." The amendments eliminate Step 2 from the goodwill impairment test. The annual, or interim, goodwill impairment test is performed by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit’s fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. In addition, income tax effects from any tax deductible goodwill on the carrying amount of the reporting unit should be considered when measuring the goodwill impairment loss, if applicable. The amendments also eliminate the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. The new standard is expected to be effective for fiscal years beginning after December 15, 2019, with early adoption permitted. We do not expect the adoption of ASU 2017-04 to have any impact on our consolidated financial statements and related disclosures.

Note 3. Revenue Recognition

On January 1, 2018, we adopted Topic 606, applying the modified retrospective method to all contracts that were not completed as of that date. Results for reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period results are not adjusted and continue to be reported under the accounting standards in effect for the prior period. We recorded an increase to opening accumulated deficit of $4.1 million as of January 1, 2018 due to the cumulative impact of adopting Topic 606. The impact to revenue for the three months ended March 31, 2018 was an increase of $3.8 million as a result of adopting Topic 606. The increase in revenues from the adoption of ASC 606 was primarily due to revenue from a distinct, functional license granted on January 1, 2018 and revenue from a product that was recognized over time as we have a right to payment from the customer under a binding, non-cancellable purchase order, and there is no alternate use of the product for us as it is specifically for the customer's use.

Disaggregation of Revenue

The following table provides information about disaggregated revenue from contracts with customers into the nature of the products and services, geographic regions, and includes a reconciliation of the disaggregated revenue with reportable segments. The geographic regions that are tracked are the Americas (United States, Canada, Latin America), EMEA (Europe, Middle East, Africa) and APAC (Australia, New Zealand, Southeast Asia, China).

	Three months ended March 31, 2018			Three months ended March 31, 2017		
(in thousands)	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total
Major products and service:						
Product Revenue	$6,163	$ —	$6,163	$5,586	$ —	$5,586
Research and development revenue	4,566	3,313	7,879	2,385	—	2,385
Total revenues	$10,729	$ 3,313	$14,042	$7,971	$ —	$7,971
Primary geographical markets:						
Americas	$3,597	$ —	$3,597	$1,788	$ —	$1,788
EMEA	1,679	3,313	4,992	3,208	—	3,208
APAC	5,453	—	5,453	2,975	—	2,975
Total revenues	$10,729	$ 3,313	$14,042	$7,971	$ —	$7,971

The following table shows the reconciliation of contract liabilities from what was disclosed in the Form 10-K for the year ended December 31, 2017 and gives effect to the modified retrospective adoption of the revenue guidance on January 1, 2018 (in thousands):

Deferred Revenue, balance at December 31, 2017	$13,793
Changes in estimated consideration	—
Unsatisfied performance obligations	$5,173
Deferred Revenue, balance at January 1, 2018	$18,966

Contract Balances

Contract assets primarily relate to our rights to consideration for custom products with no alternate use and under binding non-cancellable purchase orders. Our contract assets are transferred to receivables when our rights to the consideration become unconditional. Contract costs relate to incremental costs of obtaining a contract with a customer. Deferred contract costs are amortized along with the associated revenue over the term of the contract. The contract liabilities primarily relate to development agreements with upfront payments and supply agreements under which the customer makes upfront payments and the customer has options with material rights which are recognized using the alternative method. The advance consideration received from customers is a contract liability until development services are provided to the customer or control of the products has been transferred to the customer.

19

The following table presents changes in the contract assets, deferred contract costs, and liabilities (in thousands):

	March 31, 2018			
	Beginning balance	Additions	Deductions [1]	Ending balance
Contract Assets	$ —	$ 1,556	$ (1,556)	$ —
Contract Costs	239	—	(47)	192
Contract Liabilities: Deferred Revenue	18,966	2,465	(7,383)	13,048

[1] The asset or liability balances are presented as a net position per contract and accordingly the deductions column includes the netting effect of presenting each contract on a net position basis as either a net liability or asset.

Accounts receivable are recorded when the right to consideration becomes unconditional. Contract assets include amounts related to our contractual right to consideration for completed performance obligations not yet invoiced. Contract liabilities include payments received in advance of performance under the contract and are realized with the associated revenue recognized under the contract. A portion of our contract liabilities relate to arrangements that contain material rights that are recognized using the alternative method, under which the aggregate amount invoiced to the customer for shipped products, including annual fees, is higher than the amount of revenue recognized based on the transaction price allocated to the shipped products.

We had no asset impairment charges related to contract assets in the period.

During the three months ended March 31, 2018, we recognized the following revenues (in thousands):

Revenue recognized in the period from:	
Amounts included in contract liabilities at the beginning of the period:	
Performance obligations satisfied	$5,828
Changes in the period:	
Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods	—
Performance obligations satisfied from new activities in the period - contract revenue	8,214
Total revenue	$14,042

Performance Obligations

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting period, in thousands. The estimated revenue does not include contracts with original durations of one year or less, amounts of variable consideration attributable to royalties, or contract renewals that are unexercised as of March 31, 2018. We did not recognize any revenue from performance obligations satisfied in previous periods.

The balances in the table below are partially based on judgments involved in estimating future orders from customers subject to the exercise of material rights pursuant to respective contracts.

(in thousands)	2018	2019	2020	2021 and Thereafter	Total
Product Revenue	$597	$2,568	$1,631	$ 1,623	$6,419
Research and development revenue	6,154	475	—	—	6,629
Total	$6,751	$3,043	$1,631	$ 1,623	$13,048

Practical Expedients, Elections, and Exemptions

We used a practical expedient available under ASC 606-10-65-1(f)4 that permits us to consider the aggregate effect of all contract modifications that occurred before the beginning of the earliest period presented when identifying satisfied and

unsatisfied performance obligations, transaction price and allocating the transaction price to the satisfied and unsatisfied performance obligations.

We also used a practical expedient available under ASC 606-10-32-18 that permits us not to adjust the amount of consideration for the effects of a significant financing component if, at contract inception, the expected period between the transfer of promised goods or services and customer payment is one year or less.

We perform monthly services under our research and development agreements and we use a practical expedient available under ASC 606-10-55-18 that permits us to recognize revenue at the same time that we have the right to invoice our customer for monthly services completed to date.

We have elected to treat shipping and handling activities as fulfillment costs.

Additionally, we have elected to record revenue net of sales and other similar taxes.

Impacts on Financial Statements

In accordance with Topic 606, the disclosure of the impact of adoption to our unaudited condensed consolidated statements of operations and balance sheets was as follows (in thousands, except per share amounts):

	Three Months Ended March 31, 2018		
	As reported	Adjustments	Balances without adoption of Topic 606
Revenues:			
Product revenue	$6,163	$ (2,515)	$3,648
Research and development revenue	7,879	(1,322)	6,557
Total revenues	14,042	(3,837)	10,205
Costs and operating expenses:			
Cost of product revenue	3,825	(1,285)	2,540
Research and development	7,178	(47)	7,131
Selling, general and administrative	7,746	—	7,746
Total costs and operating expenses	18,749	(1,332)	17,417
Loss from operations	(4,707)	(2,505)	(7,212)
Interest income	71	—	71
Other expenses	(60)	—	(60)
Loss before income taxes	(4,696)	(2,505)	(7,201)
Provision (benefit) from income taxes	(2)	—	(2)
Net loss	$(4,694)	$ (2,505)	$(7,199)
Net loss per share, basic and diluted	$(0.10)	$ (0.05)	$(0.15)
Weighted average common shares used in computing net loss per share, basic and diluted	48,385		48,385

	March 31, 2018		
	As reported	Adjustments	Balances without adoption of Topic 606
Assets			
Accounts Receivable	$8,974	$ (1,064)	$7,910
Other non-current assets	470	(192)	278
Liabilities			
Other accrued liabilities	5,304	(1,522)	3,782
Deferred revenue - current	7,518	1,933	9,451
Deferred revenue - non-current	5,529	(3,221)	2,308
Stockholders' equity			
Accumulated deficit	(324,291)	1,554	(322,737)

Note 4. Net Loss per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding, less RSAs subject to forfeiture. Diluted net loss per share is computed by dividing net loss by the weighted average number of shares of common stock outstanding plus all additional common stock shares that would have been outstanding, assuming dilutive potential common stock shares had been issued for other dilutive securities. For periods of net loss, diluted and basic net loss per share are identical since potential common stock shares are excluded from the calculation, as their effect was anti-dilutive.

Anti-Dilutive Securities

In periods of net loss, the weighted average number of shares outstanding related to potentially dilutive securities, prior to the application of the treasury stock method, are excluded from the computation of diluted net loss per common share because including such shares would have an anti-dilutive effect.

The following shares were not included in the computation of diluted net loss per share (in thousands):

	Three Months Ended March 31,	
	2018	2017
Shares of common stock issuable pursuant to equity awards outstanding under the Equity Incentive Plan	7,530	7,661
Shares of common stock issuable upon exercise of outstanding warrants	—	73
Total shares excluded as anti-dilutive	7,530	7,734

Note 5. Collaborative Arrangements

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into a CodeEvolver® protein engineering platform technology transfer collaboration and license agreement (the "GSK CodeEvolver® Agreement") with GlaxoSmithKline ("GSK"). Pursuant to the terms of the agreement, we granted GSK a non-exclusive license to use the CodeEvolver® protein engineering platform technology to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products. We received an upfront fee upon the execution of the agreement in July 2014 and milestone payments in each of the years from 2014 through April 2016. We completed the transfer of the CodeEvolver® protein engineering platform technology to GSK in April 2016 and all revenues relating to the technology transfer have been recognized as of April 2016. We have the potential to receive additional cumulative contingent payments that range from $5.75 million to $38.5 million per project based on GSK’s successful application of the licensed technology. We are also eligible to receive royalties based on net sales of GSK’s sales of licensed enzyme products that are currently constrained.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® platform technology transfer collaboration and license agreement (the "Merck CodeEvolver® Agreement") with Merck, Sharp & Dohme ("Merck") which allows Merck to use the CodeEvolver® protein engineering technology platform in the field of human and animal healthcare.

We received a $5.0 million up-front license fee upon execution of the Merck CodeEvolver® Agreement, and milestone payments in September 2015 and in September 2016, when we completed the transfer of the engineering platform technology. Additionally, we recognized research and development revenues of $0.9 million for the three months ended March 31, 2018 and 2017, respectively for various research projects under our collaborative arrangement.

We have the potential to receive payments of up to a maximum of $15.0 million for each commercial active pharmaceutical ingredient ("API") that is manufactured by Merck using one or more novel enzymes developed by Merck using the CodeEvolver® protein engineering technology platform. The API payments, which are currently fully constrained, are based on quantity of API developed and manufactured by Merck and will be recognized as usage-based royalties.

Merck Sitagliptin Catalyst Supply Agreement

In February 2012, we entered into a five-year Sitagliptin Catalyst Supply Agreement ("Sitagliptin Catalyst Supply Agreement") with Merck whereby Merck may obtain commercial scale substance for use in the manufacture of Januvia®, its product based on the active ingredient sitagliptin. In December 2015, Merck exercised its option under the terms of the Sitagliptin Catalyst Supply Agreement to extend the agreement for an additional five years through February 2022.

Effective as of January 2016, we and Merck amended the Sitagliptin Catalyst Supply Agreement to prospectively provide for variable pricing based on the cumulative volume of sitagliptin catalyst purchased by Merck and to allow Merck to purchase a percentage of its requirements for sitagliptin catalyst from a specified third-party supplier. Merck received a distinct, functional license to manufacture a portion of their demand beginning January 1, 2018, which we recognized as research and development revenue. We recognized research and development revenue of $1.3 million and $0.3 million for the three months ended March 31, 2018 and 2017, respectively.

We have determined that the variable pricing based on the cumulative volume of sitagliptin catalyst purchased by Merck provides Merck material rights and we are recognizing product revenues using the alternative method. Under the alternative approach, we estimate the total expected consideration and allocate it proportionately with the expected sales.

The Sitagliptin Catalyst Supply Agreement requires Merck to pay an annual fee for the rights to the sitagliptin technology each year for the term of the Sitagliptin Catalyst Supply Agreement. Amounts of annual license fees are based on contractually agreed prices and are on a declining scale.

We had a deferred revenue balance from Merck of $5.8 million at March 31, 2018 and $1.5 million at December 31, 2017. In addition, pursuant to the terms of the Sitagliptin Catalyst Supply Agreement, Merck may purchase supply from us for a fee based on contractually stated prices and we recognized $4.6 million and $1.8 million for the three months ended March 31, 2018 and 2017, respectively, in product revenue under this agreement.

Biopharmaceutical Collaborative Development Agreement

In May 2015, we entered into a collaborative development agreement with a leading global biopharmaceutical company. Under the terms of the agreement, we used our CodeEvolver® protein engineering platform technology to develop a novel enzyme for use in our partner’s therapeutic development program. We recognized revenues of zero and $0.1 million for the three months ended March 31, 2018 and 2017, respectively, as collaborative research and development revenue. The collaborative development agreement was terminated by mutual consent in August 2017.

Enzyme Supply Agreement

In November 2016, we entered into a supply agreement whereby our customer may purchase quantities of one of our proprietary enzymes for use in its commercial manufacture of a product. Pursuant to the supply agreement, we received an upfront payment of $0.8 million in December 2016, which we accordingly recorded as deferred revenue. Such upfront payment will be recognized over the period of the supply agreement as the customer purchases our proprietary enzyme. As of March 31, 2018 and December 31, 2017, we had deferred revenue from the supply agreement of $2.0 million and $0.7 million, respectively. We have determined that the volume discounts under the supply agreement provides the customer material rights and we are recognizing revenues using the alternative method.

23

Research and Development Agreement

In March 2017, we entered into a multi-year research and development services agreement with a fine chemicals customer. Under the agreement, we have the potential to receive research and development revenue and milestone payments based on the customer's decision to continue the development process. We received an upfront payment of $3.0 million, which was recognized ratably over the maximum term of the services period of 21 months. Beginning January 1, 2018, we are recognizing revenue using a single measure of progress that faithfully depicts our performance in transferring the services. We recognized $1.4 million and none for the three months ended March 31, 2018 and 2017, respectively. As of March 31, 2018 and December 31, 2017, we had deferred revenue from the development services agreement of $1.6 million and $3.1 million, respectively.

Global Development, Option and License Agreement and Strategic Collaboration Agreement

In October 2017, we entered into a Global Development, Option and License Agreement (the "Nestlé Agreement") with Nestec Ltd. ("Nestlé Health Science") and, solely for the purpose of the integration and the dispute resolution clauses of the Agreement, Nestlé Health Science S.A., to advance CDX-6114, our enzyme biotherapeutic product candidate for the potential treatment of PKU.

We received an upfront cash payment of $14.0 million upon the execution of the Nestlé Agreement of which we recognized development fees of $2.7 million and none for the three months ended March 31, 2018 and 2017 as research and development revenue. We had deferred revenue related to the development fees of $4.1 million at March 31, 2018 and $6.8 million at December 31, 2017. We are eligible to receive a $4.0 million progress payment after the commencement of a Phase 1a clinical trial of CDX-6114 for the potential treatment of PKU disease. In the event Nestlé Health Science exercises an option under the Nestlé Agreement to take an exclusive license under certain of our patents and know-how, they will be obligated to pay us $3.0 million within 60 days after the exercise of the option. The upfront payment and the variable consideration of $4.0 million progress payment are being recognized over time as the development work is being performed. The progress payment variable consideration is estimated using the most likely amount. Revenue is being recognized using a single measure of progress that faithfully depicts our performance in transferring control of the services, which is based on the ratio of level of effort incurred to date compared to the total estimated level of effort required to complete all performance obligations under the agreement. Upon exercise of the option, we are eligible to receive payments from Nestlé Health Science under the Nestlé Agreement that include (i) development and approval milestones of up to $86.0 million, (ii) sales-based milestones of up to $250.0 million in the aggregate, which aggregate amount is achievable if net sales exceed $1.0 billion in a single year, and (iii) tiered royalties, at percentages ranging from the middle single digits to low double-digits, of net sales of product.

In addition to the Nestlé Agreement, we and Nestlé Health Science concurrently entered into a Strategic Collaboration Agreement (the "Strategic Collaboration Agreement") pursuant to which we and Nestlé Health Science will collaborate to leverage the CodeEvolver® protein engineering technology platform to develop novel enzymes for Nestlé Health Science’s established Consumer Care and Medical Nutrition business areas. Under the Strategic Collaboration Agreement, we recognized research and development fees of $0.6 million and none for the three months ended March 31, 2018 and 2017. We had deferred revenue of $0.9 million and $1.1 million at March 31, 2018 and December 31, 2017, respectively.

Note 6. Cash Equivalents and Marketable Securities

Cash equivalents and marketable securities at March 31, 2018 and at December 31, 2017 consisted of the following (in thousands):

	March 31, 2018			
	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Money market funds [1]	$6,801	$ —	$ —	$ 6,801
Common shares of CO2 Solutions [2]	563	134	—	697
Total	$7,364	$ 134	$ —	$ 7,498

24

	December 31, 2017			
	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Money market funds [1]	$6,778	$ —	$ —	$ 6,778
Common shares of CO2 Solutions [2]	563	108	—	671
Total	$7,341	$ 108	$ —	$ 7,449

(1) Money market funds are classified in cash and cash equivalents on our unaudited condensed consolidated balance sheets.
(2) Common shares of CO_2 Solutions are classified as marketable securities, and included in non-current assets on our unaudited condensed consolidated balance sheets.
The marketable securities were in an unrealized loss position at March 31, 2018 and December 31, 2017.

Note 7. Fair Value Measurements
The following tables present the financial instruments that were measured at fair value on a recurring basis at March 31, 2018 and December 31, 2017 by level within the fair value hierarchy (in thousands):

	March 31, 2018			
	Level 1	Level 2	Level 3	Total
Money market funds [1]	$6,801	$—	$ —	$6,801
Common shares of CO2 Solutions [2]	—	697	—	697
Total	$6,801	$697	$ —	$7,498

	December 31, 2017			
	Level 1	Level 2	Level 3	Total
Money market funds [1]	$6,778	$—	$ —	$6,778
Common shares of CO2 Solutions [2]	—	671	—	671
Total	$6,778	$671	$ —	$7,449

(1) Money market funds are classified in cash and cash equivalents on our unaudited condensed consolidated balance sheets.
(2) Common shares of CO_2 Solutions are classified as marketable securities, and included in non-current assets on our unaudited condensed consolidated balance sheets.
We determine the fair value of Level 1 assets using quoted prices in active markets for identical assets. We estimated the fair value of our investment in 10,000,000 common shares of CO_2 Solutions using the market value of common shares as determined by trading on the TSX Venture Exchange, and we classified our investment in CO_2 Solutions as Level 2 assets due to the volatile and low trading volume. There were no transfers between Level 1 and Level 2 securities in the periods presented. (See also Note 6, "Cash Equivalents and Marketable Securities.")
During the three months ended March 31, 2018, unrealized gains related to our investment in CO_2 Solutions was $26 thousand and was included in other expense, net, in the unaudited condensed consolidated statements of operations. Prior to our adoption of ASU 2016-01, we recorded unrealized gains and losses from our investment in CO_2 Solutions in accumulated other comprehensive loss in stockholders' equity. During the three months ended March 31, 2017, unrealized losses related to our investment in CO_2 Solutions was $0.1 million and was included in other comprehensive loss.

Note 8. Balance Sheets Details

Inventories

Inventories consisted of the following (in thousands):

	March 31, 2018	December 31, 2017
Raw materials	$ 158	$ 158
Work-in-process	123	53
Finished goods	931	825
Inventories	$ 1,212	$ 1,036

Property and Equipment, net

Property and equipment, net consisted of the following (in thousands):

	March 31, 2018	December 31, 2017
Laboratory equipment [1]	$ 19,769	$ 19,777
Leasehold improvements	10,327	10,327
Computer equipment and software	3,723	3,695
Office equipment and furniture	1,185	1,185
Construction in progress [2]	90	85
Property and equipment	35,094	35,069
Less: accumulated depreciation and amortization	(32,474)	(32,254)
Property and equipment, net	$ 2,620	$ 2,815

[1] Fully depreciated laboratory equipment with a cost of $19 thousand and $0.2 million was retired during three months ended March 31, 2018 and full year in 2017.

[2] Construction in progress includes equipment received but not yet placed into service pending installation.

Goodwill

Goodwill had a carrying value of approximately $3.2 million at March 31, 2018 and December 31, 2017.

Other Accrued liabilities

Other accrued liabilities consisted of the following (in thousands):

	March 31, 2018	December 31, 2017
Accrued purchases [1]	$ 1,084	$ 941
Accrued professional and outside service fees	1,728	2,393
Accrued expenses - cost of sales	1,318	—
Deferred rent	278	258
Lease incentive obligation	425	425
Other	471	345
Total	$ 5,304	$ 4,362

(1) Amount represents products and services received but not billed as of March 31, 2018 and December 31, 2017.

Note 9. Stock-Based Compensation

Equity Incentive Plans

In March 2010, our board of directors (the "Board") and stockholders approved the 2010 Equity Incentive Award Plan (the "2010 Plan"), which became effective upon the completion of our initial public offering in April 2010. The number of shares of our common stock available for issuance under the 2010 Plan is equal to 1,100,000 shares plus any shares of common stock

reserved for future grant or issuance under our 2002 Stock Plan (the "2002 Plan") that remained unissued at the time of completion of the initial public offering. The 2010 Plan also provides for automatic annual increases in the number of shares reserved for future issuance. All grants will reduce the 2010 Plan reserve by one share for every share granted.

The 2010 Plan provides for the grant of incentive stock options, non-statutory stock options, RSUs, RSAs, PSUs, PBOs, stock appreciation rights, and stock purchase rights to our employees, non-employee directors and consultants.

Stock Options

The option exercise price for incentive stock options is at least 100% of the fair value of our common stock on the date of grant and the option exercise price for non-statutory stock options is at least 85% of the fair value of our common stock on the date of grant, as determined by the Board. If, at the time of a grant, the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all of our outstanding capital stock, the exercise price for these options must be at least 110% of the fair value of the underlying common stock. Stock options granted to employees generally have a maximum term of 10 years and vest over a four year period from the date of grant, of which 25% vest at the end of one year, and 75% vest monthly over the remaining three years. We may grant options with different vesting terms from time to time. Unless an employee's termination of service is due to disability or death, upon termination of service, any unexercised vested options will be forfeited at the end of three months or the expiration of the option, whichever is earlier.

Restricted Stock Units (RSUs)

We also grant employees RSUs, which generally vest over either a three year period with one-third of the shares subject to the RSUs vesting on each yearly anniversary of the vesting commencement date or over a four year period with 25% of the shares subject to the RSU vesting on each yearly anniversary of the vesting commencement date, in each case contingent upon such employee’s continued service on such vesting date. RSUs are generally subject to forfeiture if employment terminates prior to the release of vesting restrictions. We may grant RSUs with different vesting terms from time to time.

Performance-contingent Restricted Stock Units (PSUs) and Performance Based Options (PBOs)

The compensation committee of the Board approved, solely in respect of non-executive employees, delegated to our Chief Executive Officer the authority to approve grants of PSUs. The compensation committee of the Board also approved grants of PBOs and PSUs to our executives. The PSUs and PBOs vest based upon both the successful achievement of certain corporate operating milestones in specified timelines and continued employment through the applicable vesting date. When the performance goals are deemed to be probable of achievement for these types of awards, recognition of stock-based compensation expense commences. Once the number of shares eligible to vest is determined, those shares vest in two equal installments with 50% vesting upon achievement and the remaining 50% vesting on the first anniversary of achievement, in each case, subject to the recipient’s continued service through the applicable vesting date. If the performance goals are achieved at the threshold level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to half the number of PSUs granted and one-quarter the number of shares underlying the PBOs granted. If the performance goals are achieved at the target level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to the number of PSUs granted and half of the shares underlying the PBOs granted. If the performance goals are achieved at the superior level, the number of shares eligible to vest in respect of the PSUs would be equal to two times the number of PSUs granted and equal to the number of PBOs granted. The number of shares issuable upon achievement of the performance goals at the levels between the threshold and target levels for the PSUs and PBOs or between the target level and superior levels for the PSUs would be determined using linear interpolation. Achievement below the threshold level would result in no shares being eligible to vest in respect of the PSUs and PBOs.

In the first quarter of 2018, we awarded PSUs ("2018 PSUs") and PBOs ("2018 PBOs"), each of which commence vesting based upon the achievement of various weighted performance goals, including revenue growth, non-GAAP net income growth, new licensing collaborations, new research and development service revenue arrangements and novel therapeutic enzymes advancement. As of March 31, 2018, we estimated that the 2018 PSU and 2018 PBOs performance goals would be achieved at 100.0% of the target level, and recognized expenses accordingly.

In 2017, we awarded PSUs ("2017 PSUs") and PBOs ("2017 PBOs"), each of which commence vesting based upon the achievement of various weighted performance goals, including revenue growth, fundraising, service revenue, new

platform license revenue, and strategic advancement of biotherapeutics pipeline. In the first quarter of 2018, we determined that the 2017 PSU and PBO performance goals had been achieved at 134.2% of the target level, and recognized expenses accordingly. Accordingly, one-half of the shares underlying the 2017 PSUs and PBOs vested in the first quarter of 2018 and one-half of the shares underlying the 2017 PSUs and PBOs will vest in the first quarter of 2019, in each case subject to the recipient's continued service on each vesting date.

In 2016, we awarded PSUs ("2016 PSUs") based upon the achievement of various weighted performance goals, including revenue growth, non-GAAP net income growth, new licensing collaborations, new research and development service revenue arrangements and novel therapeutic enzymes advancement. In the first quarter of 2017, we determined that the 2016 PSU performance goals had been achieved at 142.3% of the target level, and recognized expenses accordingly. Accordingly, one-half of the shares underlying the 2016 PSUs vested in the first quarter of each of 2017 and 2018, in each case subject to the recipient's continued service on each vesting date. No PBOs were awarded in 2016.

Stock-Based Compensation Expense

Stock-based compensation expense is included in the consolidated statements of operations as follows (in thousands):

	Three Months Ended March 31,	
	2018	2017
Research and development	$435	$323
Selling, general and administrative	1,545	1,346
Total	$1,980	$1,669

The following table presents total stock-based compensation expense by security types included in the unaudited condensed consolidated statements of operations for the three months ended March 31, 2018 and 2017 (in thousands):

	Three Months Ended March 31,	
	2018	2017
Stock options	$472	$334
RSUs and RSAs	452	459
PSUs	409	641
PBOs	647	235
Total	$1,980	$1,669

As of March 31, 2018, unrecognized stock-based compensation expense, net of expected forfeitures, was $4.6 million related to unvested employee stock options, $1.4 million related to unvested RSUs and RSAs, $1.3 million related to unvested PSUs, and $3.5 million related to unvested PBOs based on current estimates of the level of achievement.

Valuation Assumptions

The weighted-average assumptions used to estimate the fair value of employee stock options and PBOs granted were as follows:

	Three Months Ended March 31,	
	2018	2017
Expected term (in years)	5.6	5.3
Volatility	60 %	62 %
Risk-free interest rate	2.70 %	2.00 %
Dividend yield	—	— %
Weighted-average estimated fair value of stock options granted	$5.02	$2.52

Note 10. Capital Stock

Exercise of Options

For the three months ended March 31, 2018 and 2017, 78,859 and 40,582 shares, respectively, were exercised at a weighted-average exercise price of $6.49 and $2.45 per share, respectively, with net cash proceeds of $0.4 million and $0.1 million, respectively.

28

Note 11. Commitments and Contingencies

Operating Leases

Our headquarters are located in Redwood City, California, where we occupy approximately 107,200 square feet of office and laboratory space in four buildings within the same business park of Metropolitan Life Insurance Company ("MetLife"). We entered into the initial lease with MetLife for a portion of this space in 2004 and the lease has been amended multiple times since then to adjust space and amend the terms of the lease, with the latest amendment ("Seventh Amendment") in October 2016 which, for one of our buildings, waived our existing asset retirement obligation and extended the lease term to January 2022. The various terms for the spaces under the lease have expiration dates that range from January 2020 through January 2022. Beginning in February 2014, we have subleased office space to different subtenants with separate options to extend the subleases. If all such options to extend were exercised, these agreements would expire at various dates through November 2019.

We incurred $3.6 million of capital improvement costs related to the facilities leased from MetLife through December 31, 2012. During 2011 and 2012, we requested and received $3.1 million of reimbursements from the landlord for the tenant improvement and HVAC allowances for the completed construction. The reimbursements were recorded once cash was received and are amortized on a straight line basis over the term of the lease as a reduction in rent expense. The remaining lease incentive obligation was $0.8 million and $0.9 million at March 31, 2018 and December 31, 2017, respectively, and is reflected as liabilities on the consolidated balance sheet. Rent expense for the Redwood City properties is recognized on a straight-line basis over the term of the lease.

We are required to restore certain areas of the Redwood City facilities that we are renting to their original form. We are expensing the asset retirement obligation over the terms of the respective leases. We review the estimated obligation each reporting period and make adjustments if our estimates change. We recorded asset retirement obligations of $0.2 million as of both March 31, 2018 and December 31, 2017, which are included in other liabilities on the consolidated balance sheets. Accretion expense related to our asset retirement obligations was nominal in the three months ended March 31, 2018 and March 31, 2017.

Pursuant to the terms of the amended lease agreement, we exercised our right to deliver a letter of credit in lieu of a security deposit. The letters of credit are collateralized by deposit balances held by the bank in the amount of $0.7 million as of March 31, 2018 and December 31, 2017. These deposits are recorded as restricted cash on the consolidated balance sheets.

Rent expense was $0.8 million and $0.9 million during the three months ended March 31, 2018 and 2017, respectively, partially offset by sublease income of $0.3 million each during the same period.

Capital Leases

In December 2016, we entered into a three-year financing lease agreement with a third party supplier for the purchase of laboratory equipment that was partially financed through a capital lease of approximately $0.4 million. The lease became effective upon delivery of the equipment, which occurred in February 2017, and the term of the lease is three years from the effective date. This financing agreement was accounted for as a capital lease due to the bargain purchase option at the end of the lease.

In April 2017, we entered into a three-year financing lease agreement with a third party supplier for the purchase of information technology equipment for approximately $0.3 million. The effective date of the lease was May 19, 2017 and the term of the lease is three years. This financing agreement was accounted for as a capital lease due to the bargain purchase option at the end of the lease.

Leases

Future minimum payments under non-cancellable capital and operating leases at March 31, 2018 are as follows (in thousands):

Years ending December 31,	Capital Leases	Operating Leases
2018 (9 months remaining)	$ 254	$ 2,397
2019	252	3,280
2020	61	712
2021	—	490
2022	—	41
Total minimum lease payments [1]	567	$ 6,920
Less: amount representing interest	(26)	
Present value of capital lease obligations	541	
Less: current portion	(298)	
Long-term portion of capital leases	$ 243	

[1] Minimum payments have not been reduced by future minimum sublease rentals of $1.4 million to be received under non-cancellable subleases at March 31, 2018.

Other Commitments

We enter into supply and service arrangements in the normal course of business. Supply arrangements are primarily for fixed-price manufacture and supply. Service agreements are primarily for the development of manufacturing processes and certain studies. Commitments under service agreements are subject to cancellation at our discretion which may require payment of certain cancellation fees. The timing of completion of service arrangements is subject to variability in estimates of the time required to complete the work.

The following table provides quantitative data regarding our other commitments. Future minimum payments reflect amounts that we expect to pay including potential obligations under services agreements subject to risk of cancellation by us (in thousands):

Other Commitment Agreement Type	Agreement Date	Future Minimum Payment
Manufacture and supply agreement with expected future payment date of December 2022	April 2016	$ 1,693
Service agreement for the development of manufacturing process	April 2017	93
Service agreement for stability study	July 2017	388
Service agreement for clinical trial	December 2017	$ 1,825
Total other commitments		$ 3,999

Credit Facility

Effective June 30, 2017, we entered into a credit facility (the "Credit Facility") consisting of term loans ("Term Debt") totaling up to $10.0 million, and advances ("Advances") under a revolving line of credit ("Revolving Line of Credit") totaling up to $5.0 million with an accounts receivable borrowing base of 80% of eligible accounts receivable. At March 31, 2018, we have not drawn from the Credit Facility. We may draw on the Term Debt at any time prior to June 30, 2018, subject to customary conditions for funding including, among others, that no event of default exists. We may draw on the Revolving Line of Credit at any time prior to the maturity date. On July 1, 2021, any loans for Term Debt mature and the Revolving Line of Credit terminates. Term Debt bears interest through maturity at a variable rate based on the London Interbank Offered Rate plus 3.60%. Advances under the Revolving Line of Credit bear interest at a variable annual rate equal to the greater of (i) 1.00% above the prime rate and (ii) 5.00%.

The Credit Facility allows for interest-only payments on Term Debt through August 1, 2019. Monthly payments of principal and interest on the Term Debt are required following the applicable amortization date. We may elect to prepay in full the Term Debt and Advances under the Revolving Line of Credit at any time.

Our obligations under the Credit Facility are secured by a lien on substantially all of our personal property other than our intellectual property. The Credit Facility includes a number of customary covenants and restrictions which require us to comply with certain financial covenants including achieving consolidated product revenues levels at minimum levels as set forth in the Credit Facility through December 2018 and on and after January 2019, in each case unless we maintain certain minimum cash levels with the lender in an amount equal to or greater than six times the sum of the average six-month trailing operating cash flow net outlay plus the average monthly principal due and payable in the immediately succeeding three-month period. The Credit Facility places various restrictions on our transferring collateral, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, making investments, creating liens and selling assets and permitted assets to be held at foreign subsidiaries above specified caps, in each case subject to certain exceptions. A failure to comply with these covenants could permit the lender to exercise remedies against us and the collateral securing the Credit Facility, including foreclosure of our properties securing the Credit Facilities and our cash. At March 31, 2018, we were in compliance with the covenants for the Credit Facility.

Legal Proceedings

We are not currently a party to any material pending litigation or other material legal proceedings.

In February 2018, we and EnzymeWorks, Inc. (U.S.), Suzhou Hanmei Biotechnology Co. Ltd, d/b/a EnzymeWorks, Inc. (China) (collectively, "EnzymeWorks"), Junhua Tao, and Andrew Tao reached a settlement concerning the lawsuit filed by us in February 2016 against EnzymeWorks, Junhua Tao, and Andrew Tao in the United States District Court for the Northern District of California. The parties have entered into a settlement agreement, the terms of which are confidential. The parties have also stipulated to a judgment of patent infringement of all asserted patents against EnzymeWorks, and a permanent injunction barring any future infringement. The remaining claims against EnzymeWorks, and all claims against Junhua Tao, and Andrew Tao including trade secret misappropriation, breach of contract and voidable transfer have been dismissed with prejudice.

Indemnifications

We are required to recognize a liability for the fair value of any obligations we assume upon the issuance of a guarantee. We have certain agreements with licensors, licensees and collaborators that contain indemnification provisions. In such provisions, we typically agree to indemnify the licensor, licensee and collaborator against certain types of third party claims. The maximum amount of the indemnifications is not limited. We accrue for known indemnification issues when a loss is probable and can be reasonably estimated. There were no accruals for expenses related to indemnification issues for any periods presented.

Note 12. Related Party Transactions

Exela PharmSci, Inc.

We entered into a commercialization agreement with Exela in 2007. Under the license agreement, as amended, we and Exela cross-licensed certain technology relating to the manufacture of argatroban, an API, in exchange for rights to certain sublicensing fees or development payments and profit sharing. The revenue sharing arrangement was terminated in December 2017.

Thomas R. Baruch, one of our directors, serves on the board of directors of Exela, and is a retired general partner in Presidio Partners 2007, LP which owns over 10% of Exela’s outstanding capital stock. As such, Mr. Baruch has an indirect pecuniary interest in the shares of Exela held by Presidio Partners 2007, L.P.

We recognized nil and 0.4 million revenues for the three months ended March 31, 2018 and 2017, respectively, shown in the unaudited condensed consolidated statement of operations as research and development revenue. We had $1.1 million and $1.6 million of receivables from Exela at March 31, 2018 and December 31, 2017, respectively.

AstraZeneca PLC

Pam P. Cheng, a member of our board of directors, joined AstraZeneca PLC as Executive Vice President, Operations and Information Technology in June 2015. We sell biocatalyst products to AstraZeneca PLC, to Alfa Aesar, which is a purchasing agent of AstraZeneca PLC, and also to Asymchem Life Science Co, Ltd, which is a contract manufacturer for AstraZeneca PLC.

In the three months ended March 31, 2018 and 2017, we recognized $0.3 million and de minimis revenue from AstraZeneca PLC, respectively. We recognized de minimis revenue and nil from Asymchem and did not recognize any revenue

from Alfa Aesar in the three months ended March 31, 2018 and 2017, respectively. At March 31, 2018 and December 31, 2017, we had zero and $86 thousand accounts receivables from AstraZeneca, PLC, zero and $0.4 million of accounts receivables from Alfa Aesar, and $16 thousand and none of accounts receivables from Asymchem, respectively.

In the three months ended March 31, 2018, we started performing enzyme screening work for AstraZeneca PLC. This service is provided free to AstraZeneca and is related to an option for additional services that AstraZeneca may exercise and pay for at a later date. AstraZeneca has not yet exercised the option and the option has not yet expired as of March 31, 2018. Our work is expected to be completed in the second quarter of 2018. During the three months ended March 31, 2018, we did not recognize revenue for the work we have performed to date because AstraZeneca has not yet exercised their option. The commercial value of the screening work is estimated to be $56 thousand. Costs for performing the screening work, primarily salaries of research and development personnel, are included in research and development expenses in our unaudited condensed consolidated statements of operations.

Note 13. Segment, Geographical and Other Revenue Information

Segment Information

As discussed in Note 2, "Basis of Presentation and Summary of Significant Accounting Policies," beginning in 2018, we identified our biotherapeutics business as a standalone business segment. Our two reportable business segments as of January 1, 2018, consisted of Performance Enzymes and Novel Biotherapeutics.

We report corporate-related expenses such as legal, accounting, information technology, and other costs that are not otherwise included in our reportable business segments as "Corporate costs." All items not included in income (loss) from operations are excluded from the business segments.

We manage our assets on a total company basis, not by business segment, as the majority of our operating assets are shared or commingled. Our CODM does not review asset information by business segment in assessing performance or allocating resources, and accordingly, we do not report asset information by business segment.

Performance Enzymes

We initially commercialized our CodeEvolver® protein engineering technology platform and products in the pharmaceuticals market, and to date this continues to be our largest market served. Our customers, which include many large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development. We have also used the technology to develop customized enzymes for use in other industrial markets. These markets consists of several large industrial verticals, including food and food ingredients, animal feed, flavors, fragrances, and agricultural chemicals. We have also used our technology to develop an enzyme for customers using NGS and PCR/qPCR for in vitro molecular diagnostic and molecular biology research applications.

Novel Biotherapeutics

We are also targeting new opportunities in the pharmaceutical industry to discover, improve and/or develop biotherapeutic drug candidates. We believe that our CodeEvolver® protein engineering platform technology can be used to discover novel biotherapeutic drug candidates that will target human diseases that are in need of improved therapeutic interventions. Similarly, we believe that we can deploy our platform technology to improve specific characteristics of a customer’s pre-existing biotherapeutic drug candidate, such as its activity, stability or immunogenicity. Most notable is our lead program for the potential treatment of PKU in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. In October 2017, we announced a strategic collaboration with Nestec Ltd. ("Nestlé Health Science") to advance CDX-6114, our own novel orally administrable enzyme therapeutic candidate for the potential treatment of PKU disease. We have also developed a pipeline of other biotherapeutic drug candidates in which we expect to continue to make additional investments with the aim of advancing additional product candidates targeting other therapeutic areas. For the three months ended March 31, 2018, all revenues related to the Novel Biotherapeutics segment were generated from our collaboration with Nestlé Health Science. There was no revenue related to the Novel Biotherapeutics

segment for the three months ended March 31, 2017.

The following table provides financial information by our reportable business segments along with a reconciliation to consolidated loss before income taxes (in thousands):

	Three months ended March 31, 2018			Three months ended March 31, 2017		
	Performance Enzymes	Novel Biothera-peutics	Total	Performance Enzymes	Novel Biothera-peutics	Total
Revenues:						
Product revenue	$6,163	$ —	$6,163	$5,586	$ —	$5,586
Research and development revenue	4,566	3,313	7,879	2,385	—	2,385
Total revenues	10,729	3,313	14,042	7,971	—	7,971
Costs and operating expenses:						
Cost of product revenue	3,825	—	3,825	3,002	—	3,002
Research and development[1]	5,066	1,932	6,998	4,150	1,511	5,661
Selling, general and administrative	2,096	146	2,242	1,812	—	1,812
Total costs and operating expenses	10,987	2,078	13,065	8,964	1,511	10,475
Income (loss) from operations	$(258)	$ 1,235	$977	$(993)	$ (1,511)	$(2,504)
Corporate costs [2]			(5,435)			(4,606)
Depreciation and amortization			(238)			(326)
Loss before income taxes			$(4,696)			$(7,436)

[1] Research and development expenses exclude depreciation and amortization.
[2] Corporate costs include unallocated selling, general and administrative expense, interest income, and other income and expenses.

The following table provides stock-based compensation expense included in income (loss) from operations by segment (in thousands):

	Three months ended March 31, 2018			Three months ended March 31, 2017		
	Performance Enzymes	Novel Biothera-peutics	Total	Performance Enzymes	Novel Biothera-peutics	Total
Stock-based compensation	$333	$ 63	$396	$221	$ 52	$273

Significant Customers

Customers that each contributed 10% or more of our total revenues were as follows:

	Percentage of Total Revenues for the Three Months Ended March 31,	
	2018	2017
Customer A	48%	38%
Customer B	*	20%
Customer C	*	19%
Customer D	24%	*
Customer E	10%	*

Customers that each contributed 10% or more of our total accounts receivable had the following balances as of the periods presented:

	Percentage of Accounts Receivables at	
	March 31, 2018	December 31, 2017
Customer A	46%	31%
Customer C	12%	15%
Customer E	*	16%
Customer F	13%	14%

* Less than 10% of the period presented

Geographical Information

Geographic revenues are identified by the location of the customer and consist of the following (in thousands):

	Three Months Ended March 31,	
	2018	2017
Revenues		
Americas	$3,597	$1,788
EMEA	4,992	3,208
APAC	5,453	2,975
Total revenues	$14,042	$7,971

Identifiable long-lived assets as follows (in percentage):

Long-lived assets:	March 31, 2018	December 31, 2017
United States	100 %	100 %

Note 14. Subsequent Events

In April 2018, we completed an underwritten public offering of 4,312,500 shares of our common stock, including the exercise in full by the underwriters of their option to purchase 562,500 our shares, at a public offering price of $9.25 per share. After deducting the underwriting discounts and commissions and estimated offering expenses, net proceeds were approximately $37.2 million.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the unaudited condensed consolidated financial statements and the related notes thereto included elsewhere in this Quarterly Report on Form 10-Q and the audited consolidated financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations for the year ended December 31, 2017 included in our Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the SEC on March 15, 2018 (the "Annual Report"). This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements include, but are not limited to, expectations regarding our strategy, business plans, financial performance and developments relating to our industry. These statements are often identified by the use of words such as may, will, expect, believe, anticipate, intend, could, should, estimate, or continue, and similar expressions or variations. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those set forth in Part II, Item 1A of this Quarterly Report on Form 10-Q and Part I, Item 1A of our Annual Report, as incorporated herein and referenced in Part II, Item 1A of this Quarterly Report on Form 10-Q and elsewhere in this report. The forward-looking statements in this Quarterly Report on Form 10-Q represent our views as of the date of this Quarterly Report on Form 10-Q. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q.

Business Overview

We discover, develop and sell proteins that deliver value to our clients in a growing set of industries. We view proteins as a vast untapped source of value-creating materials, and we are using our proven technologies, which we have been continuously improving over our sixteen year history, to commercialize an increasing number of novel proteins, both as proprietary Codexis products and in partnership with our customers.

We are a pioneer in the harnessing of computational technologies to drive biology advancements. Since our inception in 2002, we have made substantial investments in the development of our CodeEvolver® protein engineering technology platform, the primary source of our competitive advantage. Our technology platform is powered by proprietary, artificial intelligence-based, computational algorithms that rapidly mine our large and continuously growing library of protein variants' performance attributes. These computational outputs enable increasingly reliable predictions for next generation protein variants to be engineered, enabling delivery of targeted performance enhancements in a time-efficient manner. In addition to its computational prowess, our CodeEvolver® protein engineering technology platform integrates additional modular competencies, including robotic high-throughput screening and genomic sequencing, organic chemistry and process development which are all coordinated to create our novel protein innovations.

Our approach to develop commercially viable biocatalytic manufacturing processes begins by conceptually designing the most cost-effective and practical process for a targeted product. We then develop optimized protein catalysts to enable that process design using our CodeEvolver® protein engineering platform technology. Engineered protein catalyst candidates - many thousands for each protein engineering project - are then rapidly screened and validated in high throughput under relevant manufacturing operating conditions. This approach results in an optimized protein catalyst enabling cost-efficient processes that typically are relatively simple to run in conventional manufacturing equipment. This also allows for the efficient technical transfer of our process to our manufacturing partners.

The successful embodiment of our CodeEvolver® protein engineering technology platform in commercial manufacturing processes requires well-integrated expertise in a number of technical disciplines. In addition to those directly involved in practicing our CodeEvolver® protein engineering platform technology, such as molecular biology, enzymology, microbiology, cellular engineering, metabolic engineering, bioinformatics, biochemistry and high throughput analytical chemistry, our process development projects also involve integrated expertise in organic

chemistry, chemical process development, chemical engineering, fermentation process development and fermentation engineering. Our integrated, multi-disciplinary approach to biocatalyst and process development is a critical success factor for our company.

Business Segments

We manage our business as two business segments: Performance Enzymes and Novel Biotherapeutics.

Performance Enzymes

We initially commercialized our CodeEvolver® protein engineering technology platform and products in the pharmaceuticals market, and to date this continues to be our largest market served. Our customers, which include many large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development. We have also used the technology to develop customized enzymes for use in other industrial markets. These markets consists of several large industrial verticals, including food and food ingredients, animal feed, flavors, fragrances, and agricultural chemicals. We have also used our technology to develop an enzyme for customers using NGS and PCR/qPCR for in vitro molecular diagnostic and molecular biology research applications.

Novel Biotherapeutics

We are also targeting new opportunities in the pharmaceutical industry to discover, improve and/or develop biotherapeutic drug candidates. We believe that our CodeEvolver® protein engineering platform technology can be used to discover novel biotherapeutic drug candidates that will target human diseases that are in need of improved therapeutic interventions. Similarly, we believe that we can deploy our platform technology to improve specific characteristics of a customer’s pre-existing biotherapeutic drug candidate, such as its activity, stability or immunogenicity. Most notable is our lead program for the potential treatment of PKU in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. In October 2017, we announced a strategic collaboration with Nestec Ltd. ("Nestlé Health Science") to advance CDX-6114, our own novel orally administrable enzyme therapeutic candidate for the potential treatment of PKU disease. We have also developed a pipeline of other biotherapeutic drug candidates in which we expect to continue to make additional investments with the aim of advancing additional product candidates targeting other therapeutic areas. For further description of our business segments, see Note 13, "Segment, Geographical and Other Revenue Information," to the Notes to Unaudited Condensed Consolidated Financial Statements included in this quarterly report on Form 10-Q.

Results of Operations Overview

On January 1, 2018, we adopted ASC 2014-09, "Revenue from Contracts with Customers (Topic 606)" and applied the new standard to contracts which were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under Topic 605. Refer to Note 2, "Basis of Presentation and Summary of Significant Accounting Policies" for details regarding the adoption of this new standard.

Revenues increased to $14.0 million for the first quarter of 2018 from $8.0 million in the first quarter of 2017, primarily due to higher research and development revenue. Research and development service revenue for the first quarter of 2018 increased to $7.9 million from $2.4 million in the first quarter of 2017 primarily due to revenues from the Nestlé Agreement and the Strategic Collaboration Agreement research and development revenue from Tate & Lyle and another customer, and recognition of a license fee from Merck.

Product gross margins were 38% in the three months ended March 31, 2018, compared to 46% in the same period in 2017 due to product mix.

Research and development expense increased by $1.3 million, or 23%, to $7.2 million for the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in outside services relating to CDX-6114, our orally dosable enzyme therapeutic candidate for PKU, and an increase in costs associated with higher headcount and lab supplies.

Selling, general and administrative expense increased by $1.1 million, or 17%, to $7.7 million for the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in outside services, accounting fees, employee compensation and recruiting costs, and legal expenses related to intellectual property, which were partially offset by lower depreciation expense.

Net loss for the first quarter of 2018 was $4.7 million, representing a net loss of $0.10 per basic and diluted share. This compares to a net loss of $7.5 million, representing a net loss of $0.18 per basic and diluted share for the first quarter of 2017. The decrease in net loss for the first quarter of 2018 over the same period of the prior year is primarily related to recognition of research and development revenue from Nestlé Health Science relating to our CDX-6114 product candidate and increased services revenues partially offset by increased spending in salaries and outside services relating to the development of CDX-6114, lab supplies and accounting fees.

Cash and cash equivalents decreased by $6.9 million to $24.3 million as of March 31, 2018 compared to $31.2 million as of December 31, 2017. Net cash used in operating activities increased to $4.2 million in the three months ended March 31, 2018 compared to $3.6 million in the three months ended March 31, 2017. In April 2018, we completed a public offering of approximately 4.3 million shares of our common stock at an offering price of $9.25 per share resulting in net proceeds to us of $37.2 million. We believe that based on our current level of operations, our existing cash, cash equivalents, and marketable securities will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months.

In June 2017, we entered into a loan and security agreement that allows us to borrow up to $10.0 million under a term loan, and up to $5.0 million under a revolving credit facility with 80% of certain eligible accounts receivable as a borrowing base (the "Credit Facility"). Obligations under the Credit Facility are secured by a lien on substantially all of our personal property other than our intellectual property. As of March 31, 2018, no amounts were borrowed under the Credit Facility and we were in compliance with the covenants for the Credit Facility. See Note 11, "Commitments and Contingencies."

Below is an overview of our results of operations by business segments:

Performance Enzymes

Revenues increased $2.8 million for the first quarter of 2018 compared to the first quarter of 2017, primarily due to higher research and development revenue. Research and development service revenue for the first quarter of 2018 increased to $4.6 million from $2.4 million in the first quarter of 2017 primarily due to revenues from our research and development revenue from Tate & Lyle and another customer, and recognition of a license fee from Merck.

Product gross margins were 38% in the three months ended March 31, 2018, compared to 46% in the corresponding periods in 2017 due to increase in product revenue of lower margin enzymes and decrease in sales of higher margin products.

Research and development expense increased $0.9 million, or 22%, to $5.1 million for the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in costs associated with higher headcount and an increase in lab supplies expenses.

Selling, general and administrative expense increased by $0.3 million, or 16%, to $2.1 million for the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in outside services, employee compensation and recruiting costs.

Novel Biotherapeutics

Research and development revenue for the first quarter of 2018 was $3.3 million. Revenues in the Novel Biotherapeutics segment are derived entirely from research and development revenue relating to the development of our CDX-6114 product candidate in collaboration with Nestlé Health Science. In the fourth quarter of 2017, we signed a global development, option and license agreement with Nestlé Health Science and, thus, we had no revenues in the Novel Biotherapeutics segment prior to the fourth quarter of 2017.

Research and development expense increased $0.4 million or 28%, to $1.9 million for the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in outside services and outside consultants as a result of increased research and development activities related to the development of our CDX-6114 and other products in our Novel Biotherapeutics pipeline.

Selling, general and administrative expense was $0.1 million during the first quarter of 2018, a 100% increase compared to the first quarter of 2017, due primarily to allocated employee costs related to the development of our CDX-6114 product candidate and other products in our Novel Biotherapeutics product.

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into a CodeEvolver® protein engineering platform technology transfer collaboration and license agreement (the "GSK CodeEvolver® Agreement") with GlaxoSmithKline ("GSK"). Pursuant to the terms of the agreement, we granted GSK a non-exclusive license to use the CodeEvolver® protein engineering platform technology to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products. We received an upfront fee upon the execution of the agreement in July 2014 and milestone payments in each of the years from 2014 through April 2016. We completed the transfer of the CodeEvolver® protein engineering platform technology to GSK in April 2016 and all revenues relating to the technology transfer have been recognized as of April 2016. We have the potential to receive additional cumulative contingent payments that range from $5.75 million to $38.5 million per project based on GSK’s successful application of the licensed technology. We are also eligible to receive royalties based on net sales of GSK’s sales of licensed enzyme products that are currently constrained.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® platform technology transfer collaboration and license agreement (the "Merck CodeEvolver® Agreement") with Merck, Sharp & Dohme ("Merck"), which allows Merck to use the CodeEvolver® protein engineering technology platform in the field of human and animal healthcare.

We received a $5.0 million up-front license fee upon execution of the Merck CodeEvolver® Agreement, and milestone payments in September 2015 and in September 2016, when we completed the transfer of the engineering platform technology.

Additionally, we recognized research and development revenue of $0.9 million for the three months ended March 31, 2018 and 2017, for various research projects under our collaborative arrangement.

We have the potential to receive payments of up to a maximum of $15.0 million for each commercial API that is manufactured by Merck using one or more novel enzymes developed by Merck using the CodeEvolver® protein engineering technology platform. The API payments, which are currently fully constrained, are based on quantity of API developed and manufactured by Merck and will be recognized as usage-based royalties.

Global Development, Option and License Agreement and Strategic Collaboration Agreement

In October 2017, we entered into a Global Development, Option and License Agreement (the "Nestlé Agreement") with Nestec Ltd. ("Nestlé Health Science") and, solely for the purpose of the integration and the dispute resolution clauses of the Agreement, Nestlé Health Science S.A., to advance CDX-6114, our enzyme biotherapeutic product candidate for the potential treatment of PKU.

We received an upfront cash payment of $14.0 million upon the execution of the Nestlé Agreement of which we recognized development fees of $2.7 million and none for the three months ended March 31, 2018 and 2017 as research and development revenue. We had deferred revenue related to the development fees of $4.1 million at March 31, 2018 and $6.8 million at

December 31, 2017. We are eligible to receive a $4.0 million progress payment after the commencement of a Phase 1a clinical trial of CDX-6114 for the potential treatment of PKU disease. In the event Nestlé Health Science exercises an option under the Nestlé Agreement to take an exclusive license under certain of our patents and know-how, they will be obligated to pay us $3.0 million within 60 days after the exercise of the option. The upfront payment and the variable consideration of $4.0 million progress payment are being recognized over time as the development work is being performed. The progress payment variable consideration is estimated using the most likely amount. Revenue is being recognized using a single measure of progress that faithfully depicts our performance in transferring control of the services, which is based on the ratio of level of effort incurred to date compared to the total estimated level of effort required to complete all performance obligations under the agreement. Upon exercise of the option, we are eligible to receive payments from Nestlé Health Science under the Nestlé Agreement that include (i) development and approval milestones of up to $86.0 million, (ii) sales-based milestones of up to $250.0 million in the aggregate, which aggregate amount is achievable if net sales exceed $1.0 billion in a single year, and (iii) tiered royalties, at percentages ranging from the middle single digits to low double-digits, of net sales of product.

In addition to the Nestlé Agreement, we and Nestlé Health Science concurrently entered into a Strategic Collaboration Agreement pursuant to which we and Nestlé Health Science will collaborate to leverage the CodeEvolver® protein engineering technology platform to develop novel enzymes for Nestlé Health Science's established Consumer Care and Medical Nutrition business areas. Under the Strategic Collaboration Agreement, we recognized research and development fees of $0.6 million and none for the three months ended March 31, 2018 and 2017. We had deferred revenue of $0.9 million and $1.1 million at March 31, 2018 and December 31, 2017, respectively.

Results of Operations

The following table shows the amounts from our consolidated statements of operations for the periods presented (in thousands):

	Three months ended March 31,		Change	
	2018	2017	$	%
Revenues:				
Product revenue	$6,163	$5,586	$577	10%
Research and development revenue	7,879	2,385	5,494	230%
Total revenues	14,042	7,971	6,071	76%
Costs and operating expenses:				
Cost of product revenue	3,825	3,002	823	27%
Research and development	7,178	5,839	1,339	23%
Selling, general and administrative	7,746	6,606	1,140	17%
Total costs and operating expenses	18,749	15,447	3,302	21%
Loss from operations	(4,707)	(7,476)	2,769	37%
Interest income	71	18	53	294%
Other income (expenses)	(60)	22	(82)	(373)%
Loss before income taxes	(4,696)	(7,436)	2,740	37%
Provision for (benefit from) income taxes	(2)	24	(26)	(108)%
Net loss	$(4,694)	$(7,460)	$2,766	37%

Revenues

Our revenue is comprised of product revenue and research and development revenue as follows:

- Product revenue consist of sales of protein catalysts, pharmaceutical intermediates, and Codex® Biocatalyst Panels and Kits.
- Research and development revenue include license, technology access and exclusivity fees, research services fees, milestone payments, royalties, optimization and screening fees, and revenue sharing arrangement revenues based upon sales of licensed products by Exela.

The following table shows the amounts of our product revenue and research and development revenue from our unaudited condensed consolidated statements of operations for the periods presented (in thousands):

	Three months ended March 31,		Change	
(In Thousands)	2018	2017	$	%
Product revenue	$6,163	$5,586	$577	10%
Research and development revenue	7,879	2,385	5,494	230%
Total revenues	$14,042	$7,971	$6,071	76%

Revenues typically fluctuate on a quarterly basis due to the variability in our customers' manufacturing schedules and the timing of our customers' clinical trials. In addition, we have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third party manufacturers for the commercial scale manufacturing of the enzymes used in our pharmaceutical and fine chemicals business.

We accept purchase orders for deliveries covering periods from one day up to approximately one year from the date on which the order is placed. However, purchase orders can generally be revised or cancelled by the customer without penalty. Considering these industry practices and our experience, we do not believe the total of customer purchase orders outstanding (backlog) provides meaningful information that can be relied on to predict actual sales for future periods.

Total revenues increased $6.1 million in the three months ended March 31, 2018, compared to the same period in 2017 primarily due to higher product revenue and research and development revenue.

Product revenue increased $0.6 million in the three months ended March 31, 2018, compared to the same period in 2017 due to over time recognition of revenues for a product that has no alternative use and is under non-cancellable purchase orders. We expect that the product revenues for the year will be the same as the prior year.

Research and development revenue increased $5.5 million in the three months ended March 31, 2018, compared to the same period in 2017. The increase in research and development revenue for the three months ended March 31, 2018 is primarily due to revenues from our collaborative arrangements with Nestlé Health Science for the development of CDX-6114 and development of novel enzymes for Nestlé Health Science under our Strategic Collaboration Agreement, in addition to research and development revenue from Tate & Lyle and another customer, and recognition of a license fee from Merck.

Cost and Operating Expenses

Our cost and operating expenses are comprised of cost of product revenue, research and development expense, and selling, general and administrative expense. The following table shows the amounts of our cost of product revenue, research and development expense, and selling, general and administrative expense from our consolidated statements of operations for the periods presented (in thousands):

	Three months ended March 31,		Change	
(In Thousands)	2018	2017	$	%
Cost of product revenue	$3,825	$3,002	$823	27%
Research and development expense	7,178	5,839	1,339	23%
Selling, general and administrative expense	7,746	6,606	1,140	17%
Total costs and operating expenses	$18,749	$15,447	$3,302	21%

Cost of Product Revenue and Product Gross Margin

Our revenues from product revenue are derived entirely from our Performance Enzymes segment. Revenues from the Novel Biotherapeutics segment are from collaborative research and development activities and not from product revenue.

The following table shows the amounts of our product revenue, cost of product revenue, product gross profit and product gross margin from our consolidated statements of operations for the periods presented (in thousands):

	Three months ended March 31,		Change	
(In Thousands)	2018	2017	$	%
Product revenue	$6,163	$5,586	$577	10%
Cost of product revenue	3,825	3,002	823	27%
Product gross profit	$2,338	$2,584	$(246)	(10)%
Product gross margin (%)	38%	46%		

Cost of product revenue comprises both internal and third-party fixed and variable costs, including materials and supplies, labor, facilities and other overhead costs associated with our product revenue.

Product gross margins were 38% in the three months ended March 31, 2018, compared to 46% in the corresponding period in 2017 due to an increase in product revenue of lower margin enzymes and decrease in sales of higher margin products.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects as well as collaborative research and development activities. These costs primarily consist of (i) employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation), (ii) various allocable expenses, which include occupancy-related costs, supplies, and depreciation of facilities and laboratory equipment, and (iii) external costs. Research and development expenses are expensed when incurred.

Research and development expenses increased by $1.3 million, or 23%, during the three months ended March 31, 2018, compared to the same period in 2017 primarily due to an increase in outside services relating to CDX-6114, our orally dosable enzyme therapeutic candidate for PKU, and an increase in costs associated with higher headcount and lab supplies.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist of employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation, hiring and training costs, consulting and outside services expenses (including audit and legal costs), marketing costs, building lease costs, and depreciation expenses. Selling, general and administrative expenses increased by $1.1 million, or 17% during the three months ended March 31, 2018 compared to the same period in 2017, primarily due to an increase in outside services, accounting fees, employee compensation and recruiting costs, and legal expenses related to intellectual property, which were partially offset by lower depreciation expense.

Interest Income and Other Income (Expense)

	Three months ended March 31,		Change	
(In Thousands)	2018	2017	$	%
Interest income	$71	$ 18	$53	294%
Other income (expense)	(60)	22	(82)	(373)%
Total other income (expense)	$11	$ 40	$(29)	(73)%

Interest income increased by $53 thousand for the three months ended March 31, 2018 compared to the same period in 2017 primarily due to higher cash and cash equivalents balance received from the public offering in April 2017. The change in other income (expense) for the three months ended March 31, 2018 compared to the same period in 2017 was primarily related to fluctuations in foreign currency.

Provision for and (benefit from) Income Taxes

We recognized income tax benefit of $2 thousand and income tax provision of $24 thousand for the three months ended March 31, 2018 and 2017. The decrease in income tax expense was due a decrease in income from our foreign operations. We continue to maintain a full valuation allowance against our net deferred tax assets as we believe that it is more likely than not that the majority of our deferred tax assets will not be realized.

Net loss

Net loss for the first quarter of 2018 was $4.7 million, representing a net loss of $0.10 per basic and diluted share. This compares to net loss of $7.5 million for the three months ended March 31, 2017, representing a net loss of $0.18 per basic and diluted share. The decrease in net loss for the three months ended March 31, 2018 compared to the same period of the prior year is primarily related to higher product revenue and research and development revenue net of the corresponding higher costs and operating expenses.

Results of Operations by Segment

	Three months ended March 31,						Change			
	2018			2017			Performance Enzymes		Novel Biotherapeutics	
(In Thousands)	Performance Enzymes	Novel Biotherape-utics	Total	Performance Enzymes	Novel Biotherape-utics	Total	$	%	$	%
Product revenue	$6,163	$ —	$6,163	$5,586	—	$5,586	$577	10%	$—	— %
Research and development revenue	4,566	3,313	7,879	2,385	$ —	2,385	2,181	91%	3,313	100 %
Total revenues	$10,729	$ 3,313	$14,042	$7,971	$ —	$7,971	$2,758	35%	$3,313	100 %

Revenues

Revenues from the Performance Enzymes segment increased $2.8 million for the first quarter of 2018 compared to the first quarter of 2017, primarily due to higher research and development revenue. Research and development service revenue for the first quarter of 2018 increased to $4.6 million from $2.4 million in the first quarter of 2017 primarily due to revenues from our research and development revenue from Tate & Lyle and another customer, and recognition of a license fee from Merck.

Revenues from the Novel Biotherapeutics segment are derived entirely from research and development revenue relating to the development of our CDX-6114 product candidate in collaboration with Nestlé Health Science. In the fourth quarter of 2017, we signed a global development, option and license agreement with Nestlé Health Science and, thus, we had no revenues in the Novel Biotherapeutics segment prior to the fourth quarter of 2017.

Cost and Operating Expenses

	Three months ended March 31,						Change			
	2018			2017			Performance Enzymes		Novel Biotherapeutics	
(In Thousands)	Performance Enzymes	Novel Biotherape-utics	Total	Performance Enzymes	Novel Biotherape-utics	Total	$	%	$	%
Cost of product revenue	$3,825	$ —	$3,825	$3,002	—	$3,002	$823	27%	$—	— %
Research and development	5,066	1,932	6,998	4,150	$ 1,511	5,661	916	22%	421	28 %
Selling, general and administrative	2,096	146	2,242	1,812	$ —	1,812	284	16%	146	100 %
Total costs and operating expenses	$10,987	$ 2,078	13,065	$8,964	$ 1,511	10,475	$2,023	23%	$567	38 %
Corporate costs			5,446			4,646				
Depreciation and amortization			238			$326				
Total costs and operating expenses			$18,749			$15,447				

Research and development expense in the Performance Enzymes segment increased $0.9 million or 22%, to $5.1 million in the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in costs associated with higher headcount and an increase in lab supplies expenses.

Selling, general and administrative expense in the Performance Enzymes segment increased by $0.3 million, or 16%, to $2.1 million in the first quarter of 2018, compared to the first quarter of 2017, due primarily to an increase in outside services, employee compensation and recruiting costs.

Research and development expense in the Novel Biotherapeutics segment increased by $0.4 million, or 28%, to $1.9 million in the first quarter of 2018, compared to the first quarter of 2017, due primarily to increased costs associated with higher headcount as a result of increased research and development activities related to the development of our CDX-6114 and other products in our Novel Biotherapeutics pipeline.

Selling, general and administrative expense in the Novel Biotherapeutics segment was $0.1 million during the first quarter of 2018, a 100% increase compared to the first quarter of 2017, due primarily to an increase in headcount related to the development of our CDX-6114 product candidate and other products in our Novel Biotherapeutics product.

Liquidity and Capital Resources

Liquidity is the measurement of our ability to meet working capital needs and to fund capital expenditures. We have historically funded our operations primarily through cash generated from operations, stock option exercises and public offerings of our common stock. We also have the ability to borrow up to $15.0 million under our Credit Facility. We actively manage our cash usage and investment of liquid cash to ensure the maintenance of sufficient funds to meet our working capital needs. The majority of our cash and investments are held in U.S. banks, and our foreign subsidiaries maintain a limited amount of cash in their local banks to cover their short-term operating expenses. For the three months ended March 31, 2018, our most significant cash flow activities consisted of $4.2 million of cash used in operations and $3.1 million of taxes paid related to net share settlement of restricted stock units and performance-contingent restricted stock units.

The following tables summarize our cash and cash equivalents and working capital as of March 31, 2018 and December 31, 2017, as well as our statements of cash flows for the three months ended March 31, 2018 and 2017:

(In Thousands)	March 31, 2018	December 31, 2017
Cash and cash equivalents	$ 24,300	$ 31,219
Working capital	$ 14,414	$ 20,087

	Three months ended March 31,	
(In Thousands)	2018	2017
Net cash used in operating activities	$(4,185)	$(3,566)
Net cash used in investing activities	(16)	(236)
Net cash used in financing activities	(2,764)	(1,547)
Net decrease in cash, cash equivalents and restricted cash	$(6,965)	$(5,349)

We have historically experienced negative cash flows from operations as we continue to invest in key technology development projects and improvements to our CodeEvolver® protein engineering technology platform, and expand our business development and collaborations with new customers. Our cash flows from operations will continue to be affected principally by sales and gross margins from licensing our technology to major pharmaceutical companies, product revenue and collaborative research and development services provided to customers, as well as our headcount costs, primarily in research and development. Our primary source of cash flows from operating activities is cash receipts from licensing our technology to major pharmaceutical companies, and our customers for purchases of products and/or collaborative research and development services. Our largest uses of cash from operating activities are for employee-related expenditures, rent payments, inventory purchases to support our product revenue and non-payroll research and development costs.

We are eligible to earn milestone and other contingent payments for the achievement of defined collaboration objectives and certain royalty payments under our collaboration agreements. Our ability to earn these milestone and contingent payments and the timing of achieving these milestones is primarily dependent upon the outcome of our collaborators' research and development activities and is uncertain at this time.

We are actively collaborating with new and existing customers in the pharmaceutical and food industries. We believe that we can utilize our current products and services, and develop new products and services, to increase our revenues and gross margins in future periods.

As of March 31, 2018, we had cash and cash equivalents of $24.3 million and $15.0 million available to borrow under the Credit Facility. Our liquidity is dependent upon our cash and cash equivalents, cash flows provided by operating activities and the continued availability of borrowings under the Credit Facility. In addition, in April 2018, we completed an underwritten public offering of 4,312,500 shares of our common stock at a public offering price of $9.25 per share resulting in net proceeds of approximately $37.2 million after deducting the underwriting discounts and commissions and estimated offering expenses.

We believe that based on our current level of operations, our existing cash and cash equivalents will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months.

However, we may need additional capital if our current plans and assumptions change. Our need for additional capital will depend on many factors, including the financial success of our business, the spending required to develop and commercialize new and existing products, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, and the potential costs for the filing, prosecution, enforcement and defense of patent claims, if necessary. If our capital resources are insufficient to meet our capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. If we raise debt financing or enter into credit facilities, we may be subject to restrictive covenants that limit our ability to conduct our business. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited. If this happens, we may be forced to delay or terminate research or development programs or the commercialization of products resulting from our technologies, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require us to relinquish commercial rights, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business.

Cash Flows from Operating Activities

Cash used in operating activities was $4.2 million net for the three months ended March 31, 2018, which resulted from a net loss of $4.7 million for the three months ended March 31, 2018 adjusted for non-cash charges for depreciation and amortization of $0.2 million and stock-based compensation of $2.0 million. Additional cash used by changes in operating assets and liabilities was $1.7 million. Changes in operating assets and liabilities included decreases of $3.9 million in accounts receivable due mainly to collections from customers and $5.9 million in deferred revenue, primarily due to recent recognition of revenue under ASC 606.

Cash used in operating activities was $3.6 million for the three months ended March 31, 2017, which resulted from a net loss of $7.5 million for the three months ended March 31, 2017 adjusted for non-cash charges for depreciation and amortization of $0.3 million and stock-based compensation of $1.7 million. Additional cash provided from changes in operating assets and liabilities was $1.9 million. Changes in operating assets and liabilities included a $1.0 million increase in deferred revenues, a $1.0 million increase in accrued compensation and a $0.5 million decrease in accounts receivable, which was partially offset by a $0.9 million decrease in accounts payable primarily reflecting the timing of payments.

Cash Flows from Investing Activities

Cash used in investing activities was $16 thousand and $0.2 million for the three months ended March 31, 2018 and 2017, respectively, which was primarily attributable to purchase of property and equipment.

Cash Flows from Financing Activities

Cash used in financing activities was $2.8 million for the three months ended March 31, 2018 which included $0.4 million proceeds from exercises of stock options partially offset by $3.1 million for taxes paid related to net share settlement of equity awards. Cash used in financing activities was $1.5 million for the three months ended March 31, 2017 which is primarily attributable to $1.6 million of taxes paid related to net share settlement of equity awards.

Contractual Obligations

The following table summarizes our significant contractual obligations at March 31, 2018 (in thousands):

	Payments due by period			
(In Thousands)	Total	Less than 1 year	1-3 years	4-5 years
Capital lease obligations	$567	$254	$313	$—
Operating leases obligations (1)	6,920	2,397	3,992	531
Total	$7,487	$2,651	$4,305	$531

(1) Represents future minimum lease payments under non-cancellable operating leases in effect as of March 31, 2018 for our facilities in Redwood City, California. The minimum lease payments above do not include common area maintenance charges or real estate taxes. In addition, amounts have not been reduced by future minimum sublease rentals of $1.4 million to be received under non-cancellable subleases.

Other Commitments

We have other commitments related to supply and service arrangements entered into the normal course of business. For additional information about other commitments, see Note 11, "Commitments and Contingencies" in the accompanying notes to the unaudited condensed consolidated financial statements. Future minimum payments reflect amounts those obligations are expected to have on our liquidity and cash flows in future period and include obligations subject to risk of cancellation by us (in thousands):

Other Commitment Agreement Type	Agreement Date	Future Minimum Payment
Manufacture and supply agreement with expected future payment date of December 2022	April 2016	$ 1,693
Service agreement for the development of manufacturing process	April 2017	93
Service agreement for stability study	July 2017	388
Service agreement for clinical trial	December 2017	$ 1,825
Total other commitments		$ 3,999

In June 30, 2017, we entered into a credit facility consisting of term loans totaling up to $10.0 million, and advances under a revolving line of credit totaling up to $5.0 million with an accounts receivable borrowing base of 80% of certain eligible accounts receivable. We may draw on the term debt at any time prior to June 30, 2018, subject to customary conditions for funding including, among others, that no event of default exists. The credit facility terminates July 1, 2021. Term debt loans bear interest through maturity at a variable rate based on the London Interbank Offered Rate plus 3.60%. Advances under the revolving line of credit bear interest at a variable annual rate equal to the greater of (i) 1.00% above the prime rate and (ii) 5.00%. No amounts were drawn down under the credit facility as of March 31, 2018. For additional information about our credit facility, see Note 11, "Commitments and Contingencies" in the accompanying notes to the unaudited condensed consolidated financial statements.

Off-Balance Sheet Arrangements

As of March 31, 2018, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4) of Regulation S-K as promulgated by the SEC.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make judgments, estimates and assumptions in the preparation of our consolidated financial statements and accompanying notes. Actual results could differ from those estimates. There have been no material changes to our critical accounting policies or estimates during the three months ended March 31, 2018 from those discussed in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 15, 2018, except for our critical accounting policies and estimates on revenue recognition as a result of our adoption of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASC 606"), which is detailed below.

Revenue Recognition

On January 1, 2018, we adopted the provisions of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606) ("ASC 606"). The guidance provides a unified model to determine how revenue is recognized.

Our revenues are derived primarily from product sales and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services. We account for individual products and services separately if they are distinct, that is, if a product or service is separately identifiable from other items in the contract and if a customer can benefit from it on its own or with other resources that are readily available to the customer.

In determining the appropriate amount of revenue to be recognized as we fulfill our obligations under our product revenue and collaborative research and development agreements, we perform the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) we satisfy each performance obligation.

The majority of our contracts contain multiple revenue streams from up-front annual license fees, fees for full time employee ("FTE") research and development services, contingent milestone payments upon achievement of contractual criteria and royalty fees based on the licensees' product revenue or usage, among others. We estimate the stand-alone selling price ("SSP") and allocate consideration to distinct performance obligations. Typically, we base our SSPs on our historical sales. If an SSP is not directly observable, then we estimate the SSP taking into consideration market conditions, entity-specific factors and available information about the customer.

We account for a contract with a customer when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Non-cancellable purchase orders received from customers to deliver a specific quantity of product, when combined with our order confirmation, in exchange for future consideration, create enforceable rights and obligations on both parties and constitute a contract with a customer.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

The following is a description of principal activities from which we generate revenue:

Product Revenue

Product revenue consist of sales of protein catalysts, pharmaceutical intermediates and Codex® Biocatalyst Panels and Kits. A majority of our product revenue are recognized at a point in time when the control of the product has been transferred to the customer. For some of the products that we develop, we recognize revenue over time as we have a right to payment from the customer under a binding, non-cancellable purchase order, and there is no alternate use of the product for us as it is specifically made for the customer’s use.

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us to

exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the

range of discounts that we typically give for that product or service, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We have elected to account for options which provide material rights using the alternative approach available under ASC 606, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimate of future goods to be ordered by customers change.

Research and Development Revenue

We perform research and development activities as specified in each respective customer agreement. We identify each performance obligation in our research and development agreements at contract inception. We exercise significant judgment when determining whether a performance obligation is distinct within the context of the contract. We allocate the consideration to each distinct performance obligation based on the estimated standalone selling price ("SSP") of each performance obligation. Performance obligations included in our research and services agreements typically include research and development services for a specified term, periodic reports and small samples of enzyme produced.

The majority of our research and development agreements are based on a contractual rate per full time equivalent ("FTE") working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress, typically based on FTE hours incurred.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. Under ASC 606, we must first determine whether the license is distinct from other promises, such as our promise to manufacture a product. If we determine that the customer cannot benefit from the license without our manufacturing capability, the license will be accounted for as combined with other performance obligations. If we determine that a license is distinct, we would recognize revenues from non-refundable, up-front license fees when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using an income approach model which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate and the probability of technical and regulatory success. For licenses that have been previously sold to other customers, we use historical information to determine SSP.

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

Our CodeEvolver® platform technology transfer collaboration agreements typically include license fees, upfront fees and variable consideration in the form of milestone payments and sales or usage-based royalties. We recognize revenues from our platform technology transfer agreements over time as our customer learns to use our technology.

For agreements that include sales or usage-based royalty payments to us, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk Management

Our cash flows and earnings are subject to fluctuations due to changes in foreign currency exchange rates, interest rates and other factors. These market risk exposures are disclosed in Part II, Item 7A of our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 15, 2018.

Interest Rate Sensitivity

In June 30, 2017, we entered into a credit facility agreement consisting of term loans totaling up to $10.0 million, and advances under a revolving line of credit totaling up to $5.0 million. Draws on the term debt bear interest at a variable rate based on the London Interbank Offered Rate plus 3.60%. Advances under the revolving line of credit bear interest at a variable annual rate equal to the greater of (i) 1.00% above the prime rate and (ii) 5.00%. Increases in these variable interest rates will increase our future interest expense and decrease our results of operations and cash flows. No amounts were drawn down under the credit facility as of March 31, 2018.

Equity Price Risk

As described in Note 6, "Cash Equivalents and Marketable Securities" and Note 7, "Fair Value Measurements" to the condensed consolidated financial statements, we have an investment in common shares of CO_2 Solutions, whose shares are publicly traded in Canada on the TSX Venture Exchange. As of March 31, 2018, the fair value of our investment in CO_2 Solutions' common stock was $0.7 million. Unrealized gain from change in the fair value of CO_2 Solutions was $26 thousand during the three months ended March 31, 2018.

This investment is exposed to fluctuations in both the market price of CO_2 Solutions' common shares and changes in the exchange rate between the U.S. dollar and the Canadian dollar. The effect of a 10% adverse change in the market price of CO_2 Solution's common shares as of March 31, 2018 would have been an unrealized loss of approximately $0.1 million, recognized in earnings. The effect of a 10% adverse change in the exchange rate between the U.S. dollar and the Canadian dollar as of March 31, 2018 would have been an unrealized loss of approximately $0.1 million, recognized in earnings.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures and internal controls that are designed to provide reasonable assurance that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our principal executive officer and our principal financial and accounting officer, as appropriate, to allow timely decisions regarding required disclosure.

Our management, including our principal executive officer and our principal financial and accounting officer, evaluated the effectiveness of our disclosure controls and procedures as defined by Rules 13a-15(e) and 15d-15(e) of the Exchange Act. Based on this review, our principal executive officer and our principal financial and accounting officer concluded that these disclosure controls and procedures were effective as of March 31, 2018 at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Exchange Act Rules 13a-15 or 15d-15 that occurred during our last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. We implemented internal controls to ensure we adequately evaluated our contracts and properly assessed the impact of ASC 606, Revenue from Contracts with Customers, to facilitate its adoption on January 1, 2018. There were no significant changes to our internal control over financial reporting due to the adoption of this new standard.

Inherent Limitations on Effectiveness of Controls

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, even if determined effective and no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives to prevent or detect misstatements. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are not currently a party to any material pending litigation or other material legal proceedings.

In February 2018, we and EnzymeWorks, Inc. (U.S.), Suzhou Hanmei Biotechnology Co. Ltd, d/b/a EnzymeWorks, Inc. (China) (collectively, "EnzymeWorks"), Junhua Tao, and Andrew Tao reached a settlement concerning the lawsuit filed by us in February 2016 against EnzymeWorks, Junhua Tao, and Andrew Tao in the United States District Court for the Northern District of California. The parties have entered into a settlement agreement, the terms of which are confidential. The parties have also stipulated to a judgment of patent infringement of all asserted patents against EnzymeWorks, and a permanent injunction barring any future infringement. The remaining claims against EnzymeWorks, and all claims against Junhua Tao, and Andrew Tao including trade secret misappropriation, breach of contract and voidable transfer have been dismissed with prejudice.

ITEM 1A. RISK FACTORS

We have included in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2017, a description of certain risks and uncertainties that could affect our business, future performance or financial condition (the “Risk Factors"). During the three months ended March 31, 2018, there were no material changes from the disclosure provided in the Form 10-K for the year ended December 31, 2017 with respect to the Risk Factors. Investors should consider the Risk Factors prior to making an investment decision with respect to our stock.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Effective June 30, 2017, we entered into a credit facility consisting of a term debt note for loans totaling up to $10.0 million, and advances under a revolving line of credit totaling up to $5.0 million. Covenants in the credit facility limit our ability to pay dividends or make other distributions. For additional information see Note 11, "Commitments and Contingencies" in the accompanying notes to the unaudited condensed consolidated financial statements.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

Not applicable.

ITEM 6. EXHIBITS

3.1	Amended and Restated Certificate of Incorporation of Codexis, Inc. filed with the Secretary of the State of the State of Delaware on April 27, 2010 and effective as of April 27, 2010 (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed on May 28, 2010).
3.2	Certificate of Designations of Series A Junior Participating Preferred Stock of Codexis, Inc., filed with the Secretary of State of the State of Delaware on September 4, 2012 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on September 4, 2012).
3.3	Amended and Restated Bylaws of Codexis, Inc. effective as of April 27, 2010 (incorporated by reference to Exhibit 3.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed on May 28, 2010).
4.1	Reference is made to Exhibits 3.1 through 3.3.
4.2	Form of the Company's Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.
101	The following materials from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017, formatted in Extensible Business Reporting Language (XBRL) includes: (i) Unaudited Condensed Consolidated Balance Sheets at March 31, 2018 and December 31, 2017, (ii) Unaudited Condensed Consolidated Statements of Operations for the Three Months Ended March 31, 2018 and 2017, (iii) Unaudited Condensed Consolidated Statements of Comprehensive Loss for the Three Months Ended March 31, 2018 and 2017, (iv) Unaudited Condensed Consolidated Statements of Cash Flows for the Three Months Ended March 31, 2018 and 2017, and (v) Notes to Unaudited Condensed Consolidated Financial Statements.

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.

Codexis, Inc.

Date: May 10, 2018 By: /s/ John J. Nicols
John J. Nicols
President and Chief Executive Officer
(principal executive officer)

Date: May 10, 2018 By: /s/ Gordon Sangster
Gordon Sangster
Chief Financial Officer
(principal financial and accounting officer)