UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended: December 31, 2015

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from to .

Commission File No.: 001-34705

Codexis, Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**71-0872999**
(State or other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
200 Penobscot Drive, Redwood City, California	**94063**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's telephone number, including area code: (650) 421-8100
Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class:	**Name of Each Exchange on which Registered:**
Common Stock, par value $0.0001 per share	The NASDAQ Global Select Market

Securities Registered Pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 229.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

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

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

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

The aggregate market value of voting common stock held by non-affiliates of Codexis as of June 30, 2015 was approximately $108.2 million based upon the closing price reported for such date on The NASDAQ Global Select Market.

As of February 26, 2016, there were 40,472,708 shares of the registrant's Common Stock, par value $0.0001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement to be filed with the Commission pursuant to Regulation 14A in connection with the registrant's 2016 Annual Meeting of Stockholders, to be filed subsequent to the date hereof, are incorporated by reference into Part III of this Report. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission not later than 120 days after the conclusion of the registrant's fiscal year ended December 31, 2015. Except with respect to information specifically incorporated by reference in this Form 10-K, the Proxy Statement is not deemed to be filed as part of this Form 10-K.

Codexis, Inc.
Annual Report on Form 10-K
For The Year Ended December 31, 2015

INDEX

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The following discussion and analysis should be read in conjunction with our audited consolidated financial statements and the related notes that appear elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, particularly in Part I, Item 1: "Business," Part I, Item 1A: "Risk Factors" and Part 2, Item 7: "Management's Discussion and Analysis of Financial Condition and Results of Operations." 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. All statements other than statements of historical fact could be deemed forward-looking, including, but not limited to: any projections of financial information; any statements about historical results that may suggest trends for our business; any statements of the plans, strategies, and objectives of management for future operations; any statements of expectation or belief regarding future events, technology developments, our products, product sales, expenses, liquidity, cash flow, market growth rates or enforceability of our intellectual property rights and related litigation expenses; and any statements of assumptions underlying any of the foregoing. 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. Accordingly, we caution you not to place undue reliance on these statements. For a discussion of some of the factors that could cause actual results to differ materially from our forward-looking statements, see the discussion on risk factors that appear in Part I, Item 1A: "Risk Factors" of this Annual Report on Form 10-K and other risks and uncertainties detailed in this and our other reports and filings with the Securities and Exchange Commission ("SEC"). The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. 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 Annual Report on Form 10-K.

PART I

ITEM 1. BUSINESS

Company Overview

We develop biocatalysts for the pharmaceutical and fine chemicals markets. Our proven technologies enable scale-up and implementation of biocatalytic solutions to meet customer needs for rapid, cost-effective and sustainable process development, from research to manufacturing.

Biocatalysts are enzymes that initiate and/or accelerate chemical reactions. Manufacturers have historically used naturally occurring biocatalysts to produce many goods used in everyday life. However, inherent limitations in naturally occurring biocatalysts have restricted their commercial use. Our proprietary CodeEvolver® protein engineering technology platform, which introduces genetic mutations into genes in order to give rise to changes in the enzymes that they produce, is able to overcome many of these limitations, allowing us to evolve and optimize biocatalysts to perform specific and desired chemical reactions at commercial scale. Once potentially beneficial mutations are identified through this proprietary process, combinations of these mutations can then be tested until variant enzymes have been created that exhibit marketable performance characteristics superior to competitive products. This process allows for continuous, efficient improvements to the performance of enzymes. In the past, we implemented the CodeEvolver® protein engineering technology platform through paid collaborations with our customers. In July 2014, we entered into our first license agreement pursuant to which we granted a license to a global pharmaceutical company to use the CodeEvolver® protein engineering technology platform for their internal development purposes. In August 2015, we entered into a second license agreement involving the CodeEvolver® protein engineering technology platform with another global pharmaceutical company and we continue to pursue platform licensing opportunities with additional customers.

We have commercialized our technology and products in the pharmaceuticals market, which is our primary business focus. Our pharmaceutical customers, which include several of the large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development.

We also use our technology to develop biocatalysts 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 and fragrances, and agricultural chemicals.

We have also used our technology to develop an early stage, novel enzyme therapeutic product candidate for the potential treatment of phenylketonuria ("PKU") in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient.

We are actively collaborating with new and existing customers in the pharmaceutical and other markets.

In this Annual Report, the "Company," "we," "us" and "our" refer to Codexis, Inc. and its subsidiaries on a consolidated basis.

Our Pharmaceutical Enzymes and Intermediates

Our pharmaceutical products include enzymes, pharmaceutical intermediates and Codex® Biocatalyst Kits and Panels. We market and sell enzymes, development services and Codex® Biocatalyst Kits and Panels screening tools that enable novel manufacturing processes for active pharmaceutical ingredients ("APIs") and their precursor pharmaceutical intermediates. We also market and sell pharmaceutical intermediates that are manufactured using our custom enzymes. Our customers include several large global pharmaceutical companies.

We sell our products and services to both the generic and innovator pharmaceutical end markets. Our products and services have been adopted at various points of the pharmaceutical product lifecycle, from early-stage clinical testing to post-launch commercialization.

Our Fine Chemicals Enzymes and Intermediates

We entered the fine chemicals market in 2013, specifically through application of our biocatalysis technology in the commercial food space when we signed a joint development agreement with a market-leading food ingredients company. Our existing technology is a natural fit for the fine chemicals market and we are seeking to expand our opportunities to several market segments beyond the food market, including, for example, the animal feed, agricultural chemicals, and flavors and fragrances markets. In addition to developing biocatalyst processes for the manufacture of commercial goods using our biocatalysts, we also hope to satisfy our customers' biocatalyst manufacturing and supply needs.

Our Novel Enzyme Therapeutic Developments

We have developed a novel enzyme therapeutic product candidate for the potential treatment of PKU via oral administration. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. As a result, phenylalanine accumulates in high levels in the brain causing serious neurological problems, including intellectual disability, seizures and cognitive and behavioral problems. Phenylalanine is found in many foods, including meat, dairy products, fish, poultry and many fruits and vegetables. We continue to invest in the evaluation of our preclinical therapeutic enzyme candidate for the potential treatment of PKU. We have filed patent applications covering the composition of matter for our therapeutic enzymes and the use of these enzymes as a treatment for PKU. In addition to the PKU program, we are planning to make modest additional investments in 2016 with the aim of generating additional product candidates targeting other therapeutic areas.

Our Strategy

Our strategy is to grow our business by leveraging our CodeEvolver® protein engineering technology platform in the following ways:

Licensing our CodeEvolver® protein engineering technology platform. We intend to continue to license our CodeEvolver® protein engineering technology platform to our partners for their in-house protein engineering.

Continuing to grow our pharmaceutical biocatalysis product business. We intend to continue to pursue opportunities in the pharmaceutical industry to integrate biocatalysts to reduce the cost for small molecule drug manufacturers.

Continuing to grow our fine chemicals biocatalysis product business. We intend to continue to pursue opportunities in the fine chemicals market to use biocatalysts to reduce the costs for manufacturing in adjacent markets like food and food ingredients.

Expanding our pharmaceutical R&D services. We intend to continue to pursue opportunities in the pharmaceutical industry to enable the discovery or improve the manufacture of our customers' drug candidates.

Expanding our fine chemicals R&D services. We intend to pursue the development of opportunities in the fine chemical industry to enable the cost-efficient manufacture of chemical intermediates for food, agricultural chemicals, flavors and fragrances and other industries.

Creating and advancing novel therapeutics. We intend to advance our own novel enzyme therapeutic candidate for the potential treatment of PKU. We also intend to invest in R&D in an effort to generate early stage novel therapeutic candidates
Our therapeutic candidate for the potential treatment of PKU and any other therapeutic candidates that we generate will be developed either with a partner or by ourselves.

License Our CodeEvolver® Protein Engineering Technology Platform

Our CodeEvolver® protein engineering technology platform enables rapid development of custom-designed enzymes that are highly optimized for efficient manufacturing processes. We intend to continue to enter into license arrangements with third parties that will allow the third parties to use our CodeEvolver® protein engineering technology platform to discover and develop novel proteins for their internal use.

GlaxoSmithKline

We entered into our first CodeEvolver® protein engineering technology Platform Technology Transfer, Collaboration and License Agreement ("GSK CodeEvolver® Agreement") on July 10, 2014 with GlaxoSmithKline Intellectual Property Development Limited, a subsidiary of GlaxoSmithKline plc (collectively, "GSK").

The GSK CodeEvolver® Agreement allows GSK to use our proprietary CodeEvolver® protein engineering technology platform in the field of human healthcare. The CodeEvolver® protein engineering technology platform enables rapid development of custom-designed enzymes that are highly optimized to enable more efficient manufacturing processes. The CodeEvolver® protein engineering technology platform, which is comprised of proprietary methods for the design and generation of diverse genetic libraries, automated screening techniques, algorithms for the interpretation of screening data and predictive modeling, is covered by more than 170 issued patents and patent applications worldwide.

Under the terms of the GSK CodeEvolver® Agreement, we granted to GSK a non-exclusive, worldwide license to use our CodeEvolver® protein engineering technology platform to develop novel enzymes for (a) the manufacture and commercialization of compounds, molecules and products for the treatment of any human disease or medically treatable human

condition, (b) the prophylaxis, diagnosis or treatment of any human disease or medically treatable human condition, and (c) the research and development of compounds, molecules and products for the treatment of any human disease or medically treatable human condition (the "Field"). This license to GSK is exclusive for the use of our CodeEvolver® protein engineering technology platform to develop novel enzymes for the synthesis of small-molecule compounds owned or controlled by GSK (the "GSK Exclusive Field"). GSK has the right to grant sublicenses to affiliates of GSK and, in certain limited circumstances, to third parties. We also granted a license to GSK to make or have made products developed using our CodeEvolver® protein engineering technology platform, with a right to grant sublicenses solely to affiliates of GSK, contract manufacturing organizations and contract research organizations. This manufacturing license is exclusive in the GSK Exclusive Field and otherwise non-exclusive in the Field. The licenses granted by us to GSK are subject to certain limitations based on pre-existing contractual obligations that apply to the technology and intellectual property that is the subject of the license grants. In addition, GSK is prohibited from using our CodeEvolver® protein engineering technology platform to develop or produce any enzymes or other compounds for or on behalf of any third party except that GSK can exercise its license rights in connection with certain research and development programs jointly performed with a bona fide third party collaborator so long as GSK uses our CodeEvolver® protein engineering technology platform independently from the third party collaborator and complies with all of the other restrictions and obligations under the GSK CodeEvolver® Agreement.

Under the GSK CodeEvolver® Agreement, we are transferring our CodeEvolver® protein engineering technology platform to GSK over an estimated three-year period that began on July 10, 2014, the effective date of the GSK CodeEvolver® Agreement. As a part of this technology transfer, we provide to GSK our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. In addition, teams of our and GSK scientists participate in technology training sessions and collaborative research projects at our laboratories in Redwood City, California and at GSK's laboratories in Upper Merion, Pennsylvania. Upon completion of technology transfer, GSK will have our CodeEvolver® protein engineering technology platform installed at its Upper Merion, Pennsylvania site.

The licenses to GSK were granted under certain of the patents, patent applications and know-how that we own or control as of the effective date of the GSK CodeEvolver® Agreement and that cover our CodeEvolver® protein engineering technology platform and certain enzymes useful in the Field. Any improvements to our CodeEvolver® protein engineering technology platform during the technology transfer period will also be included in the license grants from us to GSK. At the end of the technology transfer period, GSK can exercise an option (the "Option"), upon payment of certain option fees, that would extend GSK's license to include certain improvements to our CodeEvolver® protein engineering technology platform that arise during a three-year period that begins at the end of the technology transfer period (the "Option Extension Period").

Under the GSK CodeEvolver® Agreement, we will own any improvements to our protein engineering methods, processes and algorithms that arise from our or GSK activities during the technology transfer period, and if GSK exercises the Option, during the Option Extension Period. GSK will own (the "GSK-Owned Technology") (a) any enzyme technology that is developed during a project under the GSK CodeEvolver® Agreement that uses our CodeEvolver® protein engineering technology platform during the technology transfer period, and if GSK exercises the Option, during the Option Extension Period (a "Project Enzyme") and (b) the methods of use of any Project Enzyme in compound synthesis that are developed during the technology transfer period, and if GSK exercises the Option, during the Option Extension Period. GSK granted to us a worldwide, non-exclusive, fully paid-up, royalty-free license, with the right to grant sublicenses, to use outside of the GSK Exclusive Field the GSK-Owned Technology that is developed during the technology transfer period.

Until July 10, 2019 (the "Embargo Period"), GSK is prohibited from using the CodeEvolver® protein engineering technology platform for the use, research or development (whether in vitro or in vivo) or commercialization of any enzyme or enzyme fusion protein that (a) effects a chemical transformation in humans or (b) facilitates, assists, transports or enables the action, dispersion, absorption or bioavailability of a molecule, biologic agent, drug product, therapeutic agent or other compound in humans (the "Embargo Field"). GSK is permitted to use our CodeEvolver® protein engineering technology platform during the Embargo Period to develop and use an enzyme or enzyme fusion protein that (x) is used by GSK solely as a research reagent or a research tool within the Embargo Field, (y) is used to synthesize a small-molecule compound owned or controlled by GSK or (z) facilitates, assists, transports or enables the action, dispersion, absorption or bioavailability of a small-molecule compound that is owned or controlled by GSK.

The term of the GSK CodeEvolver® Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the GSK CodeEvolver® Agreement. At any time following the completion of the first technology transfer stage, GSK can terminate the GSK CodeEvolver® Agreement by providing 90 days written notice to us. If GSK exercises this termination right during the technology transfer agreement, GSK will pay us a one-time termination payment.

As of December 31, 2015, we completed Wave 1 and Wave 2 of the transfer of our CodeEvolver® protein engineering technology platform to GSK. In addition to the $6.0 million upfront payment and $5.0 million Wave 1 technology transfer milestone payment received from GSK in 2014, in 2015 we received a $6.5 million technology transfer milestone payment

from GSK for the successful completion of Wave 2. We are eligible to receive an additional $7.5 million payment from GSK subject to the satisfactory completion of Wave 3 of the technology transfer. We are also eligible to receive additional contingent milestone payments under the GSK CodeEvolver® Agreement that range from $5.75 million to $38.5 million per project based on GSK's successful application of the licensed technology. In addition, we are eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using the CodeEvolver® protein engineering technology platform.

Merck

On August 3, 2015, we entered into a Platform Technology Transfer and License Agreement (the "Merck CodeEvolver® Agreement") with Merck, Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc. (collectively, "Merck").

The Merck CodeEvolver® Agreement allows Merck to use our proprietary CodeEvolver® protein engineering platform technology in the field of human and animal healthcare.

Under the terms of the Merck CodeEvolver® Agreement, we granted to Merck a non-exclusive, worldwide license to use our CodeEvolver® protein engineering technology platform to research, develop and manufacture novel enzymes for use by Merck for its internal research programs ("Merck Non-Exclusive Field"). The license to Merck is exclusive for the research, development and manufacture of novel enzymes for use by Merck in the chemical synthesis of therapeutic products owned or controlled by Merck ("Merck Exclusive Field"). Merck has the right to grant sublicenses to affiliates of Merck and, in certain limited circumstances, to third parties. We also granted to Merck a license to make or have made products manufactured using the CodeEvolver® protein engineering technology platform with a right to grant sublicenses solely to affiliates of Merck, contract manufacturing organizations and contract research organizations. The manufacturing license is exclusive in the Merck Exclusive Field and non-exclusive in the Merck Non-Exclusive Field. The licenses are subject to certain limitations based on pre-existing contractual obligations that apply to the technology and intellectual property that are the subject of the license grants. The licenses do not permit the use of the CodeEvolver® protein engineering technology platform to discover any therapeutic enzyme, diagnostic product or vaccine. In addition, Merck is prohibited from using the CodeEvolver® protein engineering technology platform to develop or produce enzymes or any other compounds for or on behalf of any third parties except in a very limited manner when Merck divests a therapeutic product that is manufactured using an enzyme developed using the CodeEvolver® protein engineering technology platform.

Under the terms of the Merck CodeEvolver® Agreement, Merck will pay us up to $18.0 million in technology transfer milestone payments over the period of approximately 15 to 24 months from August 3, 2015, the effective date of the Merck CodeEvolver® Agreement. We also have the potential to receive product-related payments of up to $15.0 million for each API that is manufactured by Merck using one or more enzymes that have been developed or are in development using the CodeEvolver® protein engineering technology platform during the 10-year period that begins on the conclusion of the 15 to 24 month technology transfer period. These product-related payments, if any, will be paid by Merck to us for each quarter that Merck manufactures API using a CodeEvolver®-developed enzyme. The payments will be based on the total volume of API produced using the CodeEvolver®-developed enzyme. We have the right to conduct an annual audit to confirm that all payments that are owed to us have been paid in full and on time.

Under the Merck CodeEvolver® Agreement, we are transferring our CodeEvolver® protein engineering platform technology to Merck during the technology transfer period. As a part of this technology transfer, we provide to Merck our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. In addition, teams of our and Merck scientists participate in technology training sessions and collaborative research projects at our laboratories in Redwood City, California and at a designated Merck laboratory. Upon completion of technology transfer, Merck will have CodeEvolver® protein engineering technology platform installed at its designated site.

The licenses to Merck are granted under patents, patent applications and know-how that we own or control as of the effective date and that cover the CodeEvolver® protein engineering technology platform. Any improvements to the CodeEvolver® protein engineering technology platform during the technology transfer period will also be included in the license grants from us to Merck. At the end of the technology transfer period, Merck can exercise annual options that, upon payment of certain option fees, would extend Merck's license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during the three-year period that begins at the end of the technology transfer period.

Through November 3, 2016, we will provide additional enzyme evolution services to Merck, at no additional cost, at our laboratories in Redwood City.

Under the Merck CodeEvolver® Agreement, we will own any improvements to our protein engineering methods, processes and algorithms that arise and any enzyme technology or process technology that is developed during a technology transfer project, an evolution program or any additional services. Merck will own (the "Merck-Owned Technology") (a) any enzyme technology that is developed solely by Merck under the Merck CodeEvolver® Agreement using the CodeEvolver® protein

engineering platform technology (a "Project Enzyme") and (b) the methods of use of any Project Enzyme or any enzyme developed jointly by Merck and us using the CodeEvolver® protein engineering technology platform. Merck granted to us a worldwide, non-exclusive, fully paid-up, royalty-free license, with the right to grant sublicenses, to use the Merck-Owned Technology outside of the Merck Exclusive Field.

For each API that Merck manufactures using an enzyme developed using the CodeEvolver® protein engineering technology platform, we will have a right of first refusal to supply Merck with the enzyme used to manufacture the API if Merck outsources the supply of the enzyme. Our right of first refusal applies during the period that begins on the completion of a phase III clinical trial for the product containing the API and ends five years following regulatory approval for such product.

The Merck CodeEvolver® Agreement has a term that continues, unless earlier terminated, until the expiration of all payment obligations under the Merck CodeEvolver® Agreement. Merck may terminate the Merck CodeEvolver® Agreement by providing 90 days written notice to us. If Merck exercises this termination right during the technology transfer period, Merck will make a one-time termination payment of $8.0 million to us. We can terminate the Merck CodeEvolver® Agreement by providing 30 days written notice to Merck if we determine, pursuant to our contractual audit rights under the agreement, that Merck has repeatedly failed to make required payments to us and/or materially underpaid us an amount due under the Merck CodeEvolver® Agreement. In the event the Merck CodeEvolver® Agreement is terminated early by Merck, or by us due to an uncured material breach by Merck, or if Merck sells or transfers to a third party any Merck business or facility that includes any of our proprietary materials, information or technology, we have the right to conduct an audit of Merck's facilities to confirm that all of our proprietary materials, information and technology have been destroyed. The Merck CodeEvolver® Agreement contains indemnification provisions under which we and Merck have agreed to indemnify each other against certain third party claims.

As of December 31, 2015, we completed Wave 1 of the transfer of our CodeEvolver® protein engineering technology platform to Merck. In 2015, we received from Merck a $5.0 million upfront payment and a $5.0 million Wave 1 technology transfer milestone payment. We are eligible to receive an additional $8.0 million payment from Merck subject to the satisfactory completion of Wave 2 of the technology transfer. We are also eligible to receive payments of up to $15.0 million for each commercial API that is manufactured by Merck using one or more novel enzymes that have been developed by Merck using the CodeEvolver® protein engineering technology platform.

Our Pharmaceutical Products and Services

Our Opportunity in the Pharmaceutical Market

The pharmaceutical industry represents a significant market opportunity for us and is our primary business focus. Pharmaceutical companies are now under significant competitive pressure both to reduce costs and to increase the speed to market for their products. To meet these pressures, pharmaceutical companies seek manufacturing processes for their new and existing drugs that reduce overall costs, simplify production and increase efficiency and product yield, while not affecting drug safety and efficacy. In addition, for pharmaceutical products whose patents have expired, the importance of cost reduction is even higher, as the manufacturers that developed those patent-protected drugs, known as innovators, compete with manufacturers of generic drugs.

The pharmaceutical product lifecycle begins with the discovery of new chemical entities and continues through preclinical and clinical development, product launch, commercial scale-up and, ultimately, patent expiration and the transition from branded to generic products. As innovators develop, produce and then market products, manufacturing priorities and processes evolve. Historically, innovators have focused on production cost reduction in the later stages of clinical development and have been reluctant to make process changes after a product has been launched. However, as pressures to reduce costs have increased, innovators have pursued cost reduction measures much earlier in the pharmaceutical product lifecycle and are increasingly looking for opportunities to improve their operating margins, including making manufacturing process changes for marketed products after the products have been launched if these changes can result in significant cost reductions. As a result, innovators are investing in new technologies to improve their manufacturing productivity and efficiency or outsourcing the manufacture of their intermediates and APIs.

Our Solution for the Pharmaceutical Market

Our CodeEvolver® protein engineering technology platform enables us to deliver solutions to our customers in the pharmaceutical market by developing and delivering optimized enzymes that perform chemical transformations at a lower cost and improve the efficiency and productivity of manufacturing processes. We provide value throughout the pharmaceutical product lifecycle. Our pharmaceutical products and services allow us to provide benefits to our customers in a number of ways, including:

- reducing the use of raw materials and intermediate products;
- reducing the number of processing steps;
- improving product yield;
- using water as a primary solvent;
- performing reactions at or near room temperature and pressure;
- eliminating the need for certain costly manufacturing equipment;
- reducing energy requirements;
- reducing the need for late-stage purification steps;
- reducing the generation of chemical byproducts or waste;
- eliminating multiple steps in the manufacturing process; and
- eliminating hazardous inputs.

Early in the product lifecycle, customers can use our products and services to achieve speed to market and to reduce manufacturing costs. If an innovator incorporates our products or processes into a U.S. Food and Drug Administration ("FDA") approved product, we expect the innovator to continue to use these products or processes over the patent life of the approved drug.

After a product is launched, customers can also use our products and services to reduce manufacturing costs. At this stage, changes in the manufacturing process originally approved by the FDA may require additional regulatory review. Typically, pharmaceutical companies will only seek FDA approval for a manufacturing change if there are substantial cost savings associated with the change. We believe that the cost savings associated with our products may lead our customers to change their manufacturing processes for approved products and, if necessary, seek FDA approval of the new processes which incorporate our enzymes. Moreover, we believe these cost savings are attractive to generics manufacturers, who compete primarily on price.

Pharmaceutical Products and Services

Codex® Biocatalyst Panels and Kits. We sell Codex® Biocatalyst Panels and Kits to customers who are engaged in both drug development and drug manufacturingto allow them to screen and identify possible enzymes that can be applied in the manufacturing processes for their drug candidates and their marketed products. Codex® Biocatalyst Panels are tools that provide genetically diverse variants of our proprietary enzymes, which allow our customers to determine whether an enzyme produces a desired activity that is applicable to a particular process. Codex® Biocatalyst Kits provide subsets of the Codex® Biocatalyst Panel enzymes in individual vials for the same purpose.

For compounds that are in development, Codex® Biocatalyst Panels and Kits:

- allow innovators to screen and identify possible enzymatic manufacturing processes rapidly and inexpensively for many of their drug candidates in-house, without the risks of disclosing the composition of their proprietary molecules before they have received patent protection; and
- generate data that we can use to optimize enzymes rapidly for a particular reaction, if necessary, reducing the time required to generate a manufacturing process capable of supporting clinical trials with inexpensively produced, pure drugs.

We believe that our Codex® Biocatalyst Panels and Kits have helped us build early and broad awareness of the power and utility of our technology platform, and will increasingly lead to sales of our enzymes and enzyme optimization services, as well as intermediates and APIs made using our enzymes. Many of our pharmaceutical customers, which include several large global pharmaceutical companies, have used our Codex® Biocatalyst Panels and Kits. If our customers incorporate an enzymatic manufacturing process early in a product's lifecycle, they can reduce their manufacturing costs throughout that lifecycle, while we, in turn, could realize a long term revenue stream resulting from the use of our enzymes during that time. In addition, Codex® Biocatalyst Panels and Kits are increasingly used by our customers to evaluate the feasibility of changing the manufacturing process for their marketed products to an enzyme-enabled process.

Enzyme screening services. If a customer prefers, rather than subscribing to our Codex® Biocatalyst Panels or Kits to use for their own screening, they can send us their materials to test against our existing libraries of enzymes. If we detect desired activity in a specific enzyme, we can supply the customer with this enzyme or perform optimization services to improve the performance of the enzyme.

Enzyme optimization services. We work with our customers throughout the pharmaceutical product lifecycle to customize enzymes, resulting in optimized enzymes that have been evolved specifically to perform a desired process according to a highly selective set of specifications.

Our enzyme optimization services:

- allow innovators to improve the manufacturing process as their drug candidates progress through preclinical and clinical development, in some cases deferring or reducing the need for significant manufacturing investment until the likelihood of commercial success is more certain; and
- enable manufacturing processes that are highly efficient, inexpensive, require relatively little energy, reduce the need for hazardous reagents and reduce waste. For example, our activities with Merck have included developing an optimized enzymatic manufacturing process for a key intermediate that reduces a fourteen step manufacturing process to five steps.

Enzymes. We supply varying quantities of our enzymes to pharmaceutical companies, from small to moderate quantities while they are optimizing their production processes, to larger quantities during later-stage clinical development and commercial scale drug production.

Our enzymes:

- enable innovators to manufacture products more efficiently during preclinical and clinical development using optimized enzymatic processes, with relatively low investment;
- eliminate the need for innovators to invest in the development of complex chemical synthesis routes during the development stage;
- allow innovators to achieve higher product purity during the development stage prior to investing in expensive late-stage clinical trials;
- reduce the risk of adverse effects arising from product impurities;
- allow the removal of entire steps from synthetic chemical production routes during commercial scale production, reducing raw material costs, energy requirements and the need for capital expenditures; and
- decrease the manufacturing costs for our customers.

For instance, as a part of our ongoing collaboration with Merck, we have developed an enzyme for use in a manufacturing process for sitagliptin, the API in Merck's pharmaceutical product Januvia®. Januvia® is Merck's medication for the treatment of Type II diabetes.

Intermediates and APIs. We can supply our customers with intermediates and APIs made using our enzymes throughout the drug lifecycle.

Our supply of intermediates has the following uses and benefits:

- lowers capital investment for innovators through outsourcing of manufacturing; and
- provides a source of less expensive, more pure products to innovator and generics manufacturers.

We have developed enzymes for use in the manufacture of certain generic intermediates and APIs by various companies. In addition, we market several intermediates and APIs for the generic equivalents of branded pharmaceutical products for sale in markets where innovators have not sought patent protection for their products and intend to sell these same intermediates and APIs for use in markets where innovators have sought patent protection when the patent protection for each product expires.

Pharmaceutical Business Model

We typically enter into research collaborations with our pharmaceutical customers. These agreements often contain service and intellectual property provisions under which we develop optimized enzymes for innovator pharmaceutical companies in connection with their drug development efforts. In these collaborations, we typically receive consideration in the form of one or more of the following: up-front payments, milestone payments, payments for screening and optimization services and licensing fees and royalties.

Our pharmaceutical products include enzymes, pharmaceutical intermediates APIs, and Codex® Biocatalyst Panels and Kits. We sell our products primarily to pharmaceutical manufacturers through our directed sales and business development force in the United States and Europe.

Our Fine Chemicals Industry Products and Services

We entered the fine chemicals market in 2013, specifically through application of our biocatalysis technology in the commercial food space when we signed a joint development agreement with a market-leading food ingredients company. Our existing technology is a natural fit for the fine chemicals market and we believe that we are able to significantly leverage the technological innovations that we have developed in our pharmaceutical business to the fine chemicals market in order to provide fine chemicals customers with enzyme development and services similar to what we currently provide to our pharmaceutical customers.

We are seeking to expand our fine chemicals market opportunities beyond the food market, including for example, the animal feed, agricultural chemicals and flavors and fragrances markets. In addition to developing biocatalyst processes for the manufacture of commercial fine goods using our biocatalysts for the fine chemicals markets, we also hope to satisfy our fine chemicals customers' biocatalyst manufacturing and supply needs.

Discovery and Development of Biologic Drug Candidates

We are targeting new opportunities in the pharmaceutical industry to discover or improve biologic drug candidates for our customers. We believe that our CodeEvolver® protein engineering platform technology can be used to discover novel biologic drug candidates that will target indications that our customers select. Similarly, we believe that we can deploy our platform technology to improve specific characteristics of a customer's pre-existing biologic drug candidate. For example, we may be able to use our technology to improve the activity, stability or immunogenicity of a customer's biologic drug candidate.

Novel Enzyme Therapeutic Program

We have developed a novel enzyme therapeutic product candidate for the potential treatment of PKU via oral administration. PKU is an autosomal recessive genetic disorder caused by a mutation in the gene that encodes for the hepatic enzyme phenylalanine hydroxylase ("PAH"), making the enzyme deficient or nonfunctional. PAH is necessary to convert the essential amino acid phenylalanine into the amino acid tyrosine. Phenylalanine is found in many foods, including meat, dairy products, fish, poultry and many fruits and vegetables. Without functional PAH, high levels of phenylalanine accumulate in the body and cause serious neurological complications, including intellectual disability, seizures, mental illness, tremors and cognitive and behavioral problems. To avoid high levels of phenylalanine in their blood, individuals with PKU must follow a strict, life-long diet that is low in phenylalanine and supplement their diet with a synthetic phenylalanine-free formula to provide them with sufficient nutrients. Maintaining a strict, life-long diet can be challenging for individuals with PKU. There are an estimated 50,000 people with PKU in the developed world. PKU is considered a rare disease in the United States and the European Union. The United States and most other developed countries test for PKU as part of newborn screening programs.

We continue to invest in the evaluation of our preclinical therapeutic enzyme candidate for the potential treatment of PKU. We have filed patent applications covering the composition of matter for our therapeutic enzymes and the use of these enzymes as a treatment for PKU. In addition to the PKU program, we are planning to make modest additional investments in 2016 with the aim of generating additional product candidates targeting other therapeutic areas."

CodeEvolver® Protein Engineering Technology Platform

We engineer custom enzymes, which we sometimes refer to as biocatalysts. In simple terms, our biocatalysts accelerate chemical reactions. We use our CodeEvolver® protein engineering technology platform, which includes computational biology, molecular biology, biochemistry, and various other technologies to develop novel enzymes that enable industrial biocatalytic reactions and fermentations. Our technology platform has enabled commercially viable products and processes for the manufacture of pharmaceutical intermediates and active ingredients.

Our approach to developing commercially viable biocatalytic manufacturing processes begins by conceptually designing the most cost-effective and practical process for a targeted product. We then develop optimized biocatalysts to enable that process design, using our directed technology, including screening and validating biocatalysts under relevant conditions. Typical design criteria include stability in the desired reaction conditions, biocatalyst activity and productivity (yield), ease of product isolation, product purity and cost. Alternative approaches to biocatalytic process development typically involve designing and engineering the biocatalytic processes around shortcomings of available biocatalysts, including, for example, the use of dilute reaction systems, suboptimal solvents, special equipment and costly product isolation and purification methods. We circumvent

the need for these types of costly process design modifications by optimizing the biocatalyst for fitness in the desired process environment. As a result, we enable and develop 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 directed evolution technologies, 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.

Enzyme Optimization Overview

The enzyme optimization process starts by identifying genes that code for enzymes known to have the general type of catalytic reactivity for a desired chemical reaction. Typically, we identify gene sequences from our extensive in-house collection or from published databases and then synthesize candidate genes having those sequences. Using a variety of biotechnology tools, we diversify these genes by introducing mutations, giving rise to changes in the enzymes for which they encode. The methods for diversifying these genes, and types of diversity being tested, often vary over the course of an enzyme optimization program. For finding initial diversity, methods typically include random mutagenesis and site-directed (included structure-guided) mutagenesis. We also test mutational variations that distinguish related enzymes among different organisms. Once we have identified potentially beneficial mutations, we test combinations of these mutations in libraries made using our proprietary gene recombination methodologies, gene shuffling and automated parallel multiplexed gene SOEing (APS), where SOE is a PCR based technique, Splicing by Overlap Extension.

With our proprietary gene shuffling methodology, we generate libraries of genes that have programmed and random combinations of the mutations we are testing. The pool of genes is used to transform host cells, which entails introducing the various genes into host cells. These cells are then grown into colonies. Cells from individual colonies are cultured in high throughput to produce the enzyme encoded by the shuffled gene in those cells. The enzymes expressed by these cells are then screened in high throughput using test conditions relevant to the desired process. The screening results identify individual shuffled genes that produce improved enzymes having combinations of beneficial mutations and weed out enzymes having detrimental ones. Using different test conditions and/or different analytical methods, we can identify variant enzymes that exhibit various improved performance characteristics, such as stability, activity and selectivity, under conditions relevant to the desired chemical process.

In the next step in our optimization process, we use our proprietary software tools, ProSAR™ and MOSAIC®, to analyze protein sequence-activity relationships. ProSAR™ aids in identifying specific gene and enzyme mutations that are beneficial, neutral or detrimental with respect to the desired performance characteristics. MOSAIC® aids in identifying functional interactions of mutations within a specific gene or enzyme that are beneficial, neutral or detrimental with respect to the desired performance characteristics. Earlier directed evolution methods did not separately evaluate individual mutations or their interactions in libraries of variants which carry multiple mutations, where beneficial and detrimental performance characteristics may be mixed in an individual gene or enzyme. Capitalizing on the advent of inexpensive gene sequencing, we are able to determine which particular mutations are present in the genes and proteins we have screened. Our ProSAR™ and MOSAIC® bioinformatics software relates the screening results to the mutations and ranks the individual mutations (ProSAR™) and interacting mutations (MOSAIC®) with regard to their degree of benefit or detriment, relative to the process parameter(s) tested. Using this information, we can bias the pool of mutational diversity in the next iteration to further the accumulation of beneficial diversity and cancel out detrimental diversity in the individual genes in the resulting shuffled library. The results from both ProSAR™ and MOSAIC® also help us develop ideas about new diversity to test. ProSAR™ and MOSAIC®, combined with efficient gene synthesis and high quality library generation methods, have led to a significant increase in the efficiency and speed of enzyme improvement and optimization.

In another step of our optimization process, we take the best variants we have identified and prepare small amounts of each to test in the desired chemical process at laboratory scale, for in-process confirmation. This optimization routine is done iteratively, typically adding new diversity to the pool in each iteration. The gene that codes for the best performing enzyme in one iteration is used as the starting gene for the next iteration of shuffling and screening. As the enzymes improve over these iterations, the screening conditions are made increasingly more stringent. In this way, enzymes are rapidly optimized until all in-process performance requirements have been achieved and the economic objectives for the desired process have been met.

Multiplexed gene SOEing is our proprietary methodology for rapidly generating gene variants. Using multiplexed gene SOEing, we rapidly generate collections of individual gene variants that have predetermined, as opposed to random, combinations of mutations we are testing. It is based on a biotechnology technique, which we refer to as SOEing, generally used to make a hybrid, or spliced, gene from fragments of two genes and/or to introduce a specific mutation into a splice between fragments of one gene. We have automated the process to make robotically, in parallel, one hundred to several hundred variants, each with a predetermined combination of the mutations we are testing. The variants are introduced into host cells, and the encoded enzyme is produced and screened in high throughput, as described above.

Using multiplexed gene SOEing, we can test many mutations and combinations thereof in parallel, and because the mutation incorporation is controlled and predetermined before screening, as opposed to random incorporation and selection after screening, the resulting data set can be more optimal for ProSAR™ analysis.

We believe using multiplexed gene SOEing to survey many mutations quickly, followed by ProSAR™ and MOSAIC®-driven shuffling of beneficial mutations, is a particularly effective approach, providing rapid gains in enzyme performance.

Codex® Biocatalyst Panels and Kits

Codex® Biocatalyst Panels were initially developed to speed our own internal process for identifying enzymes with desired characteristics for further optimization. Each Codex® Biocatalyst Panel is comprised of variants of one or more enzymes that catalyze one type of a generally useful chemical reaction. We assemble, on one or more multi-well sample plates, variants of a parent enzyme that we pre-optimize for stability in industrial chemical processes and for ready manufacturability. The variants are diversified to react to a variety of chemical structures that are susceptible to that type of chemical reaction.

Either we or our innovator pharmaceutical customers use the Codex® Biocatalyst Panels to screen a new chemical structure against the assembled variants to identify variants that react with the new chemical structure rapidly. For some new structures, a variant on the panel could enable production of the desired product. We can also analyze the data from the panel screen using ProSAR™ to identify the mutations that are beneficial for the reaction of the new structure and further optimize the enzyme as needed using the enzyme optimization techniques described above. In cases where a customer wishes to screen a proprietary new chemical structure itself, we can produce a custom panel of new variants on a sample plate produced by multiplexed gene SOEing.

In 2010, we launched Codex® Screening Kits as an alternative format to provide our enzymes to pharmaceutical development laboratories that are not equipped to use multi-well sample plates. The enzymes are instead individually provided in vials for the researchers to sample.

Intellectual Property

Our success depends in large part on our ability to protect our proprietary products and technology under patent, copyright, trademark and trade secret laws. We also rely heavily on confidential disclosure agreements for further protection of our proprietary products and technologies. Protection of our technologies is important for us to offer our customers and partners proprietary services and products that are not available from our competitors, and to exclude our competitors from practicing technology that we have developed or exclusively licensed from other parties. For example, our ability to supply innovator pharmaceutical manufacturers depends on our ability to supply proprietary enzymes or methods for making pharmaceutical intermediates or APIs that are not available from our competitors. Likewise, in the generic pharmaceutical area, proprietary protection, through patent, trade secret or other protection of our enzymes and methods of producing a pharmaceutical product is important for us and our customers to maintain a lower cost production advantage over competitors. As of December 31, 2015, we owned or controlled approximately 500 issued patents and approximately 290 pending patent applications in the United States and in various foreign jurisdictions. These patents and patent applications include many that are directed to our enabling technologies and specific methods and products that support our business in the pharmaceutical markets. Our intellectual property rights have terms that expire between 2016 and 2035. Our United States intellectual property rights directed to enabling technologies developed by Codexis have terms that expire from 2019 to 2034. We continue to file new patent applications, for which terms generally extend 20 years from the non-provisional filing date in the United States.

In October 2010, we acquired substantially all of the patents and other intellectual property rights associated with directed evolution technology, known as the MolecularBreeding™ technology platform, of Maxygen, Inc. (“Maxygen”), including patents, trademarks, copyrights, software and certain assumed contracts. The intellectual property rights and assets that we acquired from Maxygen continue to be subject to existing license rights previously granted by Maxygen to third parties, including Novozymes A/S (“Novozymes”). Codexis and Novozymes enjoy co-exclusive rights in certain fields. Novozymes also has exclusive rights to some of the intellectual property that we acquired from Maxygen in certain limited fields, including development, production and sales of industrial proteins for use in processes for textile, garment, leather, wood and paper

production, certain starch, food and animal feed production, certain personal care products, oil drilling, dyestuffs and dyeing, and electronics industry waste water treatment. The enabling technology developed by Codexis is not subject to any of the limitations or pre-existing rights of the Maxygen license to any third parties.

We will continue to file and prosecute patent applications and maintain trade secrets in an ongoing effort to protect our intellectual property. It is possible that our current patents, or patents which we may later acquire, may be successfully challenged or invalidated in whole or in part. It is also possible that we may not obtain issued patents from our pending patent applications or other inventions we seek to protect. We sometimes permit certain intellectual property to lapse or go abandoned under appropriate circumstances. Due to uncertainties inherent in prosecuting patent applications, sometimes patent applications are rejected and we subsequently abandon them. It is also possible that we may develop proprietary products or technologies in the future that are not patentable or that the patents of others will limit or altogether preclude our ability to conduct business. In addition, any patent issued to us may provide us with little or no competitive advantage, in which case we may abandon such patent or license it to another entity.

Our registered and pending United States and foreign trademarks include Codexis®, Codex®, CodeEvolver®, CodeXporter®, CodeXol®, CodeXyme®, Powered by CodeEvolver®, We Are Biocatalysis®, Mosaic®, Sage™, Microcyp®, MYCP™, Hit from a Kit™, ProSAR™, We're Codexis. Proven Products. Real Results®, Driving the New Sugar Economy®, and a Codexis and design mark (i.e., the Codexis logo). We are no longer using the marks related to our biofuels or biochemical businesses (i.e., CodeXyme®, CodeXol®, and Driving the New Sugar Economy®), but still own the rights and registrations.

Our means of protecting our proprietary rights may not be adequate and our competitors may independently develop technology or products that are similar to ours or that compete with ours. Patent, trademark, and trade secret laws afford only limited protection for our technology platform and products. The laws of many countries do not protect our proprietary rights to as great an extent as do the laws of the United States. Despite our efforts to protect our proprietary rights, unauthorized parties have in the past attempted, and may in the future attempt, to operate under aspects of our intellectual property or products or to obtain and use information that we regard as proprietary. Third parties may also design around our proprietary rights, which may render our protected technology and products less valuable, if the design around is favorably received in the marketplace. In addition, if any of our products or technology is covered by third-party patents or other intellectual property rights, we could be subject to various legal actions. We cannot assure you that our technology platform and products do not infringe patents held by others or that they will not in the future.

Litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement, invalidity, misappropriation, or other claims. For example, in February 2016, we filed a complaint against EnzymeWorks, Inc., a California corporation, EnzymeWorks, Inc., a Chinese corporation, and Junhua "Alex" Tao (collectively, the "Defendants"), alleging that the Defendants have engaged in, among other things, willful patent infringement, trade secret misappropriation and breach of confidence. The outcome of the case and the timing of its resolution are uncertain. For further information regarding this litigation, see Item 3, "Legal Proceedings." Our litigation against the Defendants and any other such litigation could result in substantial costs and diversion of our resources. Moreover, any settlement of or adverse judgment resulting from such litigation could require us to obtain a license to continue to make, use or sell the products or technology that is the subject of the claim, or otherwise restrict or prohibit our use of the technology.

Former Biofuels and Bioindustrial Programs

In November 2013, we announced that we were winding down our CodeXyme® cellulase enzymes program, and that we had stopped development of our CodeXol® detergent alcohols program. These decisions relating to our biofuels and bioindustrial programs have allowed us to re-direct our resources to other opportunities for our technology in other fields, including the fine chemicals field.

Competition

Overview

We face differing forms of competition in the pharmaceuticals and fine chemicals markets, as set forth below.

Pharmaceuticals

Our primary competitors in the biocatalysis market for pharmaceutical products are companies using conventional, non-enzymatic processes to manufacture pharmaceutical intermediates and APIs that compete in the marketplace with our enzymatically manufactured products. The principal methods of competition and competitive differentiation in this market are price, product quality and performance, including manufacturing yield and safety and environmental benefits and speed of

delivery of product. The market for the manufacture and supply of APIs and intermediates is large with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Pfizer, Bristol Myers Squibb and Teva, who have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates. The processes used by these companies include classical conventional organic chemistry reactions, chemo catalysis reactions catalyzed by chemical catalysts, or biocatalytic routes using commercially available enzymes, or combinations thereof. Our manufacturing processes must compete with these internally developed routes. Additionally, we also face competition from companies such as Solvias AG and Takasago International Corporation who use metal-based chemical reactions for pharmaceutical products, rather than a biocatalytic process. Finally, we face increasing competition from generic pharmaceutical manufacturers in low cost centers such as India and China.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, such as Novozymes, as well as subsidiaries of larger contract research/contract manufacturing organizations ("CRO/CMO"), such as Royal DSM N.V. ("DSM"), Cambrex Corporation and Almac Group Ltd. There is also competition in the customized and optimized enzyme area from several small European companies, such as BRAIN AG, c-LEcta GmbH and evocatal GmbH.

We believe that our principal advantage is our ability to rapidly deliver customized enzyme products for existing and new intermediates and APIs in the pharmaceuticals market. This capability has allowed us to create a breadth of products with improved performance characteristics including, for example, activity, stability, and activity on a range of substrates, compared to traditional chemistry-based manufacturing processes and naturally occurring biocatalysts. We believe that our directed evolution technology provides substantially superior results, in shorter time frames, than companies offering competing biocatalyst development services.

Fine Chemicals

We entered the fine chemicals market in 2013 by applying our biocatalysis technology in the food market. We face similar forms of competition in this market as in the pharmaceutical markets, with the exception that the risk of losing out on opportunities to larger competitors in fine chemicals is greater given the larger scale of opportunities available in the fine chemicals market compared to the pharmaceutical market. Our significant competitors in the fine chemicals markets include companies that have been in these marketplaces for many years, such as Dupont-Genencor, DSM, Novozymes and A.B. Enterprises. These companies have greater resources in these markets than we do and have long-term supply arrangements already in place with customers. Our ability to compete in these markets may be limited by our relatively late entrance into these markets.

Core Technology

We are a leader in the field of directed molecular evolution of biocatalysts. Both our pharmaceuticals and fine chemicals businesses rely on our core technology. We are aware that other companies, organizations and persons have developed technologies that appear to have some similarities to our patented proprietary technologies. For example, we are aware that other companies, including DSM and BASF, have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. In addition, academic institutions such as the California Institute of Technology, the Max Planck Institute and the Center for Fundamental and Applied Molecular Evolution ("FAME"), a jointly sponsored initiative between Emory University and Georgia Institute of Technology, are also working in this field. This field is highly competitive and companies and academic and research institutions are actively seeking to develop technologies that could be competitive with our technologies.

Technological developments by others may result in our products and technologies, as well as products developed by our customers using our biocatalysts, becoming obsolete. We monitor publications and patents that relate to directed molecular evolution to be aware of developments in the field and evaluate appropriate courses of action in relation to these developments.

Many of our competitors have substantially greater manufacturing, financial, research and development, personnel and marketing resources than we do. In addition, certain of our competitors may also benefit from local government subsidies and other incentives that are not available to us. As a result, our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors. As more companies develop new intellectual property in our markets, the possibility of a competitor acquiring patent or other rights that may limit our products or potential products increases, which could lead to litigation.

Enzyme Therapeutics

There are numerous companies that participate in the enzyme therapeutics market or PKU market. Many of these companies are large, successful and well-capitalized. BioMarin and Daiichi Sankyo market Kuvan® in the United States, Europe and Japan for the treatment of a certain type of PKU. BioMarin is also conducting a phase III clinical trial for an injectable enzyme substitution therapy for the potential treatment of PKU. Shire, Genzyme / Sanofi and other companies market or are actively developing new enzyme therapeutics. There are numerous companies that are developing other forms of therapeutics, such as small molecules and gene therapy, that could compete with enzyme therapeutics.

Operations

Our corporate headquarters is located in Redwood City, California and provides general administrative support to our business and is the center of our research, development and business operations. We have limited internal manufacturing capacity at our headquarters in Redwood City. We expect to rely on third-party manufacturers for commercial production of our biocatalysts for the foreseeable future. Our in-house manufacturing is dedicated to producing both Codex® Biocatalyst Panels and Kits and enzymes for use by our customers in pilot scale production. We also supply initial commercial quantities of biocatalysts for use by our collaborators to produce pharmaceutical intermediates and manufacture biocatalysts that we sell. Please see Note 15 to our consolidated financial statements appearing in Item 8 of this Annual Report on Form 10-K for a description of our revenue and long-lived assets both within and outside of the United States.

Our research and development operations include efforts directed towards biocatalyst evolution, bioprocess development, cellular engineering, biocatalyst screening, metabolites, strain improvement, fermentation development and process engineering. We conduct enzyme evolution, enzyme production development, microbial bioprocess development, cellular engineering, microbial evolution and process engineering evaluations and design primarily at our headquarters in Redwood City, California. For more information on our research and development expenditures, see Item 8 of this Annual Report on Form 10-K. Manufacturing of our enzymes is conducted primarily in two locations, at our in-house facility in Redwood City, California and at a third-party contract manufacturing organization, Lactosan, GmbH & Co. KG ("Lactosan"), in Kapfenberg, Austria. In late 2015, we commenced limited manufacturing of certain enzymes at another third-party contract manufacturing organization in Western Europe. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to Lactosan and the other contract manufacturer.

We intend to rely on contract manufacturers for the production of the biocatalysts used in our fine chemicals business.

Customers

We rely on a limited number of key customers for the majority of our revenues. Customers with revenues of 10% or more of our total revenues in any of the past three fiscal years consist of the following:

	Percentage of Total Revenues For The Years Ended December 31,		
	2015	**2014**	**2013**
Customers:			
Merck	29%	24%	39%
GSK	20%	17%	—%
Exela	12%	21%	15%
Novartis	*	*	14%

** Percentage was less than 10%*

Employees

As of December 31, 2015, we had 91 full-time employees and one part-time employee worldwide. Of these employees, 50 were engaged in research and development, 11 were engaged in operations and quality control, and 30 were engaged in selling, general and administrative activities, respectively. None of our employees are represented by a labor union, and we consider our employee relations to be good.

Corporate and Available Information

Our principal corporate offices are located at 200 Penobscot Drive, Redwood City, California 94063 and our telephone number is (650) 421-8100. We were incorporated in Delaware in January 2002. Our internet address is www.codexis.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after we electronically file such materials with, or furnish them to, the Securities Exchange Commission (the "SEC"). Our SEC reports can be accessed through the Investor Relations section of our internet website. The information found on our internet website is not part of this or any other report we file with or furnish to the SEC.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below together with the other information set forth in this Annual Report on Form 10-K, which could materially affect our business, financial condition or future results. The risks described below are not the only risks facing our company. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

Risks Relating to Our Business and Strategy

We have a limited operating history and have recently experienced significant changes to our business, which may make it difficult to evaluate our current business and predict our future performance.

Our company has been in existence since January 2002. From 2002 until 2005, our operations focused on organizing and staffing our company and developing our technology platform. In 2005, we recognized our first revenues from product sales. Since 2005, we have continued to generate revenues, but because our revenue growth has occurred in recent periods, our limited operating history may make it difficult to evaluate our current business and predict our future performance. Additionally, from 2006 to August 2012, a major portion of our business revolved around our research and development collaboration with Shell with respect to advanced biofuels. The Shell collaboration was terminated in August 2012 and did not contribute to our revenues in 2015, 2014 or 2013. As a result of the termination of the Shell collaboration, we undertook a significant restructuring of our operations and refocused our business on the biocatalysis market. In November 2013, we announced that we had begun to wind down our CodeXyme® cellulase enzymes program, and that we had stopped further development of our CodeXol® detergent alcohols program in the third quarter of 2013. As a result of these changes in our business and any changes to our business focus that we may make as we move forward, our operating history in past periods may not provide a basis to evaluate our current business or be indicative of our future performance. We have encountered and will continue to encounter risks and difficulties frequently experienced by young companies in rapidly changing industries. If we do not address these risks successfully, our business will be harmed.

Our quarterly or annual operating results may fluctuate in the future. As a result, we may fail to meet or exceed the expectations of research analysts or investors, which could cause our stock price to decline.

Our financial condition and operating results have varied significantly in the past and may continue to fluctuate from quarter to quarter and year to year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these fluctuations include the following factors, as well as other factors described elsewhere in this report:

- our ability to achieve or maintain profitability;
- our relationships with, and dependence on, collaborators in our principal markets;
- our dependence on a limited number of customers;
- our dependence on a limited number of products in our biocatalysis business;
- our reliance on a limited number of contract manufacturers for large scale production of substantially all of our enzyme products;
- our ability to develop and successfully commercialize new products for the biocatalysis market(s);
- our ability to deploy our technology platform in the fine chemicals market;
- the success of our customers' pharmaceutical products in the market and the ability of such customers to obtain regulatory approvals for products and processes;
- our ability to compete if we do not adequately protect our proprietary technologies or if we lose some of our intellectual property rights;
- our ability to avoid infringing the intellectual property rights of third parties;
- our involvement in lawsuits to protect or enforce our patents or other intellectual property rights;
- our ability to enforce our intellectual property rights throughout the world;
- our dependence on, and the need to attract and retain, key management and other personnel;
- our ability to prevent the theft or misappropriation of our biocatalysts, the genes that code for our biocatalysts, know-how or technologies;
- our ability to protect our trade secrets and other proprietary information from disclosure by employees and others;
- our ability to obtain substantial additional capital that may be necessary to expand our business;
- our ability to find a partner for or otherwise advance our enzyme therapeutic program;
- our customers' ability to pay amounts owed to us in a timely manner;

- our ability to avoid charges to earnings as a result of any impairment of goodwill, intangible assets or other long-lived assets;
- our ability to implement and maintain effective internal control over financial reporting;
- our ability to control and to improve pharmaceutical product gross margins;
- our ability to protect against risks associated with the international aspects of our business;
- the cost of compliance with European Union chemical regulations;
- our ability to obtain regulatory approval for the sale of our food products;
- potential advantages that our competitors and potential competitors may have in securing funding or developing products;
- our ability to accurately report our financial results in a timely manner;
- results of regulatory tax examinations;
- business interruptions, such as earthquakes and other natural disasters;
- public concerns about the ethical, legal and social ramifications of genetically engineered products and processes;
- our ability to integrate our current business with any businesses that we may acquire in the future;
- our ability to properly handle and dispose of hazardous materials in our business;
- potential product liability claims; and
- our ability to use our net operating loss carryforwards to offset future taxable income.

Due to the various factors mentioned above, and others, the results of any prior quarterly or annual periods should not be relied upon as indications of our future operating performance.

We have a history of net losses and we may not achieve or maintain profitability.

We have incurred net losses since our inception, including losses of$7.6 million in 2015, $19.1 million in 2014 and $41.3 million in 2013. As of December 31, 2015 and 2014, we had an accumulated deficit of $283.5 million and $275.9 million, respectively. Until September 2012, we derived a substantial portion of our revenues from research and development agreements with our collaborators, particularly Shell, who accounted for 51% of our revenue in 2012, but zero percent of revenue in 2013, 2014 and 2015. Our research and development collaboration with Shell terminated effective August 31, 2012, and we do not expect to receive further collaboration revenue from Shell. In November 2013, we announced that we had begun to wind down our CodeXyme® cellulase enzymes program, and that we had stopped further development of our CodeXol™ detergent alcohols program in the third quarter of 2013. If we are unable to expand our biocatalysis business, through new or expanded collaborations, development of new products or services, or increased sales of existing products and services, our net losses may increase and we may never achieve profitability. In addition, some of our collaboration agreements provide for milestone payments and/or future royalty payments, which we will only receive if we and our collaborators develop and commercialize products. We also may fund development of additional proprietary biocatalysis and/or therapeutic products. There can be no assurance that any of these products will become commercially viable or that we will ever achieve profitability on a quarterly or annual basis. If we fail to achieve profitability, or if the time required to achieve profitability is longer than we anticipate, we may not be able to continue our business. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products and achieving or sustaining profitability, and could lead to disagreements with our current or former collaborators.

Our ability to maintain and manage collaborations in our markets is fundamental to the success of our business. We currently have license agreements, research and development agreements, supply agreements and/or distribution agreements with various collaborators. For example, we have ongoing collaborations with GSK and Merck that are important to our business and financial results. We may have limited or no control over the amount or timing of resources that any collaborator is able or willing to devote to our partnered products or collaborative efforts. Any of our collaborators may fail to perform its obligations. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. Further, our collaborators may not develop products arising out of our collaborative arrangements or devote sufficient resources to the development, manufacture, marketing or sale of these products. Moreover, disagreements with a collaborator could develop, and any conflict with a collaborator could lead to litigation and could reduce our ability to enter into future collaboration agreements and negatively impact our relationships with one or more existing collaborators. If any of these events occur, especially if they occur in our collaborations with GSK or Merck, or if we fail to maintain our agreements with our collaborators, we may not be able to commercialize our existing and potential products, grow

our business or generate sufficient revenues to support our operations, and we may be involved in litigation. Our collaboration opportunities could be harmed and our financial condition and results of operations could be negatively affected if:

- we do not achieve our research and development objectives under our collaboration agreements in a timely manner or at all;
- we develop products and processes or enter into additional collaborations that conflict with the business objectives of our other collaborators;
- our collaborators and/or our contract manufacturers do not receive the required regulatory and other approvals necessary for the commercialization of the applicable product;
- we disagree with our collaborators as to rights to intellectual property that are developed during the collaboration, or their research programs or commercialization activities;
- we are unable to manage multiple simultaneous collaborations;
- our collaborators or licensees are unable or unwilling to implement or use the technology or products that we provide or license to them;
- our collaborators become competitors of ours or enter into agreements with our competitors;
- our collaborators become unable or less willing to expend their resources on research and development or commercialization efforts due to general market conditions, their financial condition or other circumstances beyond our control; or
- our collaborators experience business difficulties, which could eliminate or impair their ability to effectively perform under our agreements.

Even after collaboration relationships expire or terminate, some elements of the collaboration may survive. For instance, certain rights, licenses and obligations of each party with respect to intellectual property and program materials may survive the expiration or termination of the collaboration. Disagreements or conflicts between and among the parties could develop even though the collaboration has ended. These disagreements or conflicts could result in expensive arbitration or litigation, which may not be resolved in our favor.

Finally, our business could be negatively affected if any of our collaborators or suppliers undergo a change of control or were to otherwise assign the rights or obligations under any of our agreements.

We are dependent on a limited number of customers.

Our current revenues are derived from a limited number of key customers. For the year endedDecember 31, 2015, customers that each individually contributed 10% or more of our net revenue accounted for 61% of our total revenues. For the year endedDecember 31, 2014, customers that each contributed 10% or more of our net revenue accounted for 62% of our total revenues. We expect a limited number of customers to continue to account for a significant portion of our revenues for the foreseeable future. This customer concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction of business from one or a combination of our significant customers could, materially adversely affect our revenues, financial condition and results of operations.

We are dependent on a limited number of products in our biocatalysis business.

Our current product revenues are derived from a limited number of biocatalytic products. We expect a limited number of biocatalytic products to continue to account for a significant portion of our biocatalytic product revenues for the foreseeable future. This product concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction of business of one or a combination of our significant biocatalytic products could materially adversely affect our revenues, financial condition and results of operations. For instance, biocatalytic product revenues for the year ended December 31, 2015 was $11.4 million, a decrease from $13.1 million in product revenues for the year ended December 31, 2014, and $20.4 million in product revenues for the year endedDecember 31, 2013, primarily due to lower revenues for our statin-family and Hepatitis-C products. Generic statin product revenues were approximately nil and $0.5 million for the years ended December 31, 2015 and 2014, respectively, as compared to $3.4 million in for the year ended December 31, 2013. In addition, our revenue sharing arrangement revenue, which is based on sales of the anticoagulant drug argatroban by our revenue sharing partner Exela PharmSci, Inc. (“Exela”), has declined in recent quarters and may decline in future quarters due to increased competition resulting from the expiration of a third party patent related to the production of argatroban in June 2014.

We are dependent on a limited number of contract manufacturers for large scale production of substantially all of our enzymes.

Manufacturing of our enzymes is conducted primarily in two locations: our in-house facility in Redwood City, California; and at a third-party contract manufacturing organization, Lactosan, GmbH & Co. KG ("Lactosan"), in Kapfenberg, Austria. In late 2015, we commenced limited manufacturing of certain enzymes at another third-party contract manufacturing organization in Western Europe. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to these contract manufacturers. 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 larger scale manufacturing of the enzymes used in our pharmaceutical and fine chemicals business.

Accordingly, we face risks of difficulties with, and interruptions in, performance by third party manufacturers, the occurrence of which could adversely impact the availability, launch and/or sales of our enzymes in the future. We have experienced manufacturing delays at Lactosan in the past, including as recently as the second half of 2014. Manufacturing delays at a contract manufacturer could negatively affect our business, reputation, results of operations and financial condition. The failure of any contract manufacturer to supply us enzymes on a timely basis, or to manufacture our enzymes in compliance with our specifications or applicable quality requirements or in volumes sufficient to meet demand, would adversely affect our ability to sell pharmaceutical and fine and complex chemicals products, could harm our relationships with our collaborators or customers and could negatively affect our revenues and operating results. We may be forced to secure alternative sources of supply, which may be unavailable on commercially acceptable terms, and could cause delays in our ability to deliver products to our customers, increase our costs and decrease our profit margins.

We currently have supply agreements in place with Lactosan and one other contract manufacturer. In the absence of a supply agreement, a contract manufacturer will be under no obligation to manufacture our enzymes and could elect to discontinue their manufacture at any time. If we require additional manufacturing capacity and are unable to obtain it in sufficient quantity, we may not be able to increase our product sales, or we may be required to make substantial capital investments to build that capacity or to contract with other manufacturers on terms that may be less favorable than the terms we currently have with our suppliers. If we choose to build our own additional manufacturing facility, it could take two years or longer before our facility is able to produce commercial volumes of our enzymes. Any resources we expend on acquiring or building internal manufacturing capabilities could be at the expense of other potentially more profitable opportunities. In addition, if we contract with other manufacturers, we may experience delays of several months in qualifying them, which could harm our relationships with our collaborators or customers and could negatively affect our revenues or operating results.

If we are unable to develop and commercialize new products for the pharmaceutical and fine chemicals markets, our business and prospects will be harmed.

We plan to launch new products for the pharmaceutical and fine chemicals markets. These efforts are subject to numerous risks, including the following:

- pharmaceutical and fine chemicals companies may be reluctant to adopt new manufacturing processes that use our enzymes;
- we may be unable to successfully develop the enzymes or manufacturing processes for our products in a timely and cost-effective manner, if at all;
- we may face difficulties in transferring the developed technologies to our customers and the contract manufacturers that we may use for commercial scale production of intermediates and enzymes in these markets;
- the contract manufacturers that we may use may be unable to scale their manufacturing operations to meet the demand for these products and we may be unable to secure additional manufacturing capacity;
- customers may not be willing to purchase these products for these markets from us on favorable terms, if at all;
- we may face product liability litigation, unexpected safety or efficacy concerns and product recalls or withdrawals;
- changes in laws or regulations relating to the pharmaceutical industry or the industries into which we sell our fine chemicals products, including the food industry, could cause us to incur increased costs of compliance or otherwise harm our business;
- our customers' products may experience adverse events or face competition from new products, which would reduce demand for our products;
- we may face pressure from existing or new competitive products; and
- we may face pricing pressures from existing or new competitors, some of which may benefit from government subsidies or other incentives.

Our efforts to deploy our technology platform in the fine chemicals market may fail.

We have recently begun to use our CodeEvolver® protein engineering technology platform to develop new products in the fine chemicals markets. We do not know if we can successfully compete in this new market. This new market is well established and consists of numerous large, well-funded entrenched market participants who have long and established track records and customer relationships. We have currently developed products in the food sector of this market and these products, or any other products that we may develop in the future for the fine chemicals market may not succeed in displacing current products. If we succeed in commercializing new products for the fine chemicals market, we may not generate significant revenue and cash flows from these activities. The failure to successfully deploy products in the fine chemicals space may limit our growth and have a material adverse effect on our financial condition, operating results and business prospects.

Our business could be adversely affected if our customers' products are not received well in the market, if their products, or the processes used by our customers to manufacture their final products, fail to be approved, or if our customers discontinue their development activities for any reason.

Our enzymes are used by our pharmaceutical customers in the manufacture of intermediates and APIs which are then used in the manufacture of final pharmaceutical products by our existing and potential branded and generic drug customers, and by our fine chemicals customers to manufacture food ingredients. Our business could be adversely affected if these final products do not perform in the market as well as expected, or if our customers encounter competition from new entrants into the market with competing, and possibly superior, products. Additionally, these pharmaceutical and food products must be approved by the FDA in the United States and similar regulatory bodies in other markets prior to commercialization. If our customers who sell branded drugs, which we refer to as innovators, fail to receive regulatory approval for the drugs, fail to receive regulatory approval for new manufacturing processes for previously approved drugs, or decide for business or other reasons to discontinue their drug development activities, our revenues and prospects will be negatively impacted. The process of producing these drugs, and their generic equivalents, is also subject to regulation by the FDA in the United States and equivalent regulatory bodies in other markets. Similarly, if the market-leading food ingredients company where we have recently been growing our biocatalyst product sales decides to discontinue developing its product using our technology, our revenues and prospects will be negatively impacted. If any pharmaceutical or food manufacturing process that uses our enzymes or enzyme technology does not receive approval by the appropriate regulatory body or if customers decide not to pursue approval, our business could be adversely affected.

Our ability to compete may decline if we do not adequately protect our proprietary technologies or if we lose some of our intellectual property rights.

Our success depends in part on our ability to obtain patents and maintain adequate protection of our intellectual property for our technologies and products and potential products in the United States and other countries. We have adopted a strategy of seeking patent protection in the United States and in foreign countries with respect to certain of the technologies used in or relating to our products and processes. As such, as of December 31, 2015, we owned or controlled approximately 500 issued patents and approximately 290 pending patent applications in the United States and in various foreign jurisdictions. Our intellectual property rights have terms that expire between 2016 and 2035. We also have license rights to a number of issued patents and pending patent applications in the United States and in various foreign jurisdictions. Our owned and licensed patents and patent applications include those directed to our enabling technologies and to the methods and products that support our business in the pharmaceuticals manufacturing and complex chemistry markets. We intend to continue to apply for patents relating to our technologies, methods and products as we deem appropriate.

Numerous patents in our portfolio involve complex legal and factual questions and, therefore, enforceability cannot be predicted with any certainty. Issued patents and patents issuing from pending applications may be challenged, invalidated, or circumvented. Moreover, the United States Leahy-Smith America Invents Act ("AIA"), enacted in September 2011, brought significant changes to the United States patent system, which include a change to a "first to file" system from a "first to invent" system and changes to the procedures for challenging issued patents and disputing patent applications during the examination process, among other things. While interference proceedings are possible for patent claims filed prior to March 16, 2013, many of our filings will be subject to the post- and pre-grant proceedings set forth in the AIA, including citation of prior art and written statements by third parties, third party pre-issuance submissions, ex parte reexamination, inter partes review, post-grant review, and derivation proceedings. We may need to utilize the processes provided by the AIA for supplemental examination or patent reissuance. These proceedings could result in substantial cost to us even if the outcome is favorable. Even if successful, any interference may result in loss of certain claims. Any litigation or proceedings could divert our management's time and efforts. Even unsuccessful claims filed by third parties could result in significant legal fees and other expenses, diversion of management time, and disruption in our business. Uncertainties resulting from initiation and continuation of any patent or related litigation could harm our ability to compete. We have not assessed the applicability of the AIA and new regulations on

our patent portfolio. These changes could increase the costs and uncertainties surrounding the prosecution of our patent applications and the enforcement or defense of our patent rights.

Additional uncertainty may result from legal precedent handed down by the United States Federal Circuit Court and Supreme Court as they determine legal issues concerning the scope and construction of patent claims and inconsistent interpretation of patent laws by the lower courts. Accordingly, we cannot ensure that any of our pending patent applications will result in issued patents, or even if issued, predict the breadth of the claims upheld in our and other companies' patents. Given that the degree of future protection for our proprietary rights is uncertain, we cannot ensure that: (i) we were the first to invent the inventions covered by each of our pending applications, (ii) we were the first to file patent applications for these inventions, or (iii) the proprietary technologies we develop will be patentable. In addition, unauthorized parties may attempt to copy or otherwise obtain and use our products or technology. Monitoring unauthorized use of our intellectual property is difficult, and we cannot be certain that the steps we have taken will prevent unauthorized use of our technology, particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the United States. Moreover, third parties could practice our inventions in territories where we do not have patent protection. Such third parties may then try to import products made using our inventions into the United States or other territories. If competitors are able to use our technology, our ability to compete effectively could be harmed. In addition, others may independently develop and obtain patents for technologies that are similar to or superior to our technologies. If that happens, we may need to license these technologies, and we may not be able to obtain licenses on reasonable terms, if at all, which could cause harm to our business.

Third parties may claim that we are infringing their intellectual property rights or other proprietary rights, which may subject us to costly and time consuming litigation and prevent us from developing or commercializing our products.

Our commercial success also depends in part on our ability to operate without infringing patents and proprietary rights of third parties, and without breaching any licenses or other agreements that we have entered into with regard to our technologies, products and business. We cannot ensure that patents have not been issued to third parties that could block our ability to obtain patents or to operate as we would like. There may be patents in some countries that, if valid, may block our ability to make, use or sell our products in those countries, or import our products into those countries, if we are unsuccessful in circumventing or acquiring rights to these patents. There also may be claims in patent applications filed in some countries that, if granted and valid, may also block our ability to commercialize products or processes in these countries if we are unable to circumvent or license them.

The industries in which we operate and the biotechnology industry, in particular, are characterized by frequent and extensive litigation regarding patents and other intellectual property rights. Many biotechnology companies have employed intellectual property litigation as a way to gain a competitive advantage. Our involvement in litigation or other intellectual property proceedings inside and outside of the United States, to defend our intellectual property rights or as a result of alleged infringement of the rights of others, may divert our management's time from focusing on business operations and could cause us to spend significant amounts of money. Any potential intellectual property litigation also could force us to do one or more of the following:

- stop selling or using our products or technologies that use the subject intellectual property;
- pay monetary damages or substantial royalties;
- grant cross-licenses to third parties relating to our patents or proprietary rights;
- obtain from the third party asserting its intellectual property rights a license to sell or use the relevant technology, which license may not be available on reasonable terms, or at all; or
- redesign those products or processes that use any allegedly infringing technology, or relocate the operations relating to the allegedly infringing technology to another jurisdiction, which may result in significant cost or delay to us, could be technically infeasible or could prevent us from selling some of our products in the United States or other jurisdictions.

We are aware of some patents and patent applications relating to aspects of our technologies filed by, and issued to, third parties. We cannot assure you that if this third party intellectual property is asserted against us that we would ultimately prevail.

We may be involved in lawsuits to protect or enforce our patents, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our intellectual property rights or those of our licensors. To prevent infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. For example, in February 2016, we filed a complaint against EnzymeWorks, Inc., a California corporation, EnzymeWorks, Inc., a Chinese corporation, and Junhua "Alex" Tao (collectively, the "Defendants"), alleging that the Defendants have engaged in, among other things,

willful patent infringement, trade secret misappropriation and breach of confidence. In addition, in a patent infringement proceeding, a court may decide that a patent we own or in-license is not valid, is unenforceable and/or is not infringed. In legal proceedings against a third party to enforce a patent directed at one of our technologies or products (including our litigation against the Defendants), the defendant could counterclaim that our patent is invalid and/or unenforceable in whole or in part. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge include an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution. Third parties may also raise similar claims before the USPTO, even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable, and prior art could render our patents or those of our licensors invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on such product. Such a loss of patent protection would have a material adverse impact on our business.

Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our expenses and reduce the resources available for operations and research and development activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries where we do business do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property, particularly those relating to biotechnology and/or bioindustrial technologies. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate. This could make it difficult for us to stop the infringement of our patents or misappropriation of our other intellectual property rights. Additionally, proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

If we lose key personnel, including key management personnel, or are unable to attract and retain additional personnel as needed in the future, it could disrupt the operation of our business, delay our product development programs, harm our research and development efforts, and/or impact our ability to pursue and build collaborations.

Our business involves complex, global operations across a variety of markets and requires a management team and employee workforce that is knowledgeable in the many areas in which we operate. The loss of any key members of our management team or the failure to attract or retain other key employees who possess the requisite expertise for the conduct of our business could prevent us from developing and commercializing our products for our target markets and entering into collaborations or licensing arrangements to execute on our business strategy.

In addition, the loss of any key scientific staff, or the failure to attract or retain other key scientific employees, could prevent us from developing and commercializing our products for our target markets and entering into collaborations or licensing arrangements to execute on our business strategy. We may not be able to attract or retain qualified employees in the future due to the intense competition for qualified personnel among biotechnology and other technology-based businesses or due to the availability of personnel with the qualifications or experience necessary for our business. If we are not able to attract and retain the necessary personnel to accomplish our business objectives, we may experience staffing constraints that will adversely affect our ability to meet the demands of our collaborators and customers in a timely fashion or to support our internal research and development programs. Competition for experienced scientists and other technical personnel from numerous companies and academic and other research institutions may limit our ability to do so on acceptable terms. All of our employees are at-will employees, which mean that either the employee or we may terminate their employment at any time.

Our planned activities will require additional expertise in specific industries and areas applicable to the products and processes developed through our technology platform or acquired through strategic or other transactions, especially in the end markets

that we seek to penetrate. These activities will require the addition of new personnel, and the development of additional expertise by existing personnel. The inability to attract personnel with appropriate skills or to develop the necessary expertise could impair our ability to grow our business.

If our biocatalysts, or the genes that code for our biocatalysts, are stolen, misappropriated or reverse engineered, others could use these biocatalysts or genes to produce competing products.

Third parties, including our contract manufacturers, customers and those involved in shipping our biocatalysts, often have custody or control of our biocatalysts. If our biocatalysts, or the genes that code for our biocatalysts, were stolen, misappropriated or reverse engineered, they could be used by other parties who may be able to reproduce these biocatalysts for their own commercial gain. If this were to occur, it may be difficult for us to challenge this type of use, especially in countries with limited intellectual property protection or in countries in which we do not have patents covering the misappropriated biocatalysts.

Confidentiality agreements with employees and others may not adequately prevent disclosures of trade secrets and other proprietary information.

We rely in part on trade secret protection to protect our confidential and proprietary information and processes. However, trade secrets are difficult to protect. We have taken measures to protect our trade secrets and proprietary information, but these measures may not be effective. We require employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting arrangement with us. These agreements generally require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements also generally provide that inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. Nevertheless, our proprietary information may be disclosed, third parties could reverse engineer our biocatalysts and others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We may need substantial additional capital in the future in order to expand our business.

Our future capital requirements may be substantial, particularly as we continue to develop our business. Although 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, 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 biocatalysis business, our spending to develop and commercialize new and existing products and the amount of collaboration funding we may receive to help cover the cost of such expenditures, 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, including opportunities in the fine chemicals markets, and the filing, prosecution, enforcement and defense of patent claims. 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, 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.

Our enzyme therapeutic programs are early stage, highly regulated and expensive. Our ability to obtain development partners for the programs, to advance our product candidates to clinical trials and to ultimately receive regulatory approvals is highly uncertain.

We are developing novel therapeutic candidates, in particular our novel oral enzyme product candidate for the treatment of PKU. Our efforts to advance our PKU program are subject to numerous risks, including the following:

- Our efforts to use CodeEvolver® protein engineering technology platform to generate new lead therapeutic candidates may not be successful in creating candidates of value.
- If we are not successful in obtaining a partner to assist us with the funding and development of our PKU program, we may not have sufficient funds or expertise to advance development of the program on our own.
- To obtain regulatory approval to market our product candidate, preclinical studies and costly and lengthy clinical trials are required, and the results of the studies and trials are highly uncertain.
- We do not have experience in drug development or regulatory matters related to drug development. As a result, we rely or will rely on third parties to conduct our pre-clinical studies, assist us with drug manufacturing and formulation and perform other tasks for us. If these third parties do not successfully carry out their responsibilities or comply with regulatory requirements, we may receive lower quality products or services, suffer reputational harm and not be able to obtain regulatory approval for our product candidate.
- The results of animal studies of our product candidate may not be predictive of future study results.
- If we begin clinical trials for our product candidate, we may find it difficult to enroll patients in our clinical trials given the limited number of patients that have PKU. Any enrollment difficulties could delay clinical trials and any potential product approval.
- Drug development is a highly regulated process. In particular, the regulatory approval process of the FDA and comparable foreign authorities is lengthy, time consuming and inherently unpredictable. If we are ultimately unable to obtain regulatory approval for our product candidate, our business will be harmed.
- We will be exposed to potential product liability risks through the testing of experimental therapeutics in humans, which may expose us to substantial uninsured liabilities.
- Third parties may develop intellectual property that could limit our ability to develop, market and commercialize our PKU product candidate, if approved.
- Changes in methods of treatment of disease, such as gene therapy, could cause us to stop development of our product candidate or reduce or eliminate potential demand for our product candidate, if approved.

Our revenues, financial condition and results of operations may also be adversely affected if one or more of our customers is delayed in paying, or becomes unable to pay, for our delivered products on a timely basis.

Certain of our customers may become subject to financial and other challenges that affect their cash flow. If these customers fail to pay us on a timely basis it may cause our financial results to fluctuate. We may decide to grant concessions to such customers to increase the probability of payment. Such concessions, or failure by such customers to pay at all, would adversely impact our financial condition and results of operations.

If goodwill or our intangible or other long-lived assets become impaired we may be required to record a significant charge to earnings.

Our total assets reflect goodwill of $3.2 million, intangible assets of $2.8 million and other long-lived assets of $3.4 million as of December 31, 2015. Under accounting principles generally accepted in the United States ("GAAP"), we review goodwill for impairment on at least an annual basis and at any interim date whenever events or changes in circumstances indicate that the carrying value may not be recoverable. We review our long lived and intangible assets with finite lives for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Events or changes in circumstances (i.e., information that indicates an impairment might exist) could include: a significant decrease in the market price of our common stock; current period cash flow losses or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the assets; slower growth rates in our industry; significant adverse changes in the business climate or legal factors; accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the assets; loss of significant customers or partners; or the current expectation that the assets will more likely than not be sold or disposed of significantly before the end of their estimated useful life. We tested long-lived assets and intangible assets for impairment as of December 31, 2015. Based on our analysis, we determined that the fair value of the assets exceeded their carrying value and that no impairment was necessary as of December 31, 2015. Nevertheless, we may experience additional events or changes in circumstances in the future that we determine to be indicators of impairment, and that may in turn require us to undertake impairment analysis in future periods. Depending on the circumstances and judgments made at such future time, the outcome of the analysis may require us to recognize impairment.

We may be required to record a significant charge to earnings in our financial statements during the period in which any impairment of our goodwill, intangible assets or other long-lived assets is determined, resulting in an adverse impact on our financial position and results of operations.

If we are unable to implement and maintain effective internal control over financial reporting in the future, the accuracy and timeliness of our financial reporting may be adversely affected.

Section 404 of the Sarbanes-Oxley Act of 2002 requires companies to conduct a comprehensive evaluation of their disclosure controls and procedures over financial reporting. At the end of each fiscal year, we must perform an evaluation of our disclosure controls and procedures over financial reporting, include in our annual report the results of the evaluation, and have our external auditors publicly attest to such evaluation.

We have identified material weaknesses and other control deficiencies in the past, and while the material weaknesses have since been remediated, we cannot assure you that in the future additional material weaknesses or significant deficiencies will not exist or otherwise be discovered. If other deficiencies are discovered in the future, our ability to accurately and timely report our financial position, results of operations or cash flows could be impaired, which could result in late filings of our annual and quarterly reports under the Securities Exchange Act of 1934, as amended, restatements of our consolidated financial statements, a decline in our stock price, suspension or delisting of our common stock by The NASDAQ Stock Market, or other material adverse effects on our business, reputation, results of operations, financial condition or liquidity.

Our biocatalytic product gross margins are variable and may decline from quarter to quarter.

Our biocatalytic product gross margins have varied significantly in the past and may continue to fluctuate from quarter to quarter and year to year in the future due to a variety of factors, including product mix, pricing pressure from our pharmaceutical customers and competition from other products or technologies. This variability may have a material adverse impact on our operating results and financial condition and cause our stock price to decline.

We face risks associated with our international business.

While we have a limited number of employees located outside of the United States, we are and will continue to be dependent upon contract manufacturers located outside of the United States. In addition, we have customers and partners located outside of the United States. Conducting business internationally exposes us to a variety of risks, including:

- changes in or interpretations of foreign regulations that may adversely affect our ability to sell our products, repatriate profits to the United States or operate our foreign-located facilities;
- the imposition of tariffs;
- the imposition of limitations on, or increase of, withholding and other taxes on remittances and other payments by foreign subsidiaries or joint ventures;
- the imposition of limitations on genetically-engineered products or processes and the production or sale of those products or processes in foreign countries;
- currency exchange rate fluctuations;
- uncertainties relating to foreign laws, regulations and legal proceedings including tax, import/export, anti-corruption and exchange control laws;
- the availability of government subsidies or other incentives that benefit competitors in their local markets that are not available to us;
- increased demands on our limited resources created by our operations may constrain the capabilities of our administrative and operational resources and restrict our ability to attract, train, manage and retain qualified management, technicians, scientists and other personnel;
- economic or political instability in foreign countries;
- difficulties associated with staffing and managing foreign operations; and
- the need to comply with a variety of United States and foreign laws applicable to the conduct of international business, including import and export control laws and anti-corruption laws.

Compliance with European Union chemical regulations could be costly and adversely affect our business and results of operations.

Some of our products are subject to the European Union regulatory regime known as The Registration, Evaluation and Authorization of Chemicals ("REACH"). REACH mandates that certain chemicals manufactured in, or imported into, the European Union be registered and evaluated for their potential effects on human health and the environment. Under REACH, we and our contract manufacturers located in the European Union are required to register certain of our products based on the quantity of such product imported into or manufactured in the European Union and on the product's intended end-use. The registration, evaluation and authorization process under REACH can be costly and time consuming. Problems or delays in the registration, evaluation or authorization process under REACH could delay or prevent the manufacture of some of our products in, or the importation of some of our products into, the European Union, which could adversely affect our business and results of operations. In addition, if we or our contract manufacturers fail to comply with REACH, we may be subject to penalties or other enforcement actions, which could have a material adverse effect on our business and results of operations.

We may not be able to obtain regulatory approval for the sale of our food products, if required, and, even if approvals are obtained, complying on an ongoing basis with the numerous regulatory requirements applicable to these products will be time-consuming and costly.

The product that we are currently developing for the food market is, and any other products that we may develop for this market will likely be, subject to regulation by various government agencies, including the FDA, state and local agencies and similar agencies outside the United States, as well as religious compliance certifying organizations. Food ingredients are regulated either as food additives or as substances generally recognized as safe ("GRAS"). A substance can be listed or affirmed as GRAS by the FDA or self-affirmed by its manufacturer upon determination that independent qualified experts would generally agree that the substance is GRAS for a particular use. While we self-affirm the product that we are currently developing for the food market, our customer will need to submit a GRAS Notice of Determination for the final commercial product. There can be no assurance that our customer will not receive any objections from the FDA to its Notice of Determination. If the FDA were to disagree with our customer's determination, they could ask our customer to voluntarily withdraw the final commercial product from the market or could initiate legal action to halt its sale. Such actions by the FDA could have an adverse effect on our business, financial condition, and results of our operations. Food ingredients that are not GRAS are regulated as food additives and require FDA approval prior to commercialization. The food additive petition process is generally expensive and time consuming, with approval, if secured, taking years.

Changes in regulatory requirements, laws and policies, or evolving interpretations of existing regulatory requirements, laws and policies, may result in increased compliance costs, delays, capital expenditures and other financial obligations that could adversely affect our business or financial results.

We expect to encounter regulations in most if not all of the countries in which we may seek to sell our food products, and we cannot be sure that we will be able to obtain necessary approvals in a timely manner or at all. If our existing and future food products do not meet applicable regulatory requirements in a particular country or at all, then we may not be able to commercialize them and our business will be adversely affected. The various regulatory schemes applicable to our food products will continue to apply following initial approval for sale. Monitoring regulatory changes and ensuring our ongoing compliance with applicable requirements will be time-consuming and may affect our results of operations. If we fail to comply with such requirements on an ongoing basis, we may be subject to fines or other penalties, or may be prevented from selling our food products and our business may be harmed.

Competitors and potential competitors who have greater resources and experience than we do may develop products and technologies that make ours obsolete or may use their greater resources to gain market share at our expense.

The biocatalysis industry and each of our target markets are characterized by rapid technological change. Our future success will depend on our ability to maintain a competitive position with respect to technological advances. In addition, as we enter new markets, we will face new competition and will need to adapt to competitive factors that may be different from what we face today.

We are aware that other companies, including DSM and Novozymes, have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. Academic institutions such as the California Institute of Technology, the Max Planck Institute and the Center for Fundamental and Applied Molecular Evolution ("FAME"), a jointly sponsored initiative between Emory University and Georgia Institute of Technology, are also working in this field. Technological development by others may result in our products and technologies, as well as products developed by our customers using our biocatalysts, becoming obsolete.

Our primary competitors in the biocatalysis market for pharmaceutical products are companies using conventional, non-enzymatic processes to manufacture pharmaceutical intermediates and APIs that compete in the marketplace with our enzymatically manufactured products. The principal methods of competition and competitive differentiation in this market are product quality and performance, including manufacturing yield and safety and environmental benefits, speed of delivery of product and price. The market for the manufacture and supply of APIs and intermediates is large with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Pfizer, Bristol Myers, Squibb and Teva, who have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates. The processes used by these companies include classical conventional organic chemistry reactions, chemo catalysis reactions catalyzed by chemical catalysts, or biocatalytic routes using commercially available enzymes, or combinations thereof. Our manufacturing processes must compete with these internally developed routes. Additionally, we also face competition from companies such as Solvias Inc. and Takasago International Corporation who use metal-based chemical reactions for their pharmaceutical products, rather than a biocatalytic process. Finally, we face increasing competition from generic pharmaceutical manufacturers in low cost centers such as India and China.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, such as Novozymes, as well as subsidiaries of larger CRO/CMOs, such as DSM, Cambrex Corporation and Almac Group Ltd. There is also competition in the customized and optimized enzyme area from several small European companies, such as BRAIN AG, C-LEcta GmbH and evocatal GmbH.

We entered the fine chemicals market in 2013, when we began to apply our biocatalysis technology in the food and solvents markets. We generally face similar forms of competition in this market as in the pharmaceutical markets. However, the risk of losing out on opportunities in the fine chemicals market to larger competitors is greater than in the pharmaceuticals market due to the larger scale of opportunities available in the fine chemicals market compared to the pharmaceutical market. Our significant competitors in the fine chemical markets include companies that have been in these marketplaces for many years, such as Dupont-Genencor, DSM, Novozymes and A.B. Enterprises. These companies have greater resources in these markets than we do and have long-term supply arrangements already in place with customers. Our ability to compete in these markets may be limited by our relatively late start.

There are numerous companies that participate in the enzyme therapeutics market or PKU market. Many of these companies are large, successful and well-capitalized. BioMarin and Daiichi Sankyo market Kuvan® in the United States, Europe and Japan for the treatment of a certain type of PKU. BioMarin is also conducting a phase III clinical trial for an injectable enzyme substitution therapy for the potential treatment of PKU. Intrexon announced in 2015 its plans to develop a novel therapeutic candidate for PKU disease as well. Shire, Genzyme / Sanofi and other companies market or are actively developing new enzyme therapeutics. There are numerous companies that are developing other forms of therapeutics, such as small molecules and gene therapy, that could compete with enzyme therapeutics.

Our ability to compete successfully in any of these markets will depend on our ability to develop proprietary products that reach the market in a timely manner and are technologically superior to and/or are less expensive than other products on the market. Many of our competitors have substantially greater production, financial, research and development, personnel and marketing resources than we do. They also started developing products earlier than we did, which may allow them to establish blocking intellectual property positions or bring products to market before we can. In addition, certain of our competitors may also benefit from local government subsidies and other incentives that are not available to us. As a result, our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors. We cannot be certain that any products we develop in the future will compare favorably to products offered by our competitors or that our existing or future products will compare favorably to any new products that are developed by our competitors. As more companies develop new intellectual property in our markets, the possibility of a competitor acquiring patent or other rights that may limit our products or potential products increases, which could lead to litigation.

Our limited resources relative to many of our competitors may cause us to fail to anticipate or respond adequately to new developments and other competitive pressures. This failure could reduce our competitiveness and market share, adversely affect our results of operations and financial position, and prevent us from obtaining or maintaining profitability.

We must rely on our suppliers, contract manufacturers and customers to deliver timely and accurate information in order to accurately report our financial results in the time frame and manner required by law.

We need to receive timely, accurate and complete information from a number of third parties in order to accurately report our financial results on a timely basis. We rely on suppliers and certain contract manufacturers to provide us with timely and

accurate information regarding our inventories and manufacturing cost information, and we rely on current and former collaborators to provide us with product sales and cost saving information in connection with royalties owed to us. Any failure to receive timely information from one or more of these third parties could require that we estimate a greater portion of our revenues and other operating performance metrics for the period, which could cause our reported financial results to be incorrect. Moreover, if the information that we receive is not accurate, our financial statements may be materially incorrect and may require restatement, and we may not receive the full amount of revenues that we are entitled to under these arrangements. Although we typically have audit rights with these parties, performing such an audit could be harmful to our collaborative relationships, expensive and time consuming and may not be sufficient to reveal any discrepancies in a timeframe consistent with our reporting requirements.

Our results of operations may be adversely affected by the results of regulatory tax examinations.

We are subject to value added tax, customs tax, sales and use tax, withholding tax, payroll tax, income tax and other taxes in connection with the operation of our business. Regulators from the various jurisdictions in which we operate periodically perform audits, and we are regularly subject to, and are currently undergoing, audits and assessments by tax authorities in the United States and foreign jurisdictions for prior tax years. Although we believe our tax estimates are reasonable, and we intend to defend our positions if necessary, the final outcome of tax audits and related proceedings is inherently uncertain and could be materially different than that reflected in our historical income tax provisions and accruals. Moreover, we could be subject to assessments of substantial additional taxes and/or fines or penalties relating to ongoing or future audits. The adverse resolution of any audits or related proceedings could have an adverse effect on our financial position and results of operations.

Business interruptions could delay us in the process of developing our products and could disrupt our sales.

Our headquarters is located in the San Francisco Bay Area near known earthquake fault zones and is vulnerable to significant damage from earthquakes. We are also vulnerable to other types of natural disasters and other events that could disrupt our operations, such as riot, civil disturbances, war, terrorist acts, flood, infections in our laboratory or production facilities or those of our contract manufacturers and other events beyond our control. We do not carry insurance for earthquakes and we may not carry sufficient business interruption insurance to compensate us for losses that may occur. Any losses or damages we incur could have a material adverse effect on our cash flows and success as an overall business.

Ethical, legal and social concerns about genetically engineered products and processes could limit or prevent the use of our products, processes, and technologies and limit our revenues.

Some of our products and processes are genetically engineered or involve the use of genetically engineered products or genetic engineering technologies. If we and/or our collaborators are not able to overcome the ethical, legal, and social concerns relating to genetic engineering, our products and processes may not be accepted. Any of the risks discussed below could result in increased expenses, delays, or other impediments to our programs or the public acceptance and commercialization of products and processes dependent on our technologies or inventions. Our ability to develop and commercialize one or more of our technologies, products, or processes could be limited by the following factors:

- public attitudes about the safety and environmental hazards of, and ethical concerns over, genetic research and genetically engineered products and processes, which could influence public acceptance of our technologies, products and processes;
- public attitudes regarding, and potential changes to laws governing ownership of genetic material, which could harm our intellectual property rights with respect to our genetic material and discourage collaborators from supporting, developing, or commercializing our products, processes and technologies; and
- governmental reaction to negative publicity concerning genetically modified organisms, which could result in greater government regulation of genetic research and derivative products. The subject of genetically modified organisms has received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on imports of genetically altered products. The biocatalysts that we develop have significantly enhanced characteristics compared to those found in naturally occurring enzymes or microbes. While we produce our biocatalysts only for use in a controlled industrial environment, the release of such biocatalysts into uncontrolled environments could have unintended consequences. Any adverse effect resulting from such a release could have a material adverse effect on our business and financial condition, and we may have exposure to liability for any resulting harm.

If we engage in any acquisitions, we will incur a variety of costs and may potentially face numerous risks that could adversely affect our business and operations.

We have made acquisitions in the past, and if appropriate opportunities become available, we expect to acquire additional businesses, assets, technologies, or products to enhance our business in the future. For example, in October 2010, we acquired substantially all of the patents and other intellectual property rights associated with Maxygen's directed evolution technology.

In connection with any future acquisitions, we could:

- issue additional equity securities, which would dilute our current stockholders;
- incur substantial debt to fund the acquisitions;
- use our cash to fund the acquisitions; or
- assume significant liabilities including litigation risk.

Acquisitions involve numerous risks, including problems integrating the purchased operations, technologies or products, unanticipated costs and other liabilities, diversion of management's attention from our core businesses, adverse effects on existing business relationships with current and/or prospective collaborators, customers and/or suppliers, risks associated with entering markets in which we have no or limited prior experience and potential loss of key employees. We do not have extensive experience in managing the integration process and we may not be able to successfully integrate any businesses, assets, products, technologies, or personnel that we might acquire in the future without a significant expenditure of operating, financial and management resources, if at all. The integration process could divert management's time from focusing on operating our business, result in a decline in employee morale and cause retention issues to arise from changes in compensation, reporting relationships, future prospects or the direction of the business. Acquisitions may also require us to record goodwill and non-amortizable intangible assets that will be subject to impairment testing on a regular basis and potential periodic impairment charges, incur amortization expenses related to certain intangible assets, and incur large and immediate write offs and restructuring and other related expenses, all of which could harm our operating results and financial condition. In addition, we may acquire companies that have insufficient internal financial controls, which could impair our ability to integrate the acquired company and adversely impact our financial reporting. If we fail in our integration efforts with respect to any of our acquisitions and are unable to efficiently operate as a combined organization, our business and financial condition may be adversely affected.

We use hazardous materials in our business and we must comply with environmental laws and regulations. Any claims relating to improper handling, storage or disposal of these materials or noncompliance of applicable laws and regulations could be time consuming and costly and could adversely affect our business and results of operations.

Our research and development and commercial processes involve the use of hazardous materials, including chemical, radioactive, and biological materials. Our operations also produce hazardous waste. We cannot eliminate entirely the risk of accidental contamination or discharge and any resultant injury from these materials. Federal, state, local and foreign laws and regulations govern the use, manufacture, storage, handling and disposal of, and human exposure to, these materials. We may be sued for any injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Although we believe that our activities comply in all material respects with environmental laws, there can be no assurance that violations of environmental, health and safety laws will not occur in the future as a result of human error, accident, equipment failure or other causes. Compliance with applicable environmental laws and regulations may be expensive, and the failure to comply with past, present, or future laws could result in the imposition of fines, third party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production, or a cessation of operations, and our liability may exceed our total assets. Liability under environmental laws can be joint and several and without regard to comparative fault. Environmental laws could become more stringent over time imposing greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business. In addition, we may have to indemnify some of our customers or suppliers for losses related to our failure to comply with environmental laws, which could expose us to significant liabilities.

We may be sued for product liability.

The design, development, manufacture and sale of our products involve an inherent risk of product liability claims and the associated adverse publicity. For example, we may be named directly in product liability suits relating to drugs that are produced using our enzymes or that incorporate our intermediates and APIs. The biocatalysts, pharmaceutical intermediates and APIs that we produce or are produced for us by our manufacturing partners could be subject to quality control or contamination issues of which we are not aware. Claims could be brought by various parties, including customers who are purchasing

products directly from us, other companies who purchase products from our customers or by the end users of the drugs. We could also be named as co-parties in product liability suits that are brought against our contract manufacturers who manufacture our enzymes, pharmaceutical intermediates and APIs, such as Lactosan. Insurance coverage is expensive and may be difficult to obtain, and may not be available in the future on acceptable terms, or at all. We cannot assure you that any contract manufacturer that we have used in the past or shall use in the future has or will have adequate insurance coverage to cover against potential claims. In addition, although we currently maintain product liability insurance for our products in amounts we believe to be commercially reasonable, if the coverage limits of these insurance policies are not adequate, a claim brought against us, whether covered by insurance or not, could have a material adverse effect on our business, results of operations, financial condition and cash flows. This insurance may not provide adequate coverage against potential losses, and if claims or losses exceed our liability insurance coverage, we may go out of business. Moreover, we have agreed to indemnify some of our customers for certain claims that may arise out of the use of our products, which could expose us to significant liabilities.

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

In general, under Section 382 of the Internal Revenue Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating loss carryforwards ("NOLs"), to offset future taxable income. If the Internal Revenue Service challenges our analysis that our existing NOLs are not subject to limitations arising from previous ownership changes, our ability to utilize NOLs could be limited by Section 382 of the Internal Revenue Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Internal Revenue Code. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to utilize a material portion of the NOLs reflected in our financial statements, even if we attain profitability.

Risks Related to Owning our Common Stock

We are subject to anti-takeover provisions in our certificate of incorporation and bylaws and under Delaware law that could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders.

Provisions in our amended and restated certificate of incorporation and our bylaws may delay or prevent an acquisition of us. Among other things, our amended and restated certificate of incorporation and bylaws provide for a board of directors which is divided into three classes, with staggered three-year terms and provide that all stockholder action must be effected at a duly called meeting of the stockholders and not by a consent in writing, and further provide that only our board of directors, the chairman of the board of directors, our chief executive officer or president may call a special meeting of the stockholders. In addition, our amended and restated certificate of incorporation allows our board of directors, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These provisions may also frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management team. Furthermore, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law which prohibits, with some exceptions, stockholders owning in excess of 15% of our outstanding voting stock from merging or combining with us. Finally, our charter documents establish advanced notice requirements for nominations for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings. Although we believe these provisions together provide for an opportunity to receive higher bids by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer to acquire our company may be considered beneficial by some stockholders.

Concentration of ownership among our existing officers, directors and principal stockholders may prevent other stockholders from influencing significant corporate decisions and depress our stock price.

Based on the number of shares outstanding as of December 31, 2015, our officers, directors and stockholders who hold at least 5% of our stock together beneficially own approximately 44% of our outstanding common stock. If these officers, directors, and principal stockholders or a group of our principal stockholders act together, they will be able to exert a significant degree of influence over our management and affairs and control matters requiring stockholder approval, including the election of directors and approval of mergers or other business combination transactions. The interests of this concentration of ownership may not always coincide with our interests or the interests of other stockholders. For instance, officers, directors, and principal stockholders, acting together, could cause us to enter into transactions or agreements that we would not otherwise consider. Similarly, this concentration of ownership may have the effect of delaying or preventing a change in control of our company otherwise favored by our other stockholders. As of December 31, 2015, two stockholders beneficially owned approximately 26% of our common stock in the aggregate.

Our share price may be volatile which may cause the value of our common stock to decline and subject us to securities class action litigation.

The market price of shares of our common stock could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- actual or anticipated fluctuations in our financial condition and operating results;
- the position of our cash, cash equivalents and marketable securities;
- actual or anticipated changes in our growth rate relative to our competitors;
- actual or anticipated fluctuations in our competitors' operating results or changes in their growth rate;
- announcements of technological innovations by us, our collaborators or our competitors;
- announcements by us, our collaborators or our competitors of significant acquisitions or dispositions, strategic partnerships, joint ventures or capital commitments;
- additions or losses of one or more significant pharmaceutical products;
- announcements or developments regarding pharmaceutical products manufactured using our biocatalysts, intermediates and APIs;
- the entry into, modification or termination of collaborative arrangements;
- additions or losses of customers;
- additions or departures of key management or scientific personnel;
- competition from existing products or new products that may emerge;
- issuance of new or updated research reports by securities or industry analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patent litigation and our ability to obtain patent protection for our technologies;
- contractual disputes or litigation with our partners, customers or suppliers;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or our other stockholders;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- general market conditions in our industry; and
- general economic and market conditions, including the recent financial crisis.

Furthermore, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of shares of our common stock. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock in a negative manner, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price or trading volume to decline.

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to compliance initiatives.

As a public company, we incur significant legal, accounting and other expenses. In addition, the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as related rules implemented by the Securities and

Exchange Commission and The NASDAQ Stock Market, impose various requirements on public companies that require our management and other personnel to devote a substantial amount of time to compliance initiatives.

In addition, the Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management and our independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. Our compliance with Section 404 requires that we incur substantial accounting expense and expend significant management time on compliance-related issues. Moreover, if we are not able to maintain compliance with the requirements of Section 404, our stock price could decline, and we could face sanctions, delisting or investigations by The NASDAQ Global Market, or other material adverse effects on our business, reputation, results of operations, financial condition or liquidity.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

Facilities

Our headquarters are located in Redwood City, California, where we lease approximately 107,200 square feet of office and laboratory space.

Our lease with Metropolitan Life Insurance Company ("MetLife") includes approximately 28,200 square feet of space located at 200 and 220 Penobscot Drive, Redwood City, California (the "Penobscot Space"), approximately 37,900 square feet of space located at 400 Penobscot Drive, Redwood City, California (the "Building 2 Space"), and approximately 29,900 square feet of space located at 101 Saginaw Drive, Redwood City, California (the "Saginaw Space"). The term of the lease of the Penobscot Space, the Building 2 Space and the Saginaw Space lasts until January 31, 2020, and we have options to extend for two additional five year periods. In February 2014, we agreed to sublet approximately 26,500 square feet of the Saginaw Space to a subtenant for a period of three years, and the subtenant has two consecutive options to extend the sublease term for such portion of the Saginaw Space for an additional period of one year per option. In January 2015, we agreed to sublet approximately 3,400 square feet of the Saginaw Space to a subtenant for a period of approximately two years and the subtenant has an option to extend the sublease term for such portion of the Saginaw Space for an additional period of three years. In October 2015, we agreed to sublet approximately 20,200 square feet of the Penobscot Space to a subtenant through November 30, 2019.

We also lease approximately 11,200 square feet of space located at 501 Chesapeake Drive, Redwood City, California (the "501 Chesapeake Space"). In September 2012, we entered into a Sixth Amendment to Lease (the "Sixth Amendment") with MetLife with respect to the 501 Chesapeake Space to extend the term of the lease of the 501 Chesapeake Space to January 31, 2017. Pursuant to the Sixth Amendment, we have two consecutive options to extend the term of the lease for the 501 Chesapeake Space for an additional period of five years per option.

We believe that the facilities that we currently lease in California are adequate for our needs for the immediate future and that, should it be needed, additional space can be leased to accommodate any future growth.

ITEM 3. LEGAL PROCEEDINGS

On February 19, 2016, we filed a complaint against EnzymeWorks, Inc., a California corporation, EnzymeWorks, Inc., a Chinese corporation, and Junhua "Alex" Tao (collectively, the "Defendants") in the United States District Court for the Northern District of California. The complaint alleges that the Defendants have engaged in willful patent infringement, trade secret misappropriation, breach of confidence, intentional interference with contractual relations, intentional interference with prospective economic relations and statutory and common law unfair competition. We have sought injunctive relief, monetary damages, treble damages, restitution, punitive damages and attorneys' fees.

Other than our litigation against the Defendants, we are not currently a party to any material litigation or other material legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our common stock is quoted on The NASDAQ Global Select Market ("NASDAQ"), under the symbol "CDXS." The following table sets forth the high and low sales prices per share of the common stock as reported on NASDAQ. Such quotations represent inter dealer prices without retail markup, markdown or commission and may not necessarily represent actual transactions.

Fiscal 2015	High	Low
First Quarter	$ 4.59	$ 2.50
Second Quarter	5.65	3.62
Third Quarter	4.62	3.02
Fourth Quarter	4.50	3.02

Fiscal 2014	High	Low
First Quarter	$ 2.17	$ 1.32
Second Quarter	2.07	1.34
Third Quarter	2.77	1.38
Fourth Quarter	3.30	2.05

As of February 26, 2016, there were approximately 151 shareholders of record. A substantially greater number of stockholders may be "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividend Policy

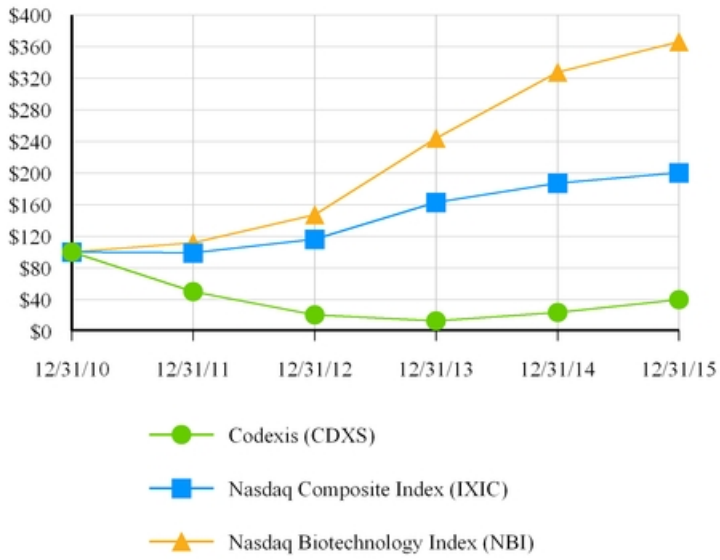
We have never declared or paid cash dividends on our common stock, and currently do not plan to declare dividends on shares of our common stock in the foreseeable future. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. The payment of cash dividends in the future, if any, will be at the discretion of our board of directors and will depend upon such factors as earnings levels, capital requirements, our overall financial condition and any other factors deemed relevant by our board of directors.

Stock Price Performance Graph

The following tabular information and graph compare our total common stock return with the total return for (i) the NASDAQ Composite Index and (ii) the NASDAQ Biotechnology Index for the period December 31, 2010 through December 31, 2015. The figures represented below assume an investment of $100 in our common stock at the closing price on December 31, 2010 and in the NASDAQ Composite Index and the NASDAQ Biotechnology Index on December 31, 2010 and the reinvestment of dividends into shares of common stock. The comparisons in the table and graph are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock. The tabular information and graph shall not be deemed "soliciting material" or to be "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act or the Exchange Act.

$100 investment in stock or index	Ticker	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015
Codexis	CDXS	$ 100.00	$ 50.00	$ 20.85	$ 13.21	$ 23.77	$ 39.91
Nasdaq Composite Index	IXIC	$ 100.00	$ 99.17	$ 116.48	$ 163.21	$ 187.27	$ 200.31
Nasdaq Biotechnology Index	NBI	$ 100.00	$ 111.81	$ 147.48	$ 244.24	$ 327.52	$ 366.06

Comparison of Cumulative Total Return
Among Codexis, Nasdaq Composite Index and Nasdaq Biotechnology Index



ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data should be read together with our consolidated financial statements and accompanying notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this Annual Report on Form 10-K. The selected consolidated financial data in this section is not intended to replace our consolidated financial statements and the accompanying notes. Our historical results are not necessarily indicative of our future results.

We derived the consolidated statements of operations data for the fiscal years ended December 31,2015, 2014, and 2013 and the consolidated balance sheets data as of December 31, 2015 and 2014 from our audited consolidated financial statements appearing elsewhere in this filing. The consolidated statements of operations data for the fiscal years ended December 31, 2012 and 2011 and the consolidated balance sheets data as of December 31, 2013, 2012 and 2011 have been derived from our audited consolidated financial statements not included in this filing. The data should be read in conjunction with the consolidated financial statements, related notes, and other financial information included herein.

SELECTED CONSOLIDATED FINANCIAL DATA

	Years Ended December 31,				
	2015	2014	2013	2012	2011
	(In Thousands, Except Per Share Amounts)				
Consolidated Statements of Operations Data:					
Revenues:					
Biocatalyst product revenues	$ 11,376	$ 13,064	$ 20,423	$ 35,924	$ 49,021
Biocatalyst research and development	25,599	14,945	6,868	49,977	70,918
Revenue sharing arrangement	4,829	7,298	4,631	150	450
Government awards	—	—	—	2,247	3,476
Total revenues	41,804	35,307	31,922	88,298	123,865
Costs and operating expenses:					
Cost of biocatalyst product revenues	6,586	9,726	14,554	30,647	41,781
Research and development	20,673	22,755	31,606	56,785	61,049
Selling, general and administrative	22,315	21,937	26,908	31,379	36,942
Total costs and operating expenses	49,574	54,418	73,068	118,811	139,772
Loss from operations	(7,770)	(19,111)	(41,146)	(30,513)	(15,907)
Interest income	19	18	60	252	273
Other expense	(168)	(234)	(304)	(326)	(675)
Loss before income taxes	(7,919)	(19,327)	(41,390)	(30,587)	(16,309)
Provision for (benefit from) income taxes	(338)	(256)	(87)	270	241
Net loss	$ (7,581)	$ (19,071)	$ (41,303)	$ (30,857)	$ (16,550)
Net loss per share, basic and diluted	$ (0.19)	$ (0.50)	$ (1.08)	$ (0.84)	$ (0.46)
Weighted average common shares used in computing net loss per share, basic and diluted	39,438	38,209	38,231	36,768	35,674

	December 31,				
	2015	2014	2013	2012	2011
Consolidated Balance Sheets Data:	(In Thousands)				
Cash, cash equivalents and short-term investments	$ 23,273	$ 26,487	$ 25,135	$ 45,527	$ 53,482
Working capital	17,998	19,272	24,582	43,486	50,940
Total assets	44,647	48,122	58,840	99,965	135,922
Total liabilities	21,768	21,811	17,357	21,525	33,232
Total stockholders' equity	22,879	26,311	41,483	78,440	102,690

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with our audited consolidated financial statements and the related notes that appear elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. 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 discussed in the section titled "Risk Factors," set forth in Part I, Item 1A of this Annual Report on Form 10-K and elsewhere in this report. The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. 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 Annual Report on Form 10-K.

Business Overview

We develop biocatalysts for the pharmaceutical and fine chemicals markets. Our proven technologies enable scale-up and implementation of biocatalytic solutions to meet customer needs for rapid, cost-effective and sustainable process development, from research to manufacturing.

Biocatalysts are enzymes that initiate and/or accelerate chemical reactions. Manufacturers have historically used naturally occurring biocatalysts to produce many goods used in everyday life. However, inherent limitations in naturally occurring biocatalysts have restricted their commercial use. Our proprietary CodeEvolver® protein engineering technology platform, which introduces genetic mutations into genes in order to give rise to changes in the enzymes that they produce, is able to overcome many of these limitations, allowing us to evolve and optimize biocatalysts to perform specific and desired chemical reactions at commercial scale. Once potentially beneficial mutations are identified through this proprietary process, combinations of these mutations can then be tested until variant enzymes have been created that exhibit marketable performance characteristics superior to competitive products. This process allows for continuous, efficient improvements to the performance of enzymes. In the past, we implemented the CodeEvolver® protein engineering technology platform through paid collaborations with our customers. In July 2014, we entered into our first license agreement pursuant to which we granted a license to a global pharmaceutical company to use the CodeEvolver® protein engineering technology platform for their internal development purposes. In August 2015, we entered into a second license agreement involving the CodeEvolver® protein engineering technology platform with another global pharmaceutical company and we continue to pursue platform licensing opportunities with additional customers.

We have commercialized our technology and products in the pharmaceuticals market, which is our primary business focus. Our pharmaceutical customers, which include several of the large global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development.

We also use our technology to develop biocatalysts 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 and fragrances, and agricultural chemicals.

We have also used our technology to develop an early stage, novel enzyme therapeutic product candidate for the potential treatment of phenylketonuria ("PKU") in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient.

Results of Operations Overview

Revenues were $41.8 million in 2015, an 18% increase from $35.3 million in 2014. Biocatalyst product sales revenues, which consist primarily of sales of biocatalyst intermediates, APIs and Codex® Biocatalyst Panels and Kits, were $11.4 million in 2015, a decrease of 13% compared with $13.1 million in 2014. The decrease was primarily due to the timing of customer demand in 2015 as compared to 2014.

Biocatalyst research and development revenues, which include license, technology access and exclusivity fees, research services, milestone payments, royalties, and optimization and screening fees, totaled $25.6 million in 2015, an increase of 71%,

compared with $14.9 million in 2014. The increase was primarily due to the achievement of the first milestone under the Merck License Agreement of $5.0 million, $1.5 million increase in milestone related revenue recognized under the GSK License Agreement ($6.5 million in 2015 compared to $5.0 million in the prior year), $3.1 million settlement relating to past-due payments and settlement of future payments associated with our royalty business with a non-core customer, and $1.5 million in research and development revenues relating to the project we initiated with the leading biopharmaceutical company in 2015.

Revenue sharing arrangement sales were $4.8 million in 2015, a decrease of 34%, compared with $7.3 million in 2014. The decline resulted following the expiration of the formulation patent for argatroban in June 2014, allowing for increased generic competition in the subsequent quarters after the expiration of the patent.

Research and development expenses were $20.7 million in 2015, a decrease of 9% from $22.8 million in 2014. The decrease was primarily due to lower depreciation expense resulting from the disposal and impairment of certain equipment previously used in discontinued research and development activities and the sale of our Hungarian subsidiary in 2014, partially offset by an increase in employee-related expenses.

Selling, general and administrative expenses were $22.3 million in 2015, an increase of 2% compared to $21.9 million in 2014. The increase was primarily due to increases in personnel-related expenses, including an increase in stock-based compensation, partially offset by decreases in legal and contractor expenses.

Net loss was $7.6 million, or a loss of $0.19 per share, in 2015. This compares favorably to a net loss of $19.1 million, or a loss of $0.50 per share, in 2014. The reduced loss is primarily related to higher revenue, lower cost of product revenues due to a favorable product sales mix in 2015 as well as lower research and development expense as noted above.

Cash and cash equivalents decreased to $23.3 million as of December 31, 2015 compared to $26.5 million as of December 31, 2014. In addition, net cash used in operations was $0.4 million in 2015, as compared to net cash provided by operations of $0.3 million in 2014.

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

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into the GSK CodeEvolver® Agreement. Pursuant to the terms of the agreement, we granted GSK a non-exclusive license to use the CodeEvolver® Platform Technology to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products.

We received a $6.0 million up-front license fee upon execution of the GSK CodeEvolver® Agreement and subsequently a $5.0 million non-creditable, non-refundable milestone payment upon achievement of the first milestone in 2014. In September 2015, we achieved the second milestone and recognized the related milestone payment of $6.5 million. We are eligible to receive an additional contingent payment of $7.5 million upon the completion of the three-year technology transfer period. We also have the potential to receive additional contingent payments that range from $5.75 million to $38.5 million per project based on GSK’s successful application of the licensed technology. The contingent payments are not deemed substantive milestones due to the fact that the achievement of the event underlying the payment predominantly relates to GSK’s performance of future development and commercialization activities.

For up to three years following the end of the technology transfer period, GSK can exercise an option, upon payment of certain additional fees, that would extend GSK’s license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during such additional period. In addition, we are eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using the CodeEvolver® protein engineering technology platform. The up-front license fee of $6.0 million is being recognized ratably over the three-year technology transfer period. We recognized license fees of $2.0 million and $1.0 million, respectively, in 2015 and 2014, as biocatalyst research and development revenue. As of December 31, 2015 and 2014, we had deferred revenue from GSK related to the up-front license fee of $3.0 million and $5.0 million, respectively.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® platform technology transfer and license agreement (the "Merck CodeEvolver® Agreement") with 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 signing the Merck CodeEvolver® Agreement, which is being recognized ratably over two years. We recognized license fees of $1.0 million in 2015 as biocatalyst research and development revenues. As ofDecember 31, 2015, we had deferred revenue related to the Merck CodeEvolver® Agreement license fees of $4.0 million. We achieved the first milestone in of the Merck CodeEvolver® Agreement earning a milestone payment of $5.0 million in September 2015. We are eligible to receive an additional $8.0 million subject to the satisfactory completion of the second milestone of the technology transfer process. We will also be eligible 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.

Under the Merck CodeEvolver® Agreement, we will transfer the CodeEvolver® protein engineering technology platform to Merck over an approximately15 to 24 month period starting on the effective date of the agreement. As part of this technology transfer, we will provide to Merck our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. Upon completion of technology transfer, Merck will have CodeEvolver® protein engineering technology platform installed at its designated site.

At the end of the technology transfer period, Merck can exercise annual options that, upon payment of certain option fees, would extend Merck's license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during the three-year period that begins at the end of the technology transfer period.

Through November 3, 2016, we will provide additional enzyme evolution services to Merck at our laboratories in Redwood City.

Results of Operations

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

	Years Ended December 31,			% of Total Revenues		
	2015	2014	2013	2015	2014	2013
Revenues:						
Biocatalyst product sales	$ 11,376	$ 13,064	$ 20,423	27 %	37 %	64 %
Biocatalyst research and development	25,599	14,945	6,868	61 %	42 %	22 %
Revenue sharing arrangement	4,829	7,298	4,631	12 %	21 %	14 %
Total revenues	41,804	35,307	31,922	100 %	100 %	100 %
Costs and operating expenses:						
Cost of biocatalyst product sales	6,586	9,726	14,554	16 %	28 %	46 %
Research and development	20,673	22,755	31,606	49 %	64 %	99 %
Selling, general and administrative	22,315	21,937	26,908	53 %	62 %	84 %
Total costs and operating expenses	49,574	54,418	73,068	118 %	154 %	229 %
Loss from operations	(7,770)	(19,111)	(41,146)	(19)%	(54)%	(129)%
Interest income	19	18	60	— %	— %	— %
Other expense	(168)	(234)	(304)	— %	(1)%	(1)%
Loss before income taxes	(7,919)	(19,327)	(41,390)	(19)%	(55)%	(130)%
Benefit from income taxes	(338)	(256)	(87)	(1)%	(1)%	— %
Net loss	$ (7,581)	$ (19,071)	$ (41,303)	(18)%	(54)%	(129)%

Revenues

Our revenue is comprised of biocatalyst product sales, biocatalyst research and development revenue and a revenue sharing arrangement.

- Biocatalyst product sales revenue consists of sales of biocatalyst enzymes, chemical intermediates, and Codex® Biocatalyst Panels and Kits.
- Biocatalyst research and development revenue includes license, technology access and exclusivity fees, research services FTE, milestone payments, royalties, and optimization and screening fees.
- Revenue sharing arrangement revenue is recognized based upon receipt of information regarding the sales of licensed products by Exela.

	Years Ended December 31,			Change			
				2015		2014	
(In Thousands)	2015	2014	2013	$	%	$	%
Biocatalyst product sales	$ 11,376	$ 13,064	$ 20,423	$ (1,688)	(13)%	$ (7,359)	(36)%
Biocatalyst research and development	25,599	14,945	6,868	10,654	71 %	8,077	118 %
Revenue sharing arrangement	4,829	7,298	4,631	(2,469)	(34)%	2,667	58 %
Total revenues	$ 41,804	$ 35,307	$ 31,922	$ 6,497	18 %	$ 3,385	11 %

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.

2015 compared to 2014

Total revenue increased $6.5 million in 2015 to $41.8 million, as compared to 2014. The increase was driven by an increase in biocatalyst research and development, partially offset by decreases in biocatalyst product sales and revenues from our revenue-sharing arrangement with Exela.

Biocatalyst product sales decreased $1.7 million in 2015 to $11.4 million, as compared to 2014. The decreases were primarily due to the timing of customer demand in 2015 as compared to 2014.

Biocatalyst research and development revenue increased $10.7 million in 2015 to $25.6 million, as compared to 2014. The increase was primarily due to the achievement of a $5.0 million milestone under the Merck CodeEvolver® Agreement, $1.5 million increase in milestone related revenue recognized under the GSK CodeEvolver® Agreement, $3.1 million settlement relating to past-due payments and settlement of future payments associated with our royalty business with a non-core customer, and $1.5 million in research and development revenues relating to the project we initiated with the leading biopharmaceutical company in 2015.

Revenue sharing arrangement revenue decreased $2.5 million in 2015 to $4.8 million, as compared to 2014. The decrease is the result of the expiration of the formulation patent for argatroban in June 2014, allowing for generic competition in the subsequent quarters after the expiration of the patent. We expect that revenue sharing arrangement revenue may decline in future quarters due to increased competition that may result from the expiration of a third party patent related to the production of argatroban.

2014 compared to 2013

Total revenue increased $3.4 million in 2014 to $35.3 million, as compared to 2013. The increase was mainly attributable to an increase in biocatalyst research and development and revenue sharing arrangement, partially offset by a decrease in biocatalyst product sales.

Biocatalyst product sales decreased $7.4 million in 2014 to $13.1 million, as compared to 2013. The decrease was primarily due to the loss of biocatalyst and intermediates sales of $6.2 million to our customers who sold hepatitis C products, which were replaced in our customers' marketplace by an alternative product, and a decrease in sales of statin family products of $1.4 million resulting from increased competition from generic pharmaceuticals.

Biocatalyst research and development revenue increased $8.1 million in 2014 to $14.9 million, as compared to 2013. The increase was mainly attributable to a $5.0 million milestone payment and an increase in license fee revenue resulting primarily from the GSK CodeEvolver® Agreement.

Revenue sharing arrangement revenue increased $2.7 million in 2014 to $7.3 million, as compared to 2013, due to increased sales by Exela for the anticoagulant drug argatroban.

Cost and Operating Expenses

	Years Ended December 31,			Change			
				2015		2014	
(In Thousands)	2015	2014	2013	$	%	$	%
Cost of biocatalyst product sales	$ 6,586	$ 9,726	$ 14,554	$ (3,140)	(32)%	$ (4,828)	(33)%
Research and development	20,673	22,755	31,606	(2,082)	(9)%	(8,851)	(28)%
Selling, general and administrative	22,315	21,937	26,908	378	2 %	(4,971)	(18)%
Total operating expenses	$ 49,574	$ 54,418	$ 73,068	$ (4,844)	(9)%	$ (18,650)	(26)%

Cost of Biocatalyst Product Sales

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

2015 compared to 2014

Cost of biocatalyst product sales decreased $3.1 million in 2015 to $6.6 million, as compared to 2014. The decrease was primarily due to a favorable product sales mix resulting in a gross margin improvement from 26% in 2014 to 42% in 2015.

2014 compared to 2013

Cost of biocatalyst product sales decreased $4.8 million in 2014 to $9.7 million, as compared to 2013. The decrease was primarily due to the decrease of contract manufacturing costs related to reduced hepatitis C product sales and statin family product sales in the first quarter of 2013. Our gross margin decreased to 26% in 2014 compared to 29% in 2013, primarily due to a change in product sales mix.

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. 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, depreciation of facilities and laboratory equipment and amortization of acquired technologies, and (iii) external costs. Research and development expenses are expensed when incurred.

2015 compared to 2014

Research and development expenses decreased $2.1 million in 2015 to $20.7 million, as compared to 2014. Research and development expenses in 2014 included $2.7 million of non-recurring non-cash impairment charges, of which $1.8 million was related to the write down of assets associated with our CodeXol® detergent alcohols program and the remainder related to the changes in fair value of assets held for sale. In addition, research and development expenses in 2014 included a $0.8 million gain from the sale of our former Hungarian subsidiary. Excluding the aforementioned non-recurring charges, research and development expenses decreased $0.3 million in 2015 compared to 2014. The decrease was primarily driven by a decrease in depreciation expenses resulting from the aforementioned impairment charges and the sale of our Hungarian subsidiary in 2014, partially offset by a $0.6 million increase in employee-related expenses.

2014 compared to 2013

Research and development expenses decreased $8.9 million in 2014 to $22.8 million, as compared to 2013. The results in 2014 include non-cash impairment charges of $2.7 million, of which $1.8 million was related to the write down of assets associated with our CodeXol® detergent alcohols program and the remainder related to the changes in fair value of assets held for sale. Excluding non-recurring charges, research and development expenses decreased $11.6 million in 2014, as compared to 2013. The decrease was primarily due to decreased employee-related expenses associated with the company-wide restructuring

implemented in late 2013, as well as decreased depreciation expense resulting from the disposal and impairment of certain equipment previously used in discontinued research and development activities. Our research and development headcount decreased by 34 employees to 48 employees at December 31, 2014. Research and development expenses included stock-based compensation expense of $1.0 million in 2014, as compared to $1.2 million in 2013.

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 counsel related costs), marketing costs, building lease costs, and depreciation and amortization expenses.

2015 compared to 2014

Selling, general and administrative expenses was $22.3 million in 2015 compared to $21.9 million 2014, an increase of $0.4 million or 2%. The increase was primarily due to increases in personnel-related expenses, including an increase in stock-based compensation, partially offset by decreases in legal and contractor expenses.

2014 compared to 2013

Selling, general and administrative expenses decreased $5.0 million in 2014 to $21.9 million, as compared to 2013. The decrease was primarily due to decreases in employee related expenses, consulting and outside services. Our selling, general and administrative headcount of 43 employees at December 31, 2014 remained unchanged compared to December 31, 2013. Selling, general and administrative expenses included stock-based compensation expense of $3.7 million in 2014, as compared to $3.2 million in 2013.

Restructuring Charges

All Restructuring Plans	**Years Ended December 31,**		
(In Thousands)	**2015**	**2014**	**2013**
Research and development	$ —	$ —	$ 573
Selling, general and administrative	—	—	210
Total restructuring expenses	$ —	$ —	$ 783

During the fourth quarter of 2013, our board of directors approved and committed to a restructuring plan to reduce our cost structure as a result of the winding down of our CodeXyme® cellulase enzyme program. In 2013, we recorded restructuring expenses of $0.8 million, primarily for employee severance and other termination benefits, consisting of $0.6 million in research and development expenses and $0.2 million in selling, general and administrative expenses. See Note 16 - Restructuring to our consolidated financial statements.

Other Income (Expense), net

				Change			
	Years Ended December 31,			**2015**		**2014**	
(In Thousands)	**2015**	**2014**	**2013**	**$**	**%**	**$**	**%**
Interest income	$ 19	$ 18	$ 60	$ 1	6 %	$ (42)	(70)%
Other expense	(168)	(234)	(304)	(66)	(28)%	(70)	(23)%
Total other income (expense), net	$ (149)	$ (216)	$ (244)	$ (67)	(31)%	$ (28)	(11)%

Interest Income

Interest income in 2015 was relatively flat compared to 2014. Interest income decreased by $42.0 thousand in 2014 compared to 2013, driven primarily by decreased balances in our cash equivalents and short-term investments.

Other expense

Other expense decreased $66.0 thousand in 2015 compared to 2014 and decreased $70.0 thousand in 2014 compared to 2013. The decreases were primarily due to fluctuations in foreign currency.

Benefit from Income Taxes

	Years Ended December 31,			Change			
				2015		2014	
(In Thousands)	2015	2014	2013	$	%	$	%
Benefit from income taxes	$ (338)	$ (256)	$ (87)	$ 82	32%	$ 169	194%

The tax benefit for 2015 primarily related to unrealized gains from changes in the fair value of our investment in CO_2 Solutions. The total tax benefit in 2014 primarily consists of income tax benefit attributable to foreign operations offset by foreign country taxes, and accrued future withholding taxes on dividends. In 2014, we recognized approximately $0.4 million of previously unrealized tax benefits related to our operations in Singapore. The tax benefit for 2013 is primarily related to losses in international locations and changes in deferred taxes.

We continue to recognize 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.

Liquidity and Capital Resources

Liquidity is the measurement of our ability to meet working capital needs and to fund capital expenditures. Our sources of cash include operations and, to a lesser extent, stock option exercises. 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.

The following summarizes our cash and cash equivalents balance and working capital as ofDecember 31, 2015, 2014 and 2013:

	December 31,		
(In Thousands)	2015	2014	2013
Cash and cash equivalents	$ 23,273	$ 26,487	$ 22,130
Working capital	17,998	19,272	24,582

In addition to our existing cash and cash equivalents, 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 expect to receive payments totaling $15.5 million in 2016 from the achievement of milestones under our collaborative arrangements with GSK and Merck. 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 revenue and gross margins in future periods.

We have historically experienced negative cash flows from operations as we continue to invest in key technology development projects and improvements to our biocatalysis technology platform, and expand our business development and collaboration 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, biocatalyst product sales and 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 biocatalyst products and/or biocatalyst 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 sales and non-payroll research and development costs.

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, including bio-based chemicals, 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, 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 revenue 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

The following is a summary of cash flows for the years ended December 31, 2015, 2014 and 2013:

	Years Ended December 31,		
(In Thousands)	**2015**	**2014**	**2013**
Net cash (used in) provided by operating activities	$ (433)	$ 321	$ (22,998)
Net cash (used in) provided by investing activities	(1,257)	4,647	13,272
Net cash used in financing activities	(1,524)	(611)	(147)
Net increase (decrease) in cash and cash equivalents	$ (3,214)	$ 4,357	$ (9,873)

Cash Flows from Operating Activities

Cash used in operating activities was $0.4 million in 2015, which resulted from a net loss of $7.6 million adjusted for non-cash depreciation and amortization of $5.4 million and stock-based compensation of $5.1 million, as well as changes in operating assets and liabilities. The net change in operating assets and liabilities included increases in accounts receivable of $3.5 million due primarily to an accrual of a settlement payment from a customer relating to past-due payments and a buy-out of future payments, increases in deferred revenue of $1.9 million due mainly to the CodeEvolver® technology transfer to Merck, and decreases in accounts payable of $1.3 million due to timing of payment of invoices.

Cash provided by operating activities was $0.3 million in 2014, which resulted from a net loss of $19.1 million adjusted for non-cash depreciation and amortization of $6.7 million, stock-based compensation of $4.6 million and impairment and changes in fair values for assets held for use charges totaling $2.5 million, partially offset by $4.2 million received in up-front fees under a collaborative arrangement and a gain on the sale of the Hungarian subsidiary of $0.8 million.

Cash used in operating activities was $23.0 million in 2013, resulting from a net loss of $41.3 million, adjusted for $16.3 million in non-cash charges, and a $2.0 million increase in cash associated with the net change in operating assets and liabilities. The non-cash charges primarily included depreciation and amortization of $10.3 million, stock-based compensation of $4.4 million and asset impairment charges of $1.6 million. The net change in operating assets and liabilities included decreases in accounts receivable of $1.6 million due to lower revenues, increases in deferred revenue of $1.6 million due to a reversal of a prepayment from a customer, as well as decreases in accrued liabilities of $2.7 million primarily due to the settlement of outstanding obligations under our commercial arrangement with Arch Pharmalabs Limited.

Cash Flows from Investing Activities

Cash used in investing activities was $1.3 million in 2015 primarily due to the purchase of property and equipment. We expect capital spending for 2016 to be approximately $1.0 million primarily for replacement of assets.

Cash provided by investing activities was $4.6 million in 2014, which mainly resulted from the maturities of our marketable securities of $3.0 million and proceeds from the sale of our Hungarian subsidiary of $1.5 million.

In 2013, cash provided from investing activities totaled $13.3 million and primarily consisted of proceeds from the maturity of marketable securities of $13.4 million and a reduction of restricted cash of $0.8 million, which was partially offset by capital expenditures of $1.2 million.

Cash Flows from Financing Activities

Cash used in financing activities was $1.5 million in 2015, which was the result of the payment of taxes related to the net share settlement of equity awards, partially offset by the proceeds from the exercises of employee stock options.

Cash used in financing activities was $0.6 million in 2014, which was the result of the payment of taxes related to the net share settlement of equity awards, partially offset by the proceeds from the exercises of employee stock options.

Net cash used in financing activities was $0.1 million in 2013, which resulted from the payment of taxes related to net share settlement of equity awards, partially offset by the proceeds from the exercises of employee stock options.

Contractual Obligations and Commitments

The following table summarizes our significant contractual obligations at December 31, 2015 (in thousands):

	Total	Less than 1 year	1 to 3 years	4 to 5 years	More than 5 years
Operating leases [1]	$ 11,295	$ 2,827	$ 5,413	$ 3,055	$ —
Total [2]	$ 11,295	$ 2,827	$ 5,413	$ 3,055	$ —

(1) Represents future minimum lease payments under non-cancelable operating leases in effect as of December 31, 2015 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 to be received under non-cancellable subleases.

(2) Excludes $0.7 million of uncertain tax liabilities for which we cannot make a reasonably reliable estimate of the period of cash settlement.

Off-Balance Sheet Arrangements

As of December 31, 2015, we had no 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

Management's discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements. The consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States and include our accounts and the accounts of our wholly-owned subsidiaries. The preparation of our consolidated financial statements requires our management to make estimates, assumptions, and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the applicable periods. Management bases its estimates, assumptions and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our consolidated financial statements, which, in turn, could change the results from those reported. Our management evaluates its estimates, assumptions and judgments on an ongoing basis.

The critical accounting policies requiring estimates, assumptions, and judgments that we believe have the most significant impact on our consolidated financial statements are described below.

Revenue Recognition

We recognize revenue from the sale of our biocatalyst products, biocatalyst research and development agreements and revenue sharing arrangements. Revenue is recognized when the related costs are incurred and the four basic criteria of revenue recognition are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the fee is fixed or determinable; and (4) collectability is reasonably assured. Where the revenue recognition criteria are not met, we defer the recognition of revenue by recording deferred revenue until such time that all criteria of revenue recognition are met.

We account for revenues from multiple element arrangements, such as license and platform technology transfer agreements in which a licensee may purchase several deliverables, in accordance with Financial Accounting Standards Board ("FASB")

Accounting Standards Codification ("ASC") Subtopic 605-25, "Multiple Element Arrangements." For new or materially amended multiple element arrangements, we identify the deliverables at the inception of the arrangement and each deliverable within a multiple deliverable revenue arrangement is accounted for as a separate unit of accounting if both of the following criteria are met: (1) the delivered item or items have value to the customer on a standalone basis and (2) for an arrangement that includes a general right of return relative to the delivered item(s), delivery or performance of the undelivered item(s) is considered probable and substantially in our control. Revenue allocated to each element is then recognized based on when the basic four revenue recognition criteria are met for each element.

Where a portion of non-refundable up-front fees or other payments received are allocated to continuing performance obligations under the terms of a collaborative arrangement, they are recorded as deferred revenue and recognized as revenue ratably over the term of our estimated performance period under the agreement. We determine the estimated performance periods, and they are periodically reviewed based on the progress of the related program. The effect of any change made to an estimated performance period and, therefore, to revenue recognized, would occur on a prospective basis in the period that the change was made.

Biocatalyst Product Sales

Biocatalyst product sales consist of sales of biocatalyst intermediates, API and Codex® Biocatalyst Panels and Kits. Biocatalyst product sales are recognized once passage of title and risk of loss has occurred and contractually specified acceptance criteria, if any, have been met, provided all other revenue recognition criteria have also been met. Shipping and handling costs charged to customers are recorded as revenue.

Biocatalyst Research and Development

Biocatalyst research and development agreements typically provide us with multiple revenue streams, including: research services fees for full time employee ("FTE") research services, up-front license fees, technology access, contingent payments upon achievement of contractual criteria, and royalty fees based on the licensee's product sales or cost savings achieved by Codexis' customers.

We perform biocatalyst research and development activities as specified in each respective customer agreement. Payments for services received are not refundable. Certain research agreements are based on a contractual reimbursement rate per FTE working on the project. We recognize revenue from research services as those services are performed over the contractual performance periods. When up-front payments are combined with FTE services in a single unit of accounting, we recognize the up-front payments using the proportionate performance method of revenue recognition based upon the actual amount of research labor hours incurred relative to the amount of the total expected labor hours to be incurred by us, up to the amount of cash received. In cases where the planned levels of research services fluctuate substantially over the research term, we are required to make estimates of the total hours required to perform our obligations.

We recognize revenue from nonrefundable, up-front license fees or technology access payments that are not dependent on any future performance by us when such amounts are earned. If we have continuing obligations to perform under the arrangement, such fees are recognized over the estimated period of continuing performance obligation. Estimated performance periods are periodically reviewed based on the progress of the related program. The effect of any change made to an estimated performance period, and therefore to revenue recognized, would occur on a prospective basis in the period that the change was made.

A payment that is contingent upon the achievement of a substantive milestone is recognized in its entirety in the period in which the milestone is achieved. A milestone is an event (i) that can only be achieved based in whole or in part on either our performance or on the occurrence of a specific outcome resulting from our performance, (ii) for which there is, as of the date the arrangement is entered into, substantive uncertainty that the event will be achieved and (iii) results in additional payments being due to us. Milestones are considered substantive when the consideration earned from the achievement of the milestone (i) is commensurate with either our performance to achieve the milestone or the enhancement of the value of the item delivered as a result of a specific outcome resulting from its performance, (ii) relates solely to past performance and (iii) is reasonable relative to all deliverable and payment terms in the arrangement.

We recognize revenue from other payments received which are contingent solely upon the passage of time or the result of a customer's performance when earned in accordance with the contract terms and when such payments can be reasonably estimated and collectability of such payments is reasonably assured.

We recognize revenue from royalties based on licensees' sales of our biocatalyst products or products using our technologies. Royalties are recognized as earned in accordance with the contract terms when royalties from licensees can be reasonably

estimated and collectability is reasonably assured. For the majority of our royalty revenue, estimates are made using notification of the sale of licensed products from the licensees.

Revenue Sharing Arrangement

We recognize revenue from a revenue sharing arrangement based upon sales of licensed products by our revenue share partner Exela (seeNote 14 - Related Party Transactions to our consolidated financial statements). We recognize revenue net of product and selling costs upon notification from our revenue share partner of our portion of net profit based on the contractual percentage from the sale of licensed product.

Allowances

Allowances against receivable balances primarily relate to product returns and prompt pay sales discounts, and are recorded in the same period that the related revenue is recognized, resulting in a reduction in biocatalyst product sales revenue and the reporting of accounts receivable net of allowances.

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

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. We have, due to insufficient historical data, used the "simplified method," as described in Staff Accounting Bulletin No. 107, "Share-Based Payment," to determine the expected term of all stock options granted from the inception of our equity plans through the first half of 2015. Beginning in the third quarter of 2015, we believe we have sufficient historical data to calculate expected terms for stock options granted. Thus, the expected term was based on historical exercise behavior on similar awards, giving consideration to the contractual terms, vesting schedules and expectations of future employee behavior. We used historical volatility to estimate expected stock price volatility. The risk-free rate assumption was based on United States Treasury instruments whose terms were consistent with the expected term of the stock options. The expected dividend assumption was based on our history and expectation of dividend payouts.

Restricted Stock Units ("RSUs"), Restricted Stock Awards ("RSAs") and performance-contingent restricted stock units ("PSUs") were measured based on the fair market values of the underlying stock on the dates of grant. PSUs awarded may be conditional upon the attainment of one or more performance objectives over a specified period. At the end of the performance period, if the goals are attained, the awards are granted.

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

The estimated fair value of stock options, RSUs and RSAs is expensed on a straight-line basis over the vesting term of the grant and the estimated fair value of PSUs is expensed using an accelerated method over the term of the award once management has determined that it is probable that 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.

We have not recognized, and do not expect to recognize in the near future, any income tax benefit related to employee stock-based compensation expense as a result of the full valuation allowance on our deferred tax assets including deferred tax assets related to Codexis' net operating loss carryforwards.

Impairment of Long-Lived Assets

Our intangible assets are finite-lived and consist of customer relationships, developed core technology, and the intellectual property ("IP") rights associated with the acquisition of Maxygen directed evolution technology in 2010. Intangible assets were recorded at their fair values at the date we acquired the assets and, for those assets having finite useful lives, are amortized

using the straight-line method over their estimated useful lives. Our long-lived assets include property and equipment, and other non-current assets.

We determined that we have a single entity wide asset group (”Asset Group”). The directed evolution technology patent portfolio acquired from Maxygen (“Core IP”) is the most significant component of the Asset Group since it is the base technology for all aspects of our research and development activities, and represents the basis for all of our identifiable cash flow generating capacity. Consequently, we do not believe that identification of independent cash flows associated with our long-lived assets is currently possible at any lower level than the Asset Group.

The Core IP is the only finite-lived intangible asset with a net carrying value on our consolidated balance sheet as of December 31, 2015. There has been no significant change in the utilization or estimated life of the Core IP since we acquired the technology patent portfolio from Maxygen.

The carrying value of our long-lived assets in the Asset Group may not be recoverable based upon the existence of one or more indicators of impairment which could include: a significant decrease in the market price of our common stock; current period cash flow losses or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the assets; slower growth rates in our industry; significant adverse changes in the business climate or legal factors; accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the assets; loss of significant customers or partners; or the current expectation that the assets will more likely than not be sold or disposed of significantly before the end of their estimated useful life.

We evaluate recoverability of intangible assets based on the sum of the undiscounted cash flows expected to result from the use, and the eventual disposal of, the Asset Group. We make estimates and judgments about the future undiscounted cash flows over the remaining useful life of the Asset Group. Codexis’ anticipated future cash flows include our estimates of existing or in process product sales, production and operating costs, future capital expenditures, working capital needs, and assumptions regarding the ultimate sale of the Asset Group at the end of the life of the primary asset. The useful life of the Asset Group was based on the estimated useful life of the Core IP, the primary asset at the time of acquisition. There has been no change in the estimated useful life of the Asset Group. Although our cash flow forecasts are based on assumptions that are consistent with our plans, there is significant judgment involved in determining the cash flows attributable to the Asset Group over its estimated remaining useful life.

As a result of our decision to terminate the detergent alcohol program during 2014, we performed an analysis to estimate cash flows from equipment used in potential strategic transactions with respect to our CodeXyme® cellulase enzymes and CodeXol® detergent alcohol programs. Based on this analysis we determined there were no future cash flows and recognized a $1.8 million impairment charge, which is reflected in research and development expense.

As of December 31, 2015, there were no events or changes in circumstances which indicated that the carrying amount of our Asset Group might not be recoverable. We concluded that the fair value of the reporting unit exceeded the carrying value and no impairment existed. No impairment charges for long-lived assets were recorded during the year ended December 31, 2015.

Valuation of Goodwill

We determined that we operate in one segment and reporting unit under the criteria in ASC 280, “Segment Reporting.” Accordingly, our review of goodwill impairment indicators is performed at the consolidated level. We review goodwill impairment annually at each fiscal year end and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable.

The goodwill impairment test consists of a two-step process. The first step of the goodwill impairment test, used to identify potential impairment, compares the fair value of the reporting unit to carrying value. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is considered not impaired, and the second step of the impairment test is not required.

We use our market capitalization as an indicator of fair value. We believe that since our reporting unit is publicly traded, the ability of a controlling stockholder to benefit from synergies and other intangible assets that arise from control might cause the fair value of our reporting unit as a whole to exceed its market capitalization. In addition, we believe that the fair value measurement need not be based solely on the quoted market price of an individual share of our common stock, but also can consider the impact of a control premium in measuring the fair value of our reporting unit.

If we were to use an income approach, it would establish a fair value by estimating the present value of our projected future cash flows expected to be generated from our business. The discount rate applied to the projected future cash flows to arrive at the present value would be intended to reflect all risks of ownership and the associated risks of realizing the stream of projected

future cash flows. Our discounted cash flow methodology would consider projections of financial performance for a period of several years combined with an estimated residual value. The most significant assumptions we would use in a discounted cash flow methodology are the discount rate, the residual value and expected future revenue, gross margins and operating costs, along with considering any implied control premium.

Should our market capitalization be less than the total stockholders' equity as of our annual test date or as of any interim impairment testing date, we would also consider market comparables, recent trends in our stock price over a reasonable period and, if appropriate, use an income approach to determine whether the fair value of its reporting unit is greater than the carrying amount.

The second step, if required, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. If the carrying amount of the reporting unit's goodwill exceeds its implied fair value, an impairment charge is recognized in an amount equal to that excess. Implied fair value is the excess of the fair value of the reporting unit over the fair value of all identified assets and liabilities. We base our fair value estimates on assumptions we believe to be reasonable. Actual future results may differ from those estimates.

Goodwill amounts have been recorded as the excess purchase price over tangible assets, liabilities and intangible assets acquired based on their estimated fair value, by applying the acquisition method. Goodwill is not subject to amortization. Goodwill was tested for impairment at fiscal year end of 2015, 2014 and 2013. We concluded that the fair value of the reporting unit exceeded the carrying value and no impairment existed. Based on the results obtained, we determined there was no impairment of our goodwill as of December 31, 2015, 2014 and 2013.

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 revenues 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 December 31, 2015, 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.

Effective December 31, 2015, we elected to early adopt Accounting Standards Update ("ASU") 2015-17 "Income Taxes (Topic 740), Balance Sheet Classification of Deferred Taxes" on a prospective basis (as described in "Recently Issued and Adopted Accounting Guidance" in Note 2 - Basis of Presentation and Summary of Significant Accounting Policies). Adoption of this ASU resulted in a reclassification of our net current deferred tax asset to the net non-current deferred tax asset in our consolidated balance sheets as of December 31, 2015. No prior periods were retrospectively adjusted.

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 carryforwards in certain situations where equity transactions result in a change of ownership as defined by Internal Revenue Code Section 382. In the event we should experience an ownership change, as defined, utilization of our federal and state net operating loss carryforwards could be limited.

Recent Accounting Pronouncements

For information on recent accounting pronouncements, see Note 2 to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Sensitivity

We had unrestricted cash and cash equivalents totaling $23.3 million at December 31, 2015. These amounts were invested primarily in money market funds and are held for working capital purposes. We do not enter into investments for trading or speculative purposes. We believe we do not have material exposure to changes in fair value as a result of changes in interest rates. Declines in interest rates, however, will reduce future investment income. If overall interest rates fell by 10% in 2015, our results of operations and cash flows would not be materially affected.

Foreign Currency Risk

We have sales activities outside the United States with foreign currency denominated assets and liabilities, primarily in Euro and Indian rupee. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. In periods when the United States dollar declines in value as compared to the foreign currencies in which we incur expenses, our foreign-currency based expenses increase when translated into United States dollars. Although substantially all of our sales are denominated in United States dollars, future fluctuations in the value of the United States dollar may affect the price competitiveness of our products outside the United States. The effect of a 10% unfavorable change in exchange rates on foreign denominated receivables and cash as of December 31, 2015 would have had foreign exchange losses of approximately $0.1 million recognized as a component of other expense in our consolidated statement of operations. We did not engage in hedging transactions in 2015, 2014 and 2013.

Equity Price Risk

As described further in Note 5. to the consolidated financial statements, we have an investment in common shares of CO_2 Solutions Inc., a company based in Quebec, Canada ("CO_2 Solutions"), whose shares are publicly traded in Canada on the TSX Venture Exchange. As of December 31, 2015, the fair value of our investment in CO_2 Solutions' common stock was $1.5 million with an unrealized gain of $1.0 million.

This investment is exposed to fluctuations in both the market price of CO_2 Solutions' common shares and changes in the exchange rates between the United States dollar and the Canadian dollar. The effect of a 10% adverse change in the market price of CO_2 Solutions' common shares as of December 31, 2015 would have been an unrealized loss of approximately $0.2 million, recognized as a component of our consolidated statement of comprehensive loss. The effect of a 10% unfavorable change in the exchange rates between the United States dollar and the Canadian dollar as of December 31, 2015 would have been an unrealized loss of approximately $0.2 million, recognized as a component of our consolidated statements of comprehensive loss.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Codexis, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Codexis, Inc.
Redwood City, California

We have audited the accompanying consolidated balance sheets of Codexis, Inc. as of December 31, 2015 and 2014 and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2015. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Codexis, Inc. at December 312015 and 2014, and the results of its operations and its cash flows for each of the three years in the period ended December 312015, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Codexis, Inc.'s internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated March 8, 2016 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP

San Jose, California

March 8, 2016

Report of Independent Registered Public Accounting Firm on Internal Control Over Financial Reporting

Board of Directors and Stockholders
Codexis, Inc.
Redwood City, California

We have audited Codexis, Inc.'s internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Codexis, Inc.'s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Item 9A, Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. 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.

In our opinion, Codexis, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Codexis, Inc. as of December 31, 2015 and 2014, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2015 and our report dated March 8, 2016 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP

San Jose, California

March 8, 2016

Codexis, Inc.

Consolidated Balance Sheets
(In Thousands, Except Per Share Amounts)

	December 31,	
	2015	2014
Assets		
Current assets:		
Cash and cash equivalents	$ 23,273	$ 26,487
Accounts receivable, net of allowances of $421 at December 31, 2015 and $428 at December 31, 2014	7,329	3,870
Inventories	992	1,395
Prepaid expenses and other assets, current	1,245	1,255
Total current assets	32,839	33,007
Restricted cash	787	711
Marketable securities	1,549	688
Property and equipment, net	3,109	3,995
Intangible assets, net	2,812	6,186
Goodwill	3,241	3,241
Other assets, non-current	310	294
Total assets	$ 44,647	$ 48,122
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 3,399	$ 4,673
Accrued compensation	3,331	2,946
Other accrued liabilities	2,013	2,619
Deferred revenues	6,098	3,497
Total current liabilities	14,841	13,735
Deferred revenues, net of current portion	3,120	3,813
Lease incentive obligation, net of current portion	1,310	1,735
Other liabilities	2,497	2,528
Commitments and contingencies (Note 13)		
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; 40,636 and 39,761 shares issued; 40,343 and 39,563 shares outstanding at December 31, 2015 and December 31, 2014, respectively	4	4
Additional paid-in capital	305,981	302,379
Accumulated other comprehensive income (loss)	405	(142)
Accumulated deficit	(283,511)	(275,930)
Total stockholders' equity	22,879	26,311
Total liabilities and stockholders' equity	$ 44,647	$ 48,122

See Notes to Consolidated Financial Statements

Codexis, Inc.

Consolidated Statements of Operations
(In Thousands, Except Per Share Amounts)

	Years Ended December 31,		
	2015	**2014**	**2013**
Revenues:			
Biocatalyst product sales	$ 11,376	$ 13,064	$ 20,423
Biocatalyst research and development	25,599	14,945	6,868
Revenue sharing arrangement	4,829	7,298	4,631
Total revenues	41,804	35,307	31,922
Costs and operating expenses:			
Cost of biocatalyst product revenues	6,586	9,726	14,554
Research and development	20,673	22,755	31,606
Selling, general and administrative	22,315	21,937	26,908
Total costs and operating expenses	49,574	54,418	73,068
Loss from operations	(7,770)	(19,111)	(41,146)
Interest income	19	18	60
Other expense	(168)	(234)	(304)
Loss before income taxes	(7,919)	(19,327)	(41,390)
Benefit from income taxes	(338)	(256)	(87)
Net loss	$ (7,581)	$ (19,071)	$ (41,303)
Net loss per share, basic and diluted	$ (0.19)	$ (0.50)	$ (1.08)
Weighted average common shares used in computing net loss per share, basic and diluted	39,438	38,209	38,231

See Notes to Consolidated Financial Statements

Codexis, Inc.

Consolidated Statements of Comprehensive Loss
(In Thousands)

	Years Ended December 31,		
	2015	2014	2013
Net loss	$ (7,581)	$ (19,071)	$ (41,303)
Other comprehensive income (loss):			
Unrealized gain (loss) on marketable securities, net of tax[1]	547	(110)	104
Other comprehensive income (loss)	547	(110)	104
Total comprehensive loss	$ (7,034)	$ (19,181)	$ (41,199)

(1) Net of tax benefit of $314, nil, and $68 in 2015, 2014 and 2013, respectively.

See Notes to Consolidated Financial Statements

Codexis, Inc.

Consolidated Statements of Stockholders' Equity
(In Thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
December 31, 2012	37,692	$ 4	$ 294,128	$ (136)	$ (215,556)	$ 78,440
Exercise of stock options	326	—	318	—	—	318
Cancellation of shares	(75)	—	(465)	—	—	(465)
Release of stock awards	408	—	—	—	—	—
Employee stock-based compensation	—	—	4,366	—	—	4,366
Non-employee stock-based compensation	—	—	23	—	—	23
Total comprehensive loss	—	—	—	104	(41,303)	(41,199)
December 31, 2013	38,351	4	298,370	(32)	(256,859)	41,483
Exercise of stock options	146	—	195	—	—	195
Cancellation of shares	(456)	—	(806)	—	—	(806)
Release of stock awards	1,522	—	—	—	—	—
Employee stock-based compensation	—	—	4,608	—	—	4,608
Non-employee stock-based compensation	—	—	12	—	—	12
Total comprehensive loss	—	—	—	(110)	(19,071)	(19,181)
December 31, 2014	39,563	4	302,379	(142)	(275,930)	26,311
Exercise of stock options	172	—	289	—	—	289
Cancellation of shares	(444)	—	(1,813)	—	—	(1,813)
Release of stock awards	1,052	—	—	—	—	—
Employee stock-based compensation	—	—	5,122	—	—	5,122
Non-employee stock-based compensation	—	—	4	—	—	4
Total comprehensive loss	—	—	—	547	(7,581)	(7,034)
December 31, 2015	40,343	$ 4	$ 305,981	$ 405	$ (283,511)	$ 22,879

See Notes to Consolidated Financial Statements

Codexis, Inc.

Consolidated Statements of Cash Flows
(In Thousands)

	Years Ended December 31,		
	2015	**2014**	**2013**
Operating activities:			
Net loss	$ (7,581)	$ (19,071)	$ (41,303)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Amortization of intangible assets	3,374	3,374	3,374
Depreciation and amortization of property and equipment	2,035	3,311	6,944
Stock-based compensation	5,126	4,620	4,389
Accretion of premium on marketable securities	—	2	110
Loss on disposal of property and equipment	32	24	—
Impairment of property and equipment	—	1,841	1,582
Gain on sale of Hungarian subsidiary	—	(760)	—
Loss on disposal and exchange of assets held for sale, net	—	87	—
Change in fair value of assets held for sale	—	698	—
Income tax benefit related to marketable securities	(314)	—	(68)
Changes in operating assets and liabilities:			
Accounts receivable	(3,459)	1,587	1,629
Inventories	403	92	(185)
Prepaid expenses and other current assets	10	(339)	850
Other assets	(16)	(78)	337
Accounts payable	(1,274)	713	308
Accrued compensation	385	(530)	130
Other accrued liabilities	(1,062)	555	(2,724)
Deferred revenues	1,908	4,195	1,629
Net cash (used in) provided by operating activities	(433)	321	(22,998)
Investing activities:			
Purchase of property and equipment	(1,199)	(302)	(1,175)
Proceeds from disposal of property and equipment	18	167	238
Proceeds from sale of Hungarian subsidiary	—	1,500	—
Proceeds from sale of assets held for sale	—	282	—
Proceeds from sale of marketable securities	—	3,000	—
Proceeds from maturities of marketable securities	—	—	13,409
Change in restricted cash	(76)	—	800
Net cash (used in) provided by investing activities	(1,257)	4,647	13,272
Financing activities:			
Proceeds from exercises of stock options	289	195	318
Proceeds from issuance of common stock, net of issuance costs	—	9	—
Taxes paid related to net share settlement of equity awards	(1,813)	(815)	(465)
Net cash used in financing activities	(1,524)	(611)	(147)
Net increase (decrease) in cash and cash equivalents	(3,214)	4,357	(9,873)
Cash and cash equivalents at the beginning of the year	26,487	22,130	32,003
Cash and cash equivalents at the end of the year	$ 23,273	$ 26,487	$ 22,130
Supplemental disclosures of cash flow information:			
Cash paid for income taxes	$ 8	$ 15	$ 103
Long term deposit in other assets transferred to property and equipment	$ —	$ —	$ 1,857
Equipment in property and equipment transferred to (from) assets held for sale	$ —	$ (333)	$ 2,179

See Notes to Consolidated Financial Statements

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 develop biocatalysts for the pharmaceutical and fine chemicals markets. Our proven technologies enable scale-up and implementation of biocatalytic solutions to meet customer needs for rapid, cost-effective and sustainable process development, from research to manufacturing.

Biocatalysts are enzymes that initiate and/or accelerate chemical reactions. Manufacturers have historically used naturally occurring biocatalysts to produce many goods used in everyday life. However, inherent limitations in naturally occurring biocatalysts have restricted their commercial use. Our proprietary CodeEvolver® protein engineering technology platform, which introduces genetic mutations into genes in order to give rise to changes in the enzymes that they produce, is able to overcome many of these limitations, allowing us to evolve and optimize biocatalysts to perform specific and desired chemical reactions at commercial scale. Once potentially beneficial mutations are identified through this proprietary process, combinations of these mutations can then be tested until variant enzymes have been created that exhibit marketable performance characteristics superior to competitive products. This process allows for continuous, efficient improvements to the performance of enzymes. In the past, we implemented the CodeEvolver® protein engineering technology platform through paid collaborations with our customers. In July 2014, we entered into our first license agreement pursuant to which we granted a license to a global pharmaceutical company to use the CodeEvolver® protein engineering technology platform for their internal development purposes. In August 2015, we entered into a second license agreement involving the CodeEvolver® protein engineering technology platform with another global pharmaceutical company and we continue to pursue platform licensing opportunities with additional customers.

We have commercialized our technology and products in the pharmaceuticals market, which is 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 also use our technology to develop biocatalysts 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.

We are also using our technology to develop early stage, novel therapeutic product candidates, most notably our lead program for the potential treatment of phenylketonuria ("PKU") in humans. PKU is an inherited metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient.

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

Basis of Presentation and Principles of Consolidation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and the applicable rules and regulations of the Securities and Exchange Commission ("SEC") and include the accounts of Codexis, Inc. and its wholly-owned subsidiaries. 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 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, assets held for sale, intangible assets, 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 consolidated financial statements.

Segment Reporting

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, or decision making group, in deciding how to allocate resources and in assessing performance. Our chief operating decision maker is our Chief Executive Officer. The Chief Executive Officer reviews financial information presented on a consolidated basis for purposes of evaluating financial performance. We have one business activity and there are no segment managers who are held accountable for operations, operating results beyond revenue goals or plans for levels or components below the consolidated unit level. Accordingly, we have a single reporting segment.

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 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 consolidated statements of operations.

Revenue Recognition

We recognize revenue from the sale of our biocatalyst products, biocatalyst research and development agreements and revenue sharing arrangements. Revenue is recognized when the related costs are incurred and the four basic criteria of revenue recognition are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the fee is fixed or determinable; and (4) collectability is reasonably assured. Where the revenue recognition criteria are not met, we defer the recognition of revenue by recording deferred revenue until such time that all criteria of revenue recognition are met.

We account for multiple element arrangements, such as license and platform technology transfer agreements in which a licensee may purchase several deliverables, in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Subtopic 605-25, "Multiple Element Arrangements." For new or materially amended multiple element arrangements, we identify the deliverables at the inception of the arrangement and each deliverable within a multiple deliverable revenue arrangement is accounted for as a separate unit of accounting if both of the following criteria are met: (1) the delivered item or items have value to the customer on a standalone basis and (2) for an arrangement that includes a general right of return relative to the delivered item(s), delivery or performance of the undelivered item(s) is considered probable and substantially in our control. Revenue allocated to each element is then recognized based on when the basic four revenue recognition criteria are met for each element.

Where a portion of non-refundable up-front fees or other payments received are allocated to continuing performance obligations under the terms of a collaborative arrangement, they are recorded as deferred revenue and recognized as revenue ratably over the term of our estimated performance period under the agreement. We determine the estimated performance periods, and they are periodically reviewed based on the progress of the related program. The effect of any change made to an estimated performance period and, therefore, to revenue recognized, would occur on a prospective basis in the period that the change was made.

Biocatalyst Product Sales

Biocatalyst product sales consist of sales of biocatalyst intermediates, active pharmaceutical ingredients ("API") and Codex® Biocatalyst Panels and Kits. Biocatalyst product sales are recognized once passage of title and risk of loss has occurred and contractually specified acceptance criteria, if any, have been met, provided all other revenue recognition criteria have also been met. Shipping and handling costs charged to customers are recorded as revenue.

Biocatalyst Research and Development

Biocatalyst research and development agreements typically provide us with multiple revenue streams, including: research services fees for full time employee ("FTE") research services, up-front licensing fees, technology access, contingent payments upon achievement of contractual criteria, and royalty fees based on the licensee's product sales or cost savings achieved by our customers. We perform biocatalyst research and development activities as specified in each respective customer agreement. Payments for services received are not refundable. Certain research agreements are based on a contractual reimbursement rate per FTE working on the project. We recognize revenue from research services as those services are performed over the contractual performance periods. When up-front payments are combined with FTE services in a single unit of accounting, we

recognize the up-front payments using the proportionate performance method of revenue recognition based upon the actual amount of research labor hours incurred relative to the amount of the total expected labor hours to be incurred by us, up to the amount of cash received. In cases where the planned levels of research services fluctuate substantially over the research term, we are required to make estimates of the total hours required to perform our obligations.

We recognize revenue from nonrefundable, up-front license fees or technology access payments that are not dependent on any future performance by us when such amounts are earned. If we have continuing obligations to perform under the arrangement, such fees are recognized over the estimated period of continuing performance obligation. Estimated performance periods are periodically reviewed based on the progress of the related program. The effect of any change made to an estimated performance period, and therefore to revenue recognized, would occur on a prospective basis in the period that the change was made.

A payment that is contingent upon the achievement of a substantive milestone is recognized in its entirety in the period in which the milestone is achieved. A milestone is an event (i) that can only be achieved based in whole or in part on either our performance or on the occurrence of a specific outcome resulting from our performance, (ii) for which there is, as of the date the arrangement is entered into, substantive uncertainty that the event will be achieved and (iii) results in additional payments being due to us. Milestones are considered substantive when the consideration earned from the achievement of the milestone (i) is commensurate with either our performance to achieve the milestone or the enhancement of the value of the item delivered as a result of a specific outcome resulting from its performance, (ii) relates solely to past performance and (iii) is reasonable relative to all deliverable and payment terms in the arrangement.

We recognize revenue from other payments received which are contingent solely upon the passage of time or the result of a customer's performance when earned in accordance with the contract terms and when such payments can be reasonably estimated and collectability of such payments is reasonably assured.

We recognize revenue from royalties based on licensees' sales of our biocatalyst products or products using our technologies. Royalties are recognized as earned in accordance with the contract terms when royalties from licensees can be reasonably estimated and collectability is reasonably assured. For the majority of our royalty revenue, estimates are made using notification of the sale of licensed products from the licensees.

Revenue Sharing Arrangement

We recognize revenue from a revenue sharing arrangement based upon sales of licensed products by our revenue share partner Exela PharmSci, Inc. ("Exela") (seeNote 14 - Related Party Transactions). We recognize revenue net of product and selling costs upon notification from our revenue share partner of our portion of net profit based on the contractual percentage from the sale of licensed product.

Sales Allowances

Sales allowances primarily relate to product returns and prompt pay sales discounts, and are recorded in the same period that the related revenue is recognized, resulting in a reduction in biocatalyst product sales revenue.

Cost of Biocatalyst Product Sales

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

Cost of Research and Development Services

Research and development expenses related to FTE services under the research and development agreements approximate the research funding over the term of the respective agreements and are included in research and development expense.

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. 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 consolidated statements of operations. Advertising costs were $0.3 million in 2015, $0.3 million in 2014 and $0.5 million in 2013.

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. We have, due to insufficient historical data, used the "simplified method," as described in Staff Accounting Bulletin No. 107, "Share-Based Payment," to determine the expected term of all stock options granted from the inception of our equity plans through the first half of 2015. Beginning in the third quarter of 2015, we believe we have sufficient historical data to calculate expected terms for stock options granted. Thus, the expected term was based on historical exercise behavior on similar awards, giving consideration to the contractual terms, vesting schedules and expectations of future employee behavior. We used historical volatility to estimate expected stock price volatility. The risk-free rate assumption was based on United States Treasury instruments whose terms were consistent with the expected term of the stock options. The expected dividend assumption was based on our history and expectation of dividend payouts.

Restricted Stock Units ("RSUs"), Restricted Stock Awards ("RSAs") and performance-contingent restricted stock units ("PSUs") were measured based on the fair market values of the underlying stock on the dates of grant. PSUs awarded may be conditional upon the attainment of one or more performance objectives over a specified period. At the end of the performance period, if the goals are attained, the awards are granted.

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

The estimated fair value of stock options, RSUs and RSAs is expensed on a straight-line basis over the vesting term of the grant and the estimated fair value of PSUs is 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.

We have not recognized, and do not expect to recognize in the near future, any income tax benefit related to employee stock-based compensation expense as a result of the full valuation allowance on our deferred tax assets including deferred tax assets related to our net operating loss carryforwards.

Restructuring Costs

We apply applicable accounting guidance on accounting for costs associated with restructuring, including exit or disposal activities, which requires that a liability for costs associated with an exit or disposal activity be recognized and measured initially at fair value when the liability is incurred. Our restructuring activities have primarily been related to severance, benefits and related personnel costs and facility closing costs.

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. 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 $23.3 million and was comprised of cash of $12.2 million and money market funds of $11.1 million at December 31, 2015. Cash and cash equivalents totaled $26.5 million and was comprised of cash of $11.9 million and money market funds of $14.6 million at December 31, 2014.

Restricted Cash

Restricted cash consisted of amounts invested in savings accounts primarily for purposes of securing a standby letter of credit as collateral for our Redwood City, California facility lease agreement.

Marketable Securities

We invest in equity securities and we classify those investments as available-for-sale. These securities are carried at estimated fair value (see Note 5 - Cash Equivalents and Marketable Securities) with unrealized gains and losses included in accumulated other comprehensive loss in stockholders' equity. Available-for-sale equity securities with remaining maturities of greater than one year or which we currently do not intend to sell are classified as long-term.

We review several factors to determine whether a loss is other-than-temporary. These factors include but are not limited to: the intent and ability to retain the investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value, the length of time and the extent to which the market value of the investment has been less than cost and the financial condition and near-term prospects of the issuer. Unrealized losses are charged against "Other expense" when a decline in fair value is determined to be other-than-temporary.

Amortization of purchase premiums and accretion of purchase discounts and realized gains and losses of debt securities are included in interest income. The cost of securities sold is based on the specific-identification method.

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 generally 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 (other than quoted prices included in Level 1) 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 6 - Fair Value Measurements to our consolidated financial statements.

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. As of December 31, 2015, accounts receivable included $3.1 million settlement relating to past-due payments and settlement of future payments associated with our royalty business with a non-core customer. We collected the full amount in February 2016.

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

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.

Inventories

Inventories are stated at the lower of cost or market value. Cost is determined using a weighted-average approach, assuming full absorption of direct and indirect manufacturing costs, based on our product capacity utilization assumptions. If inventory costs exceed expected market value due to obsolescence or lack of demand, reserves are recorded for the difference between the cost and the estimated market value. These reserves 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.

Property and Equipment

Property, equipment and leasehold improvements are stated at cost less accumulated depreciation and amortization and depreciated using the straight-line method over their estimated useful lives as follows:

Asset classification	Estimated useful life
Laboratory equipment	5 years
Computer equipment and software	3 to 5 years
Office equipment and furniture	5 years
Leasehold improvements	Lesser of useful life or lease term

Property and equipment classified as construction in process includes equipment that has been received but not yet placed in service. Normal repairs and maintenance costs are expensed as incurred.

Intangible Assets

Our intangible assets are finite-lived and consist of customer relationships, developed core technology, and the intellectual property (“IP”) rights associated with the acquisition of Maxygen Inc.’s (“Maxygen”) directed evolution technology in 2010. Intangible assets were recorded at their fair values at the date we acquired the assets and, for those assets having finite useful lives, are amortized using the straight-line method over their estimated useful lives.

Impairment of Long-Lived Assets

Our long-lived assets include property and equipment and intangible assets. We determined that we have a single entity wide asset group ("Asset Group"). The directed evolution technology patent portfolio acquired from Maxygen ("Core IP") is the most significant component of the Asset Group since it is the base technology for all aspects of our research and development activities, and represents the basis for all of our identifiable cash flow generating capacity. Consequently, we do not believe that identification of independent cash flows associated with long-lived assets is currently possible at any lower level than the Asset Group.

The Core IP is the only finite-lived intangible asset with a net carrying value on our consolidated balance sheets as ofDecember 31, 2015. There has been no significant change in the utilization or estimated life of the Core IP since we acquired the technology patent portfolio from Maxygen.

The carrying value of our long-lived assets in the Asset Group may not be recoverable based upon the existence of one or more indicators of impairment which could include: a significant decrease in the market price of our common stock; current period cash flow losses or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the assets; slower growth rates in our industry; significant adverse changes in the business climate or legal factors; accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the assets; loss of significant customers or partners; or the current expectation that the assets will more likely than not be sold or disposed of significantly before the end of their estimated useful life.

We evaluate recoverability of intangible assets based on the sum of the undiscounted cash flows expected to result from the use and the eventual disposal of the Asset Group. We make estimates and judgments about the future undiscounted cash flows over the remaining useful life of the Asset Group. Our anticipated future cash flows include our estimates of existing or in process product sales, production and operating costs, future capital expenditures, working capital needs, and assumptions regarding the ultimate sale of the Asset Group at the end of the life of the primary asset. The useful life of the Asset Group was based on the estimated useful life of the Core IP, the primary asset at the time of acquisition. There has been no change in the estimated useful life of the Asset Group. Although our cash flow forecasts are based on assumptions that are consistent with our plans, there is significant judgment involved in determining the cash flows attributable to the Asset Group over its estimated remaining useful life.

As a result of our decision to terminate the detergent alcohol program during 2014, we performed an analysis to estimate cash flows from equipment used in potential strategic transactions with respect to our CodeXyme® cellulase enzymes and CodeXol® detergent alcohol programs. Based on this analysis we determined there were no future cash flows and recognized a $1.8 million impairment charge, which is reflected in research and development expense.

As of December 31, 2015, there were no events or changes in circumstances which indicated that the carrying amount of our Asset Group might not be recoverable. We concluded that the fair value of the reporting unit exceeded the carrying value and no impairment existed. No impairment charges for long-lived assets were recorded during the year ended December 31, 2015.

Goodwill

We determined that we operate inone operating segment and reporting unit under the criteria in ASC 280, “Segment Reporting.” Accordingly, our review of goodwill impairment indicators is performed at the consolidated level. We review goodwill impairment annually at each fiscal year end and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable.

The goodwill impairment test consists of a two-step process. The first step of the goodwill impairment test, used to identify potential impairment, compares the fair value of the reporting unit to its carrying value. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is considered not impaired, and the second step of the impairment test is not required.

We use our market capitalization as an indicator of fair value. We believe that since our reporting unit is publicly traded, the ability of a controlling stockholder to benefit from synergies and other intangible assets that arise from control might cause the fair value of our reporting unit as a whole to exceed its market capitalization. In addition, we believe that the fair value measurement need not be based solely on the quoted market price of an individual share of our common stock, but also can consider the impact of a control premium in measuring the fair value of its reporting unit.

If we were to use an income approach, it would establish a fair value by estimating the present value of our projected future cash flows expected to be generated from our business. The discount rate applied to the projected future cash flows to arrive at the present value would be intended to reflect all risks of ownership and the associated risks of realizing the stream of projected future cash flows. Our discounted cash flow methodology would consider projections of financial performance for a period of several years combined with an estimated residual value. The most significant assumptions we would use in a discounted cash flow methodology are the discount rate, the residual value and expected future revenue, gross margins and operating costs, along with considering any implied control premium.

Should our market capitalization be less than total stockholders’ equity as of our annual test date or as of any interim impairment testing date, we would also consider market comparables, recent trends in our stock price over a reasonable period and, if appropriate, use an income approach to determine whether the fair value of our reporting unit is greater than the carrying amount.

The second step, if required, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. If the carrying amount of the reporting unit’s goodwill exceeds its implied fair value, an impairment charge is recognized in an amount equal to that excess. Implied fair value is the excess of the fair value of the reporting unit over the fair

value of all identified assets and liabilities. We base our fair value estimates on assumptions we believe to be reasonable. Actual future results may differ from those estimates.

Goodwill represents the excess of cost over the fair value of net assets acquired in a business combination. Goodwill is not amortized. We tested goodwill for impairment at December 31, 2015 and concluded that the fair value of the reporting unit exceeded the carrying value and therefore no impairment existed. During 2015, 2014 and 2013, we did not record impairment charges related to goodwill.

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 December 31, 2015, 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.

Effective December 31, 2015, we elected to early adopt ASU 2015-17 “Income Taxes (Topic 740), Balance Sheet Classification of Deferred Taxes” on a prospective basis (as described in “Recently Issued and Adopted Accounting Guidance” below). Adoption of this ASU resulted in a reclassification of our net current deferred tax asset to the net non-current deferred tax asset in our consolidated balance sheets as of December 31, 2015. No prior periods were retrospectively adjusted.

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. We recognize interest and penalties as a component of our income tax expense.

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

We maintain a full valuation allowance against 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.

Recently Issued and Adopted Accounting Guidance

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 August 2014, the FASB issued Accounting Standards Update ("ASU") 2014-15, "Presentation of Financial Statements - Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern." ASU 2014-15 defines management's responsibility to evaluate whether there is substantial doubt about an organization's ability to continue as a going concern and provide related disclosures. ASU 2014-15 is effective for annual reporting periods ending after December 15, 2016, and interim periods within annual periods beginning after December 15, 2016. The adoption of ASU 2014-15 is not expected to have a material impact on our consolidated financial statements and related disclosures.

In July 2015, the FASB issued ASU 2015-11, "Inventory (Topic 330): Simplifying the Measurement of Inventory," which simplifies the subsequent measurement of inventory by requiring inventory to be measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price of inventory in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This ASU is effective for public business entities for fiscal years beginning after December 15, 2016, and interim periods within those fiscal years. We do not expect the adoption of ASU 2015-11 will have a material impact on our consolidated financial statements and related disclosures.

In August 2015, the FASB issued ASU 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date." This ASU defers the effective date of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)" for all entities by one year. The standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. The main principle of ASU 2014-09 is to recognize revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. ASU 2014-09 provides companies with two implementation methods: (i) apply the standard retrospectively to each prior reporting period presented (full retrospective application); or (ii) apply the standard retrospectively with the cumulative effect of initially applying the standard as an adjustment to the opening balance of retained earnings of the annual reporting period that includes the date of initial application (modified retrospective application). ASU 2014-09 as amended by ASU 2015-14 is effective for annual reporting periods beginning after December 15, 2017, including interim reporting periods within that reporting period. The FASB will permit companies to adopt the new standard early, but not before the original effective date of December 15, 2016. We are currently in the process of evaluating the impact of the pending adoption of this standard on our consolidated financial statements and related disclosures.

In November 2015, the FASB issued ASU 2015-17, “Income Taxes (Topic 740), Balance Sheet Classification of Deferred Taxes.” This guidance eliminates the current requirement for an entity to separate deferred income tax liabilities and assets into current and non-current amounts in a classified balance sheet. Instead, this guidance requires deferred tax liabilities, deferred tax assets and valuation allowances be classified as non-current in a classified balance sheet. This ASU is effective for annual reporting periods beginning after December 15, 2016 and interim periods within those annual periods. Early adoption is permitted. Additionally, this guidance may be applied either prospectively or retrospectively to all periods presented. As of December 31, 2015, we have early adopted this new reporting standard and have elected to apply this standard prospectively.

Note 3. Net Loss per Share

Basic net loss per share is computed by dividing 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, less RSAs subject to forfeiture, plus all additional common shares that would have been outstanding, assuming dilutive potential common shares had been issued for other dilutive securities. For all periods presented, diluted and basic net loss per share were identical since potential common shares were 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):

	Years Ended December 31,		
	2015	2014	2013
Shares issuable under Equity Incentive Plan	5,932	6,193	6,722
Shares issuable upon the conversion of warrants	75	75	75
Total anti-dilutive securities	6,007	6,268	6,797

Note 4. Collaborative Arrangements

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into a CodeEvolver® 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 technology platform to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products.

We received a $6.0 million up-front license fee upon execution of the GSK CodeEvolver® Agreement and subsequently a $5.0 million non-creditable, non-refundable milestone payment upon achievement of the first milestone in 2014. In September 2015, we achieved the second milestone and recognized the related milestone payment of $6.5 million. We are eligible to receive an additional contingent payment of $7.5 million upon the completion of the three-year technology transfer period. We also have the potential to receive additional contingent payments that range from $5.75 million to $38.5 million per project based on GSK's successful application of the licensed technology. The contingent payments are not deemed substantive milestones due to the fact that the achievement of the event underlying the payment predominantly relates to GSK's performance of future development and commercialization activities.

For up to three years following the end of the technology transfer period, GSK can exercise an option, upon payment of certain additional fees, that would extend GSK's license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during such additional period. In addition, we are eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using the CodeEvolver® protein engineering technology platform.

The term of the GSK CodeEvolver® Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the GSK CodeEvolver® Agreement. At any time following the completion of the first technology transfer stage, GSK can terminate the GSK CodeEvolver® Agreement by providing 90 days written notice to us. If GSK exercises this termination right during the three-year technology transfer period, GSK will pay us a one-time termination payment.

Under the GSK CodeEvolver® Agreement, the significant deliverables were determined to be the license, platform technology transfer, and contingent obligation to supply GSK with enzymes manufactured by us at GSK's expense. We determined that the license did not have stand-alone value. In addition, we determined that the license and the platform technology transfer and our participation in joint steering committee activities in connection with the platform technology transfer represent a single unit of accounting. Our participation in the joint steering committee does not represent a separate unit of accounting because GSK could not negotiate for and/or acquire these services from other third parties and our participation on the joint steering committee is coterminous with the technology transfer period. Amounts to be received under the supply arrangement, if any, described above will be recognized as revenue to the extent GSK purchases enzymes from us.

The up-front license fee of $6.0 million is being recognized over the technology transfer period of three years. We recognized license fees of $2.0 million and $1.0 million, respectively, in 2015 and 2014, as biocatalyst research and development revenue. As of December 31, 2015 and 2014, we had deferred revenue from GSK related to the up-front license of $3.0 million and $5.0 million, respectively.

Merck Sitagliptin Catalyst Supply Agreement

In February 2012, we entered into a five-year Sitagliptin Catalyst Supply Agreement ("Sitagliptin Catalyst Supply Agreement") with Merck Sharp and Dohme Corp., known as MSD outside the United States and Canada ("Merck"), whereby Merck may obtain commercial scale substance for use in the manufacture of its product, Januvia®. 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.

The Sitagliptin Catalyst Supply Agreement requires Merck to pay an annual license fee for the rights to the Sitagliptin technology each year for the term of the agreement. Amounts of annual license fees are based on contractually agreed prices and are on a declining scale. Prior to December 2015, the aggregate license fee for the initial five year period was being recognized ratably over the initial five year term of the Sitagliptin Catalyst Supply Agreement as collaborative research and development revenue. Due to the amendment entered in December 2015 as noted above, we revised our performance period in December 2015 and began recognizing the remaining unamortized portion of the license fee and the aggregate license fees for the second five year period over the revised period on a straight line basis. We recognized license fees of $1.9 million, $2.0 million and $1.8 million in 2015, 2014 and 2013, respectively, as biocatalyst research and development revenue. As of December 31, 2015 and 2014, we had deferred revenue of $1.0 million and $1.1 million, respectively, from Merck related to the license fee. In addition, pursuant to the terms of the agreement, Merck may purchase supply from us for a fee based on

contractually stated prices and we recognized $1.6 million, $2.5 million and $1.0 million, respectively, in 2015, 2014 and 2013 in product revenue under this agreement.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® platform technology transfer and license agreement (the "Merck CodeEvolver® Agreement") with 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, which is being recognized ratably over two years. We recognized license fees of $1.0 million in 2015 as biocatalyst research and development revenues. As of December 31, 2015, we had deferred revenue related to the Merck CodeEvolver® Agreement license fees of $4.0 million. We achieved the first milestone in of the Merck CodeEvolver® Agreement earning a milestone payment of $5.0 million in September 2015. We are eligible to receive an additional $8.0 million subject to the satisfactory completion of the second milestone of the technology transfer process. We will also be eligible 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.

Under the terms of the Merck CodeEvolver® Agreement, we granted to Merck a non-exclusive worldwide license to use the CodeEvolver® protein engineering technology platform to research, develop and manufacture novel enzymes for use by Merck in its internal research programs ("Merck Non-Exclusive Field"). The license to Merck is exclusive for the research, development and manufacture of novel enzymes for use by Merck in the chemical synthesis of therapeutic products owned or controlled by Merck ("Merck Exclusive Field"). Merck has the right to grant sublicenses to affiliates of Merck and, in certain limited circumstances, to third parties. We also granted to Merck a license to make or have made products manufactured using the CodeEvolver® protein engineering technology platform with a right to grant sublicenses solely to affiliates of Merck, contract manufacturing organizations and contract research organizations. The manufacturing license is exclusive in the Merck Exclusive Field and non-exclusive in the Merck Non-Exclusive Field. The licenses are subject to certain limitations based on pre-existing contractual obligations that apply to the technology and intellectual property that are the subject of the license grants. The licenses do not permit the use of the CodeEvolver® protein engineering technology platform to discover any therapeutic enzyme, diagnostic product or vaccine. In addition, Merck is prohibited from using the CodeEvolver® protein engineering technology platform to develop or produce enzymes or any other compounds for or on behalf of any third parties except in a very limited manner when Merck divests a therapeutic product that is manufactured using an enzyme developed using the CodeEvolver® protein engineering technology platform.

Under the Merck CodeEvolver® Agreement, we are transferring the CodeEvolver® protein engineering technology platform to Merck over an approximately 15 to 24 month period starting on the effective date of the agreement. As part of this technology transfer, we provide to Merck our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. Upon completion of technology transfer, Merck will have CodeEvolver® protein engineering technology platform installed at its designated site.

The licenses to Merck are granted under patents, patent applications and know-how that we own or control as of the effective date of the agreement and that cover the CodeEvolver® protein engineering technology platform. Any improvements to the CodeEvolver® protein engineering technology platform during the technology transfer period will also be included in the license grants from Codexis to Merck. At the end of the technology transfer period, Merck can exercise annual options that, upon payment of certain option fees, would extend Merck's license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during the three-year period that begins at the end of the technology transfer period.

Through November 3, 2016, we will provide additional enzyme evolution services to Merck at our laboratories in Redwood City.

Under the Merck CodeEvolver® Agreement, we will own any improvements to our protein engineering methods, processes and algorithms that arise and any enzyme technology or process technology that are developed during a technology transfer project, an evolution program or additional services. Merck will own (the "Merck-Owned Technology") (a) any enzyme technology that is developed solely by Merck under the Agreement using the CodeEvolver® Platform Technology (a "Project Enzyme") and (b) the methods of use of any Project Enzyme or any enzyme developed jointly by Merck and us using the CodeEvolver® protein engineering technology platform. Merck granted to us a worldwide, non-exclusive, fully paid-up, royalty-free license, with the right to grant sublicenses, to use the Merck-Owned Technology outside of the Merck Exclusive Field.

For each API that Merck manufactures using an enzyme developed with the CodeEvolver® protein engineering technology platform, we will have a right of first refusal to supply Merck with the enzyme used to manufacture the API if Merck outsources the supply of the enzyme. Our right of first refusal applies during the period that begins on the completion of a phase III clinical trial for the product containing the API and ends five years following regulatory approval for such product.

The Merck CodeEvolver® Agreement has a term that continues, unless earlier terminated, until the expiration of all payment obligations under the agreement. Merck may terminate the Merck CodeEvolver® Agreement by providing 90 days written notice to us. If Merck exercises this termination right during the technology transfer period, Merck will make a one-term termination payment to us of $8.0 million. We can terminate the Merck CodeEvolver® Agreement by providing 30 days written notice to Merck if we determine, pursuant to our contractual audit rights under the agreement, that Merck has repeatedly failed to make required payments to us and/or materially underpaid us an amount due under the Merck CodeEvolver® Agreement. In the event the Merck CodeEvolver® Agreement is terminated earlier by Merck, or by us due to an uncured material breach by Merck, or if Merck sells or transfers to a third party any Merck business or facility that includes any of our proprietary materials, information or technology, we have the right to conduct an audit of Merck's facilities to confirm that all of our proprietary materials, information and technology have been destroyed. The Merck CodeEvolver® Agreement contains indemnification provisions under which Merck and we have agreed to indemnify each other against certain third party claims.

Arch Manufacturing Collaboration

In November 2012, we entered into a commercial arrangement with Arch Pharmalabs Limited ("Arch") whereby we agreed to supply Arch with enzymes for use in the manufacture of atorva family products and Arch agreed to market these products directly to end customers. We recorded the sale of enzyme inventory to Arch and its affiliates of nil, $0.5 million and $2.1 million in 2015, 2014 and 2013, respectively, as biocatalyst product sales revenue.

Note 5. Cash Equivalents and Marketable Securities

Cash equivalents and marketable securities at December 31, 2015 and 2014 consisted of the following (in thousands):

	December 31, 2015				
	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Average Contractual Maturities
					(in days)
Money market funds	$ 11,120	$ —	$ —	$ 11,120	n/a
Common shares of CO2 Solutions	563	986	—	1,549	n/a
Total	$ 11,683	$ 986	$ —	$ 12,669	

	December 31, 2014				
	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Average Contractual Maturities
					(in days)
Money market funds	$ 14,602	$ —	$ —	$ 14,602	n/a
Common shares of CO2 Solutions	563	125	—	688	n/a
Total	$ 15,165	$ 125	$ —	$ 15,290	

As of December 31, 2015, the total cash and cash equivalents balance of $23.3 million was comprised of money market funds of $11.1 million and cash of $12.2 million held with major financial institutions worldwide. As of December 31, 2014, the total cash and cash equivalents balance of $26.5 million as of December 31, 2014 was comprised of money market funds of $14.6 million and cash of $11.9 million held with major financial institutions worldwide.

In December 2009, we purchased 10,000,000 common shares of CO_2 Solutions, a company based in Quebec, Canada, whose shares are publicly traded in Canada on TSX Venture Exchange. Our purchase represented approximately 16.6% of CO_2 Solutions' total common shares outstanding at the time of investment and was made in a private placement subject to a four-month statutory resale restriction. This restriction expired on April 15, 2010. Our investment in CO_2 Solutions is classified as available for sale and is recorded at its fair value (See Note 6 - Fair Value Measurements). Through December 31, 2015, we concluded that we did not have the ability to exercise significant influence over CO_2 Solutions' operating and financial policies.

As of December 31, 2015 and 2014, we had no marketable securities in an unrealized loss position.

Note 6. Fair Value Measurements

Assets and liabilities recorded at fair value in the consolidated financial statements are categorized based upon the level of judgment associated with the inputs used to measure their fair value. Hierarchical levels which are directly related to the amount of subjectivity associated with the inputs to the valuation of these assets or liabilities are as follows:

Level 1 — Inputs that are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2 — Inputs (other than quoted prices included in Level 1) 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.

We determine the fair value of Level 1 assets using quoted prices in active markets for identical assets. We classify our investment in CO_2 Solutions as Level 2 assets due to the volatile and low trading volume on TSX Venture Exchange in Canada. See also Note 5 - Cash Equivalents and Marketable Securities. There were no transfers between Level 1 and Level 2 securities in the periods presented.

The following table presents the financial instruments that were measured at fair value on a recurring basis at December 31, 2015 and 2014 by level within the fair value hierarchy (in thousands):

	December 31, 2015			
Financial Assets	**Level 1**	**Level 2**	**Level 3**	**Total**
Money market funds	$ 11,120	$ —	$ —	$ 11,120
Common shares of CO_2 Solutions [1]	—	1,549	—	1,549
Total	$ 11,120	$ 1,549	$ —	$ 12,669

	December 31, 2014			
Financial Assets	**Level 1**	**Level 2**	**Level 3**	**Total**
Money market funds	$ 14,602	$ —	$ —	$ 14,602
Common shares of CO_2 Solutions [1]	—	688	—	688
Total	$ 14,602	$ 688	$ —	$ 15,290

(1) 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.

Note 7. Balance Sheets Details

Accounts receivable

The following is a summary of activity in our allowance for doubtful accounts for the periods presented (in thousands):

	December 31,		
	2015	**2014**	**2013**
Allowance - beginning of period	$ (428)	$ (460)	$ (150)
Provision for bad debts	—	(11)	(386)
Recoveries from bad debts	7	—	76
Write-offs and other	—	43	—
Allowance - end of period	$ (421)	$ (428)	$ (460)

Inventories

Inventories consisted of the following (in thousands):

	December 31,	
	2015	2014
Raw materials [1]	$ 262	$ 84
Work in process [2]	—	65
Finished goods	730	1,246
Total	$ 992	$ 1,395

(1) Raw materials include active pharmaceutical ingredients and other raw materials.

(2) Work-in-process and finished goods include third party manufacturing costs and labor and indirect costs we incur in the production process.

Property and Equipment, net

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

	December 31,	
	2015	2014
Laboratory equipment	$ 20,503	$ 23,002
Leasehold improvements	10,369	9,773
Computer equipment and software	3,271	3,262
Office equipment and furniture	1,178	1,227
Construction in progress [1]	3	24
Property and equipment	35,324	37,288
Less: accumulated depreciation and amortization	(32,215)	(31,452)
Impairment of laboratory equipment	—	(1,841)
Property and equipment, net	$ 3,109	$ 3,995

(1) Construction in progress includes equipment received but not yet placed into service pending installation.

Intangible Assets

Intangible assets consisted of the following (in thousands):

	December 31, 2015			December 31, 2014			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Amortization Period
							(in years)
Customer relationships [1]	$ —	$ —	$ —	$ 3,098	$ (3,098)	$ —	5
Developed and core technology	1,534	(1,534)	—	1,534	(1,534)	—	5
Maxygen intellectual property	20,244	(17,432)	2,812	20,244	(14,058)	6,186	6
Total	$ 21,778	$ (18,966)	$ 2,812	$ 24,876	$ (18,690)	$ 6,186	6

(1) This fully amortized asset has been retired as of December 31, 2015.

The estimated future amortization expense to be charged to research and development through the year ending December 31, 2016 is as follows (in thousands):

Year ending December 31:	Total
2016	$ 2,812
Total	$ 2,812

Goodwill

There were no changes in the carrying value of goodwill of $3.2 million during 2015 and 2014.

Other Accrued Liabilities

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

	December 31,	
	2015	2014
Accrued purchase [1]	$ 430	$ 612
Accrued professional and outside service fees	498	521
Accrued taxes	31	275
Deferred rent	143	61
Lease incentive obligation	425	425
Other	486	725
Total	$ 2,013	$ 2,619

(1) Amount represents products and services received but have not been billed as of December 31, 2015 and 2014.

Note 8. Assets Held for Sale and Sale of Former Hungarian Subsidiary

In the fourth quarter of 2013, we announced we would begin winding down Codexis' CodeXyme® cellulase enzyme program. As a result of the termination of this research program, we concluded that certain excess research and development equipment, including assets at our Hungarian subsidiary as well as some assets in the United States, were no longer needed and would be sold. We performed a detailed review of our excess research and development equipment and determined their estimated net sales price, less selling costs, was below their carrying value. As such, we recorded a charge of $1.6 million to research and development expenses to reduce the value of held for sale assets to their estimated fair market value net of selling expenses in 2013. We reclassified the adjusted carrying value to assets held for sale as of December 31, 2013.

In March 2014, we entered into an agreement with Intrexon Corporation to sell 100% of our equity interests in our Hungarian subsidiary, Codexis Laboratories Hungary Kft, as well as all assets of such subsidiary that were classified as held for sale. We received cash proceeds of $1.5 million from the sale. In connection with the sale, we reduced the carrying value of assets held for sale by $0.8 million and recognized a gain of $0.8 million, which was included in research and development expenses. As part of the purchase, the buyer obtained all of the Hungarian assets held for sale and assumed all employment and facility lease related contract obligations. There were no transaction related costs incurred other than legal fees, which were recorded in selling, general and administrative expenses.

Prior to the sale of our Hungarian subsidiary in March 2014, we transferred certain of the subsidiary's equipment to another of our European subsidiaries and incurred a reclaimable VAT liability of approximately $0.4 million. We paid this VAT amount in July 2014 and recorded a receivable, which is reflected in prepaid expenses and other current assets in our consolidated balance sheets at December 31, 2015 and December 31, 2014.

In 2014, we expedited the disposition of assets held for sale in the United States by selling these assets through auction. As a result, we recognized a change in estimated fair value of $0.7 million in 2014, which is reflected in research and development expense. In addition, we revised our plan to sell certain U.S. research and development equipment. As part of the revised plan, certain equipment was put back to operational use. We also exchanged certain of the U.S. research and development equipment for more suitable and newer equipment that was classified as property and equipment. The combined transfer of U.S. research and development equipment from assets held for sale to property and equipment was $0.3 million. We recognized a net loss on the disposition and exchange of assets held for sale of less than $0.1 million in 2014.

As of December 31, 2015 and 2014, we had no assets classified as held for sale.

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 ("IPO") 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 the Company's 2002 Stock Plan (the "2002 Plan") that remained unissued at the time of completion of the IPO. 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. As ofDecember 31, 2015, total shares remaining available for issuance under the 2010 Plan were approximately7.1 million shares.

The 2010 Plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock award ("RSA"), restricted stock unit ("RSU"), performance-based awards, stock appreciation rights, and stock purchase rights to our employees, non-employee directors and consultants.

Incentive stock options may be granted with an exercise price of not less than the fair value of our common stock on the date of grant, and the nonstatutory stock options may be granted with an exercise price of not less than 85% of the fair value of our common stock on the date of grant, as determined by the Board. Stock options granted to a stockholder owning more than 10% of our voting stock must have an exercise price of not less than110% of the fair value of the common stock on the date of grant. Stock options are granted with terms of up to ten years and generally vest over a period of four years.

RSAs, RSUs and Performance-Contingent RSUs ("PSUs") may be granted for no consideration (other than par value of a share of common stock). The fair values of RSAs, RSUs and PSUs are based upon the closing price of our common stock on the date of grant. RSAs generally vest over one to three years. RSUs generally vest overthree to four years. PSUs generally vest over two years and are conditional upon the attainment of one or more performance objectives over a specified period.

Stock-Based Compensation Expense:

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

	Years Ended December 31,		
	2015	2014	2013
Research and development	$ 935	$ 953	$ 1,201
Selling, general and administrative	4,191	3,667	3,188
	$ 5,126	$ 4,620	$ 4,389

Grant Award Activities:

Stock Option Awards

We estimated the fair value of stock options using the Black-Scholes-Merton option-pricing model based on the date of grant. The following summarize the ranges of weighted-average assumptions used to estimate the fair value of employee stock options granted:

	Years Ended December 31,		
	2015	2014	2013
Expected life (years)	6.1	6.0	6.0
Volatility	66.1%	65.0%	65.0%
Risk-free interest rate	1.7%	1.9%	1.2%
Expected dividend yield[(1)]	0.0%	0.0%	0.0%

(1) We do not currently pay dividends, and thus the dividend rate variable in the Black-Scholes-Merton option-pricing model is zero.

The following table summarizes stock option activity in 2015:

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(in thousands)		(in years)	(in thousands)
Balance at January 1, 2015	3,480	$ 4.53		
Granted	742	$ 3.45		
Exercised	(172)	$ 1.68		
Forfeited/Expired	(132)	$ 3.58		
Outstanding at December 31, 2015	3,918	$ 4.49	6.41	$ 4,206
Exercisable at December 31, 2015	2,499	$ 5.42	5.20	$ 2,252
Vested and expected to vest at December 31, 2015	3,771	$ 4.54	6.31	$ 4,036

The weighted average grant date fair value per share of stock options granted in2015, 2014 and 2013 was $2.09, $1.20 and $1.34, respectively. The total intrinsic value of options exercised in 2015, 2014 and 2013 was $0.4 million, $57 thousand and $0.4 million, respectively.

As of December 31, 2015, there was $1.8 million unrecognized stock-based compensation cost related to nonvested options, which we expect to recognize over a weighted average period of 2.53 years.

Restricted Stock Awards

The following table summarizes the RSAs activity in 2015:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(in thousands)	
Nonvested balance at January 1, 2015	912	$ 2.51
Granted	145	$ 4.10
Vested	(577)	$ 2.27
Forfeited/Expired	—	—
Nonvested balance at December 31, 2015	480	$ 3.29

The weighted average grant date fair value per share of RSAs granted in2015, 2014 and 2013 was $4.10, $1.64 and $2.32, respectively. The total fair value of RSAs vested in fiscal 2015, 2014 and 2013 was $2.3 million, $0.7 million and $0.4 million respectively.

As of December 31, 2015, there was $0.7 million unrecognized stock-based compensation cost related to nonvested RSAs, which we expect to recognize over a weighted average period of 0.6 years.

Restricted Stock Units

The following table summarizes the RSUs activity in 2015:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(in thousands)	
Nonvested balance at January 1, 2015	1,052	$ 2.22
Granted	339	$ 3.65
Vested	(711)	$ 2.09
Forfeited/Expired	(135)	$ 2.73
Nonvested balance at December 31, 2015	545	$ 3.15

The weighted average grant date fair value per share of RSUs granted in2015, 2014 and 2013 was $3.65, $2.14 and $1.80, respectively. The total fair value of RSUs vested in fiscal 2015, 2014 and 2013 was $2.9 million, $1.9 million and $0.7 million respectively.

As of December 31, 2015, there was $0.9 million unrecognized stock-based compensation cost related to nonvested RSUs, which we expect to recognize over a weighted average period of 1.6 years.

Performance-Contingent RSUs

The following table summarizes the PSUs activity in 2015:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(in thousands)	
Nonvested balance at January 1, 2015	749	$ 2.00
Granted	684	$ 3.45
Vested	(195)	$ 2.00
Forfeited/Expired	(249)	$ 2.27
Nonvested balance at December 31, 2015	989	$ 2.94

The weighted average grant date fair value per share of PSUs granted in2015, 2014 and 2013 was $3.45, $2.00 and $2.32, respectively. The total fair value of PSUs vested in fiscal 2015 was $0.8 million. We had no PSUs vested in2014 and 2013.

As of December 31, 2015, there was $0.7 million unrecognized stock-based compensation cost related to nonvested PSUs, which we expect to recognize over a weighted average period of 0.5 years.

Note 10. Capital Stock

Warrants

The Company's outstanding warrants are exercisable for common stock at any time during their respective terms.No warrants were exercised during 2015, 2014 or 2013.

The following warrants were issued and outstanding at December 31, 2015:

Issue Date	Shares Subject to warrants	Exercise Price per Share	Expiration
July 17, 2007	2,384	$ 12.45	February 9, 2016
September 28, 2007	72,727	$ 8.25	September 28, 2017

Note 11. 401(k) Plan

In January 2005, we implemented a 401(k) Plan covering certain employees. Currently, all of our United States based employees over the age of 18 are eligible to participate in the 401(k) Plan. Under the 401(k) Plan, eligible employees may elect to reduce their current compensation up to a certain annual limit and contribute these amounts to the 401(k) Plan. We may make matching or other contributions to the 401(k) Plan on behalf of eligible employees. We recorded employer matching contributions expense of $0.5 million, $0.4 million and $0.5 million, respectively, in 2015, 2014 and 2013.

Note 12. Income Taxes

Our loss before provision for income taxes was as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
United States	$ (7,641)	$ (20,980)	$ (41,696)
Foreign	(278)	1,653	306
Loss before provision for income taxes	$ (7,919)	$ (19,327)	$ (41,390)

The tax provision for the years ended December 31, 2015, 2014 and 2013 consists primarily of taxes attributable to foreign operations and the tax effect of unrealized gains on our available for sale securities. The components of the provision for income taxes are as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Current provision (benefit):			
Federal	$ —	$ —	$ —
State	5	5	5
Foreign	(13)	(371)	(45)
Total current provision (benefit)	(8)	(366)	(40)
Deferred provision (benefit):			
Federal	(293)	—	(59)
State	(21)	—	(7)
Foreign	(16)	110	19
Total deferred provision (benefit)	(330)	110	(47)
Total provision for income taxes	$ (338)	$ (256)	$ (87)

Reconciliation of the provision for income taxes calculated at the statutory rate to our provision for (benefit from) income taxes is as follows (in thousands):

	Years Ended December 31,		
	2015	2014	2013
Tax benefit at federal statutory rate	$ (2,693)	$ (6,571)	$ (14,073)
State taxes	1,126	249	(1,948)
Research and development credits	(85)	(57)	(195)
Foreign operations taxed at different rates	31	447	(108)
Stock-based compensation	77	(2)	117
Other nondeductible items	(43)	(364)	(1,272)
Change in valuation allowance	1,249	6,042	17,392
Provision for income taxes	$ (338)	$ (256)	$ (87)

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards.

Significant components of our deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2015	2014
Deferred tax assets:		
Net operating losses	$ 70,005	$ 70,666
Federal and state credits	4,671	4,421
Deferred revenues	3,357	2,697
Stock-based compensation	3,460	2,988
Reserves and accruals	2,713	2,701
Depreciation	2,377	2,295
Intangible assets	5,127	4,639
Capital losses	933	933
Unrealized gain/loss	126	148
Other assets	98	101
Total deferred tax assets:	92,867	91,589
Deferred tax liabilities:		
Other	(199)	(186)
Total deferred tax liabilities:	(199)	(186)
Valuation allowance	(92,762)	(91,513)
Net deferred tax liabilities	$ (94)	$ (110)

ASC Topic 740 requires that the tax benefit of NOL, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is “more likely than not.” Realization of the future tax benefits is dependent on our ability to generate sufficient taxable income within the carryforward period. Because of our history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not more likely than not to be realized and, therefore, has provided a valuation allowance against our deferred tax assets. Accordingly, the net deferred tax assets in all the Company’s jurisdictions have been fully reserved by a valuation allowance. The net valuation allowance increased by $1.2 million, $5.2 million and $14.6 million during the years ended December 31, 2015, 2014 and 2013, respectively. At such time as it is determined that it is more likely than not that the deferred tax assets are realizable, the valuation allowance will be reduced.

The following table sets forth the Company’s federal, state and foreign NOL carryforwards and federal research and development tax credits as ofDecember 31, 2015 (in thousands):

	December 31, 2015	
	Amount	Expiration Years
Net operating losses, federal	$ 201,670	2022-2035
Net operating losses, state	127,025	2016-2035
Tax credits, federal	5,421	2022-2035
Tax credits, state	6,492	Do not expire
Net operating losses, foreign	3,259	Various
Tax credits, foreign	10	Various

Utilization of the net operating loss carryforwards and credits may be subject to an annual limitation due to the ownership change limitations defined by Section 382 of the Internal Revenue Code and similar state provisions. Accordingly, our ability to utilize NOLs and tax credit carryforwards may be limited as a result of such ownership changes. Such a limitation could result in the expiration of carryforwards before they are utilized. We have not completed a detailed Section 382 study at this time to determine what impact, if any, that ownership changes may have on our NOLs and tax credit carryforwards. In each period since its inception, we have recorded a valuation allowance for the full amount of our deferred tax assets. As a result, we have not recognized income tax benefit for our NOLs and tax credit carryforwards.

Income tax expense or benefit from continuing operations is generally determined without regard to other categories of earnings, such as discontinued operations and other comprehensive income. An exception is provided in ASC 740 when there is aggregate income from categories other than continuing operations and a loss from continuing operations in the current year. In this case, the tax benefit allocated to continuing operations is the amount by which the loss from continuing operations reduces the tax expenses recorded with respect to the other categories of earnings, even when a valuation allowance has been established against the deferred tax assets. In instances where a valuation allowance is established against current year losses, income from other sources, including gain from available-for-sale securities recorded as a component of other comprehensive income, is considered when determining whether sufficient future taxable income exists to realize the deferred tax assets. As a result, for the year ended December 31, 2015, we recorded a tax expense of $0.3 million in other comprehensive income related to the unrealized gain on available-for-sale securities, and recorded a corresponding tax benefit of $0.3 million in continuing operations.

In 2014, we determined that the undistributed earnings of our India subsidiary will be repatriated to the United States, and accordingly, we have provided a deferred tax liability totaling $0.2 million as of December 31, 2015. We have not provided for U.S. federal and state income taxes on all of the remaining non-U.S. subsidiaries' undistributed earnings as of December 31, 2015 because such earnings are intended to be indefinitely reinvested. As of December 31, 2015, there were no cumulative un-remitted foreign earnings that are considered to be permanently invested outside the United States as the remaining foreign jurisdictions are in a cumulative loss position.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	December 31,		
	2015	2014	2013
Balance at beginning of year	$ 7,838	$ 8,306	$ 7,429
Additions based on tax positions related to current year	368	346	1,116
Additions to tax provision of prior years	—	—	6
Reductions to tax provision of prior years	(54)	(814)	(87)
Lapse of the applicable statute of limitations	—	—	(158)
Balance at end of year	$ 8,152	$ 7,838	$ 8,306

We recognize interest and penalties as a component of our income tax expense. Total interest and penalties recognized in the consolidated statement of operations was $24,000, $(47,000) and $29,000, respectively, in 2015, 2014 and 2013. Total penalties and interest recognized in the balance sheet was $257,000 and $232,000, respectively, in 2015 and 2014. The total unrecognized tax benefits that, if recognized currently, would impact the Company's effective tax rate were $0.4 million and $0.5 million as of December 31, 2015 and 2014, respectively. We do not expect any material changes to our uncertain tax positions within the next 12 months. We are not subject to examination by United States federal or state tax authorities for years prior to 2002 and foreign tax authorities for years prior to 2009.

Note 13. 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 from Metropolitan Life Insurance Company ("MetLife"). We entered into the initial lease with Met Life for a portion of this space in 2004 and the lease has been amended numerous times since then to adjust space and amend the terms of the lease, with the latest amendment being in 2012. The various terms for the spaces under the lease have expiration dates that range from January 2017 through January 2020. In October 2015, we entered into an agreement to sublet a portion of our headquarter space to a subtenant effective January 2016. This sublease expires in November 2019.

We received certain lease incentives from MetLife in 2011 & 2012, which have been amortized on a straight line basis over the term of the lease as a reduction in rent expense. As of December 31, 2015 and 2014, we have unamortized lease incentive obligation of $1.7 million and $2.2 million, respectively, of which the non-current portion of $1.3 million and $1.7 million, respectively, is included in lease incentive obligation on the consolidated balance sheets. Rent expense for the Redwood City properties is recognized on a straight-line basis over the term of the lease. Rent expense was $3.4 million in 2015, $3.4 million in 2014 and $3.6 million in 2013, partially offset by sublease income of $0.6 million in 2015, $0.4 million in 2014 and nil in 2013.

We are required to restore certain 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 makes adjustments if our estimates change. As of December 31, 2015 and 2014, we have assets retirement obligations of $0.4 million, which is included in other liabilities on the consolidated balance sheets

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 December 31, 2015 and 2014. These deposits are recorded as restricted cash on the consolidated balance sheets.

Prior to March 2014, we also rented facilities in Hungary. The facility lease was transferred to Intrexon Corporation to in connection with the sale of Codexis Laboratories Hungary Kft. See Note 8 - Assets Held for Sale and Sale of Former Hungarian Subsidiary

Future minimum payments under noncancellable operating leases are as follows at December 31, 2015 (in thousands):

	Lease Payments
Years ending December 31,	
2016	$ 2,827
2017	2,677
2018	2,736
2019	2,818
2020	237
Thereafter	—
Total minimum payments [1]	$ 11,295

(1) Minimum payments have not been reduced by future minimum sublease rentals of $2.7 million to be received under noncancellable subleases.

Legal Proceedings

On February 19, 2016, we filed a complaint against EnzymeWorks, Inc., a California corporation, EnzymeWorks, Inc., a Chinese corporation, and Junhua “Alex” Tao (collectively, the “Defendants”) in the United States District Court for the Northern District of California. The complaint alleges that the Defendants have engaged in willful patent infringement, trade secret misappropriation, breach of confidence, intentional interference with contractual relations, intentional interference with prospective economic relations and statutory and common law unfair competition. We have sought injunctive relief, monetary damages, treble damages, restitution, punitive damages and attorneys’ fees. We are unable to determine when this litigation will be resolved or its ultimate outcome.

Other than our litigation against the Defendants, we are not currently a party to any material litigation or other material legal proceedings

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 14. Related Party Transactions

Exela PharmSci, Inc.

We signed a commercialization agreement with Exela PharmSci, Inc. (“Exela”) in 2007, whereby Exela agreed to pay to us a contractual percentage share of Exela’s net profit from the sales of licensed products.

Thomas R. Baruch, one of our directors, serves on the board of directors of Exela and is a general partner in Presidio Partners 2007, L.P., which owns more than10% 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.. Mr. Baruch is also a general partner in CMEA Ventures Life Sciences 2000, L.P., which owned 7.4% of our common stock until November 10, 2014, at which time the shares were purchased by Presidio Partners 2014, L.P. Mr. Baruch has no direct or indirect pecuniary interest in the shares of our common stock owned by Presidio Partners 2014, L.P.

We recognized $4.8 million in 2015, $7.3 million in 2014 and $4.6 million in 2013, shown in the consolidated statement of operations as revenue sharing arrangement. We had no receivables from Exela at December 31, 2015 and 2014.

Alexander A. Karsner

Alexander A. Karsner was a member of the Board until the expiration of his term at the close of our Annual Meeting of Stockholders on June 11, 2014. In addition, Mr. Karsner provided consulting services to us beginning in 2011 through June 30, 2014. Amounts paid to Mr. Karsner for consulting services was nil, $60,000 and $120,000 in 2015, 2014 and 2013, respectively, and there was no amount owed as of December 31, 2015 and 2014.

Note 15. Significant Customer and Geographic Information

Significant Customers

Customers that each contributed 10% or more of our net revenue were as follows:

	Percentage of Total Revenues For The Years Ended December 31,		
	2015	2014	2013
Customer A	29%	24%	39%
Customer B	20%	17%	—%
Customer C (Related Party)	12%	21%	15%
Customer D	*	*	14%

** Percentage was less than 10%*

Customers that each accounted for 10% or more of our accounts receivable balance for the period presented were as follows:

	Percentage of Accounts Receivables As Of December 31,	
	2015	2014
Customer A (1)	12%	63%
Customer E	22%	—%
Customer F (2)	40%	—%

(1) This customer also contributed 10% or more of our net revenue in 2015, 2014 and 2013.

(2) This represents a $3.1 million settlement relating to past-due payments and settlement of future payments associated with our royalty business with a non-core customer as of December 31, 2015. We collected the full amount in February 2016.

Geographic Information

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

	Years Ended December 31,		
	2015	2014	2013
Revenues			
United States	$ 24,795	$ 16,136	$ 11,005
Europe	14,151	15,067	9,568
Asia			
India	1,026	919	3,099
Singapore	963	1,435	7,220
Others	864	1,637	1,030
Others	5	113	—
Total	$ 41,804	$ 35,307	$ 31,922

Geographic presentation of identifiable long-lived assets below shows those assets that can be directly associated with a particular geographic area and consist of the following (in thousands):

	December 31,	
	2015	2014
Long-lived assets		
United States	$ 6,231	$ 10,475

Note 16. Restructuring

During the fourth quarter of 2013, the Board approved and committed to a restructuring plan to reduce the cost structure resulting from our decision to begin winding down our CodeXyme® cellulase enzymes program, which included a total of 15 employee terminations in the United States. For the year ended December 31, 2013, costs of $0.8 million of employee severance and other termination benefits have been recognized, consisting of $0.6 million in research and development expenses and $0.2 million in selling, general and administrative expenses. Associated with the restructuring Plan, we sold certain research and development assets that have become excess to future requirements (see Note 8 - Assets Held for Sale and Sale of Former Hungarian Subsidiary). All restructuring charges were fully paid out in 2014. We do not anticipate recording any further costs under this restructuring plan.

Selected Quarterly Financial Data (Unaudited)

The following table provides the selected quarterly financial data for2015 and 2014 (in thousands):

Condensed Consolidated Statements of Operations
(In Thousands, Except Per Share Amounts)

	Quarter Ended [1]							
	December 31, 2015	September 30, 2015	June 30, 2015	March 31, 2015	December 31, 2014	September 30, 2014	June 30, 2014	March 31, 2014
Revenues:								
Biocatalyst product sales	$ 4,462	$ 1,818	$ 2,020	$ 3,076	$ 4,741	$ 2,562	$ 2,776	$ 2,985
Biocatalyst research and development	6,352	14,517	2,533	2,197	7,769	3,364	1,666	2,146
Revenue sharing arrangement	773	1,066	1,465	1,525	1,681	1,546	2,128	1,943
Total revenues	11,587	17,401	6,018	6,798	14,191	7,472	6,570	7,074
Costs and operating expenses:								
Cost of biocatalyst product sales	2,578	1,302	1,250	1,456	3,547	1,532	2,123	2,524
Research and development [2]	5,216	4,994	5,170	5,293	5,047	5,038	7,733	4,834
Selling, general and administrative [2]	6,026	5,415	5,296	5,578	5,147	5,157	5,625	6,112
Total costs and operating expenses	13,820	11,711	11,716	12,327	13,741	11,727	15,481	13,470
Income (loss) before income taxes	(2,247)	5,668	(5,790)	(5,550)	403	(4,255)	(8,911)	(6,396)
Net income (loss)	$ (2,053)	$ 5,394	$ (5,360)	$ (5,562)	$ 345	$ (4,562)	$ (8,479)	$ (6,375)
Net income (loss) per share, basic	$ (0.05)	$ 0.14	$ (0.14)	$ (0.14)	$ 0.01	$ (0.12)	$ (0.22)	$ (0.17)
Net income (loss) per share, diluted	$ (0.05)	$ 0.13	$ (0.14)	$ (0.14)	$ 0.01	$ (0.12)	$ (0.22)	$ (0.17)
Weighted average common shares used in computing net loss per share, basic [3]	39,840	39,767	39,301	38,779	38,641	38,450	37,980	38,506
Weighted average common shares used in computing net loss per share, diluted [3]	39,840	40,970	39,301	38,779	39,592	38,450	37,980	38,506

(1) The 2015 and 2014 amounts were computed independently for each quarter, and the sum of the quarters may not total the annual amounts.

(2) Certain expenses of approximately $40 thousand and $63 thousand for the quarterly periods ended March 31 and June 30 2014, respectively, have been reclassified to R&D expenses from SG&A expenses to conform to the third and fourth quarter and full year presentation.

(3) The full year net loss per share of common stock, basic and diluted, may not equal the sum of the quarters due to weighting of outstanding shares.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision of our Chief Executive Officer and Chief Financial Officer and with the participation of our disclosure committee, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2015. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2015 at the reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with United States generally accepted accounting principles.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2015 based on the guidelines established in *Internal Control-Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2015. We reviewed the results of management's assessment with our Audit Committee.

Our internal control over financial reporting as of December 31, 2015 has been audited by BDO USA, LLP, an independent registered public accounting firm, as stated in their report which is included in Item 8 of this Annual Report.

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.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) identified in connection with the evaluation required by paragraph (d) of Rule 13a-15 of the Exchange Act, which occurred during the fourth fiscal quarter of the year ended December 31, 2015, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

On March 3, 2016, Douglas T. Sheehy advised the Company of his decision to resign from his position as the Company's Executive Vice President, Chief Administrative Officer, General Counsel and Secretary, effective as of April 1, 2016. Mr. Sheehy has informed the Company that his resignation is in connection with his decision to accept a position as General Counsel and Secretary at a public biotechnology company.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item concerning our directors, executive officers, compliance with Section 16 of the Exchange Act, our code of ethics and our Nominating and Corporate Governance Committee, and our Audit Committee is incorporated by reference from the information that will be set forth in the sections under the headings "Election of Directors," "Other Matters—Section 16(a) Beneficial Ownership Reporting Compliance" and "Corporate Governance Matters" in our Definitive Proxy Statement to be filed with the Securities and Exchange Commission in connection with the Annual Meeting of Stockholders to be held in 2016 (the "2016 Proxy Statement").

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item concerning executive compensation is incorporated by reference from the information that will be set forth in the 2016 Proxy Statement under the headings "Executive Compensation," and "Corporate Governance Matters."

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item concerning securities authorized for issuance under equity compensation plans and security ownership of certain beneficial owners and management is incorporated by reference from the information that will be set forth in the 2016 Proxy Statement under the headings "Executive Compensation—Equity Compensation Plan Information" and "Information Concerning Voting and Solicitation—Security Ownership of Certain Beneficial Owners and Management."

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item concerning transactions with related persons and director independence is incorporated by reference from the information that will be set forth in the 2016 Proxy Statement under the headings "Certain Relationships and Related Transactions" and "Corporate Governance Matters."

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference from the information that will be set forth in the 2016 Proxy Statement under the heading "Ratification of Independent Registered Public Accounting Firm—Principal Accounting Fees and Services."

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

1. Financial Statements: See “Index to Consolidated Financial Statements” in Part II, Item 8 of this Annual Report on Form 10-K

2. Exhibits: The exhibits listed in the accompanying index to exhibits are filed or incorporated by reference as part of this Annual Report on Form 10-K.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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: March 8, 2016

By: /s/ John J. Nicols
President and Chief Executive Officer

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints John J. Nicols and Douglas T. Sheehy, and each of them, with full power of substitution and resubstitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this annual report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ John J. Nicols John J. Nicols	President, Chief Executive Officer and Director (Principal Executive Officer)	Date: March 8, 2016
/s/ Gordon T. B. Sangster Gordon T. B. Sangster	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	Date: March 8, 2016
/s/ Thomas R. Baruch Thomas R. Baruch	Chairman of the Board of Directors	Date: March 8, 2016
Pam P. Cheng	Director	Date: March 8, 2016
/s/ Byron L. Dorgan Byron L. Dorgan	Director	Date: March 8, 2016
Kathleen S. Glaub	Director	Date: March 8, 2016
/s/ David V. Smith David V. Smith	Director	Date: March 8, 2016
/s/ Bernard J. Kelley Bernard J. Kelley	Director	Date: March 8, 2016
/s/ Dennis P. Wolf Dennis P. Wolf	Director	Date: March 8, 2016
/s/ Patrick Y. Yang Patrick Y. Yang	Director	Date: March 8, 2016

EXHIBIT INDEX

Exhibit No.	Description
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	Form of the Registrant's Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Quarterly Report for the quarter ended June 30, 2012, filed on August 9, 2012).
4.2*	Form of Warrant to purchase shares of Series D preferred stock issued in connection with the Bridge Loan Agreement dated as of May 25, 2006.
4.3*	Form of Warrant to purchase shares of Series D preferred stock issued in connection with the Loan and Security Agreement dated as of September 28, 2007.
4.4*	Warrant to purchase shares of Common Stock issued to Alexandria Equities, LLC.
4.5*	Registration Rights Agreement among the Company, Jülich Fine Chemicals GmbH and the other parties named therein, dated February 11, 2005.
10.1A†*	Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.1B†*	Memorandum of Understanding for Transfer Pricing and Royalty Calculation by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.1C†*	Memorandum of Understanding for Transfer Pricing by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.1D	Letter Amendment to the Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited dated as of April 22, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).
10.1E	Letter Amendment to the Product Supply Agreement by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited dated as of April 22, 2011 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).
10.1F†	Amendment No. 1 to the Memorandum of Understanding for Transfer Pricing and Royalty Calculation by and between the Company and Arch Pharmalabs Limited effective as of April 25, 2011 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).
10.1G†	Amendment No. 1 to the Memorandum of Understanding for Transfer Pricing by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited effective as of April 25, 2011 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).
10.1H†	Omnibus Letter Amendment to the Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited and the Product Supply Agreement by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited dated as of August 17, 2011 (incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).

Exhibit No.	Description
10.1I	Amendment No.1 to Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited dated as of January 4, 2012 (incorporated by reference to Exhibit 10.6J to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2011, filed on March 5, 2012).
10.1J†	Enzyme Supply Agreement by and between Arch Pharmalabs Limited and the Company dated as of November 1, 2012 (incorporated by reference to Exhibit 10.5K to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed on April 2, 2013).
10.2A*	Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of February 1, 2004.
10.2B*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of June 1, 2004.
10.2C*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 9, 2007.
10.2D*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 31, 2008.
10.2E	Fourth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of September 17, 2010 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010, filed on November 4, 2010).
10.2F	Fifth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 16, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, filed on May 6, 2011).
10.2G	Sixth Amendment to Lease by and between the Company and Metropolitan Life Insurance Company dated as of September 27, 2012 (incorporated by reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 7, 2012).
10.3+*	Codexis, Inc. 2002 Stock Plan, as amended, and Form of Stock Option Agreement.
10.4+*	Codexis, Inc. 2010 Equity Incentive Award Plan and Form of Stock Option Agreement.
10.5+*	Offer Letter Agreement by and between the Company and Douglas T. Sheehy dated as of February 26, 2007.
10.6*	Form of Indemnification Agreement between the Company and each of its directors, officers and certain employees.
10.7+*	Form of Change of Control Severance Agreement between the Company and certain of its officers.
10.8	Asset Purchase Agreement, dated October 28, 2010, by and among the Company, Codexis Mayflower Holdings, LLC and Maxygen, Inc. (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed on October 28, 2010).
10.9A†	Manufacture and Supply Agreement, dated May 16, 2011, by and between the Company and Lactosan GmbH & Co. KG (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, filed on August 3, 2011).
10.9B	Amendment No. 1 to the Manufacture and Supply Agreement by and between the Company and Lactosan GmbH & Co. KG dated as of March 9, 2012 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, filed on May 10, 2012).
10.10A+	Employment Agreement by and between the Company and John Nicols effective as of May 28, 2012 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).

Exhibit No.	Description
10.10B+	John Nicols Stock Option Grant Notice and Stock Option Agreement dated June 13, 2012 between John J. Nicols and the Company (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.10C+	John Nicols Restricted Stock Grant Notice and Restricted Stock Agreement dated June 13, 2012 between John J. Nicols and the Company (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.11A†	Sitagliptin Catalyst Supply Agreement by and between Merck Sharp and Dohme Corp. and the Company dated as of February 1, 2012 (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2012, filed on April 2, 2013).
10.11B†	Amendment to Sitagliptin Catalyst Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of October 1, 2013 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, filed on November 12, 2013).
10.11C	Amendment No. 2 to Sitagliptin Catalyst Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of February 25, 2015 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, filed on May 7, 2015)
10.11D	Amendment No. 3 to Sitagliptin Catalysts Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of December 17, 2015 .
10.12A†	License Agreement by and between Exela PharmSci, Inc. and the Company effective as of September 18, 2007 (incorporated by reference to Exhibit 10.26A to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed on April 2, 2013).
10.12B†	Amendment No. 1 to the License Agreement between Exela PharmSci, Inc. and the Company effective as of December 28, 2009 (incorporated by reference to Exhibit 10.26B to the Company's Annual Report on Form 10-K for the year ended December 31, 2012, filed on April 2, 2013) .
10.13+	Transition and Separation Agreement between the Company and Matthew B. Tobin dated as of December 4, 2013 (incorporated by reference to Exhibit 10.23 to the Company's Annual Report on Form 10-K for the year ended December 31, 2013, filed on March 13, 2014).
10.14†	Platform Technology Transfer, Collaboration and License Agreement by and between the Company and GlaxoSmithKline Intellectual Property Limited, effective as of July 10, 2014 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 31, 2014, filed on November 6, 2014).
10.15+	Offer Letter Agreement by and between the Company and Gordon Sangster effective as of July 11, 2014 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 31, 2014, filed on November 6, 2014).
10.16+	Separation Agreement between David O'Toole and the Company effective as of July 9, 2014 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 31, 2014, filed on November 6, 2014).
10.17†	Platform Technology Transfer and License Agreement by and between the Company and Merck Sharp & Dohme Corp., dated as of August 3, 2015 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 31, 2015, filed on November 6, 2015).
21.1	List of Subsidiaries.
23.1	Consent of BDO USA, LLP, independent registered public accounting firm
24.1	Power of Attorney (see signature page to this Annual Report on Form 10-K).
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.

Exhibit No.	Description
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 Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2014, formatted in Extensible Business Reporting Language (XBRL) includes: (i) Consolidated Balance Sheets at December 31, 2014 and December 31, 2013, (ii) Consolidated Statements of Income for the years ended December 31, 2014, December 31, 2013 and December 31, 2012, (iii) Consolidated Statements of Comprehensive Income for the years ended December 31, 2014, December 31, 2013 and December 31, 2012, (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2014, December 31, 2013 and December 31, 2012, (v) Consolidated Statements of Stockholders' Equity for the years ended December 31, 2014, December 31, 2013 and December 31, 2012 and (vi) Notes to Consolidated Financial Statements.

+ Indicates a management contract or compensatory plan or arrangement.

† Confidential treatment has been granted for certain information contained in this exhibit. Such information has been omitted and filed separately with the Securities and Exchange Commission.

* Filed as exhibits to the registrant's Registration Statement on Form S-1 (File No. 333-164044), effective April 21, 2010, and incorporated herein by reference.

** Pursuant to Item 601(b)(32) of Regulation S-K this exhibit is furnished rather than filed with this report.

Exhibit 10.11D

AMENDMENT NO. 3 TO SITAGLIPTIN SUPPLY AGREEMENT

AMENDMENT NO. 3 TO SITAGLIPTIN CATALYST SUPPLY AGREEMENT effective as of **December 4, 2015** (this "Amendment") by and between Codexis, INC, (the "Vendor"), a Delaware corporation, having a place of business at 200 Penobscot Drive, Redwood City, CA 94063 ("CODEXIS") and MERCK SHARP and DOHME CORP. (the "Company"), having a place of business at One Merck Drive, Whitehouse Station, NJ 08889-0100. ("MERCK")

W I T N E S S E T H:

WHEREAS, the parties are party to that certain **SITAGLIPTIN CATALYST SUPPLY AGREEMENT** dated as of February 1st 2012 as amended as of October 1, 2013 and as of February 25, 2015, as the same may have been amended to the effective date of this Amendment (as so amended, the "Agreement"); and

WHEREAS, the parties desire to amend the Agreement to modify the term of the Agreement as more fully set forth below;

NOW, THEREFORE, in consideration of the premises and the mutual covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto hereby agree as follows:

1. Additions and changes made to the contract in this Amendment.

1.01 Agreement Term pursuant to section 12.1 of the Agreement shall be renewed for an additional (5) years through February 1, 2022.

1.02 This amended term will be effective on December 4, 2015.

2. Miscellaneous

2.01 Effect of Amendment; Joinder. Except as expressly changed by this Amendment, the Agreement shall remain in full force and effect in accordance with its stated terms. The Agreement and the Schedules and Exhibits thereto, as amended by this Amendment and all preceding amendments, set forth the entire understanding of the parties with respect to the subject matter thereof. There are no agreements, restrictions, promises, warranties, covenants or undertakings other than those expressly set forth or referred to therein. The Agreement and the Schedules and Exhibits thereto, as amended by this Amendment, supersede all prior agreements and undertakings between the parties with respect to such subject matter.

2.02 Counterparts. This Amendment may be executed by the parties in separate counterparts, each of which when so executed and delivered is deemed an original. All such counterparts together constitute but one and the same instrument.

2.03 Definitions. All capitalized terms used but not defined in this Amendment shall have the respective definitions assigned to such terms in the Agreement.

IN WITNESS WHEREOF, the parties have caused this Amendment to be signed by their duly authorized representatives as of the date and year first written above.

CODEXIS INC.

By: /s/ John J. Nicols
Name: John J. Nicols
Title: President and CEO
Date: December 4, 2015

MERCK SHARP and DOHME CORP.

By: By: /s/ Nick Anousis
Name: Nick Anousis
Title: Director, API/Intermediates Procurement
Date: December17, 2015

Exhibit 21.1

Subsidiaries of Codexis, Inc.

Name of Subsidiary	State or Jurisdiction in which Incorporated or Organized
Codexis Mayflower Holdings LLC	Delaware

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-202596, 333-194524, 333-187711, 333-179903, 333-172166, and 333-167752) of Codexis, Inc. of our reports dated March 8, 2016, relating to the consolidated financial statements, and the effectiveness of Codexis, Inc.'s internal control over financial reporting, which appear in this Form 10-K.

/s/ BDO USA, LLP

San Jose, California

March 8, 2016

Exhibit 31.1

CERTIFICATION

I, John J. Nicols, certify that:

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

Date: March 8, 2016

/s/John J. Nicols

John J. Nicols

President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Gordon Sangster, certify that:

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

Date: March 8, 2016

/s/Gordon Sangster

Gordon Sangster

Senior Vice President and Chief Financial Officer

Exhibit 32.1

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

In connection with the Annual Report of Codexis, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2015, as filed with the Securities and Exchange Commission (the "Report"), John J. Nicols, President and Chief Executive Officer of the Company and Gordon Sangster, Senior Vice President and Chief Financial Officer of the Company, respectively, do each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

Date: March 8, 2016

/s/John J. Nicols

John J. Nicols
President and Chief Executive Officer

/s/Gordon Sangster

Gordon Sangster
Senior Vice President and Chief Financial Officer