CODEXIS INC
Form 10-K
March 06, 2015

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

FORM 10-K
(Mark One)

ý ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended: December 31, 2014

¨ 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 ý
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 ý
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ý No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 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 ý 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	ý

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

The aggregate market value of voting common stock held by non-affiliates of Codexis as of June 30, 2014 was approximately
$35.6 million based upon the closing price reported for such date on The NASDAQ Global Select Market.

As of February 27, 2015, there were 39,702,102 shares of the registrant's Common Stock, par value $0.0001 per share, outstanding.

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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 2015 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, 2014. 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.
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For The Year Ended December 31, 2014
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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,” “e 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 or microbes 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 microorganisms in order to give rise to changes in 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 our 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 our CodeEvolver® protein engineering technology platform for their internal development purposes, and we are pursuing additional license opportunities with other 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 largest global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development, including in the production of some of the world's best-selling and fastest growing drugs.

We also use our technology to develop biocatalysts for use in the fine chemicals market. The fine chemicals market is similar to our pharmaceutical business and consists of several large market verticals, including food, animal feed, flavors, 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.

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 of the largest 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 looking to expand our opportunities to several market segments beyond the food market, including the animal feed, agricultural chemicals, flavors and fragrances markets. In addition to developing biocatalysts processes for the manufacture of commercial goods using our biocatalysts, we also hope to satisfy our customers’ biocatalyst manufacturing and supply needs. As with our pharmaceuticals business, we also seek to market and sell intermediates that are manufactured using our custom enzymes for use in fine chemicals markets.

Our Novel Enzyme Therapeutic Program

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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 have conducted studies in a PKU animal model that demonstrate proof of concept for our therapeutic enzyme product candidate. In these studies, our enzyme therapeutic candidate was introduced into the stomach of the animal resulting in decreased blood phenylalanine levels. 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. We are seeking partners for our PKU program to advance its development and we expect to begin our investigational new drug ("IND") enabling studies for this enzyme therapeutic candidate in 2015.

Our Strategy

Our strategy is to leverage our CodeEvolver® protein engineering technology platform and expand the use of biocatalysts by:

Continuing to grow our pharmaceutical manufacturing 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 manufacturing 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.

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

Advancing our lead therapeutic program. We intend to advance our own novel enzyme therapeutic candidate for the potential treatment of PKU.

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.

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;
- eliminating multiple steps in the manufacturing process; and
- eliminating hazardous inputs and harmful emission by-products.

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 an 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 the marketing of approved drugs to allow them to screen and identify possible enzymatic 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 of the largest 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 Pfizer have included developing an optimized enzymatic manufacturing process for a key intermediate that eliminates three chemical steps from the conventional chemical manufacturing process.

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 first-in-class 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 research and develop optimized enzymes for innovator pharmaceutical companies in connection with their drug development efforts. In these collaborations, we typically receive revenues in the form of one or more of the following: up-front payments, milestone payments, payments based upon the number of full-time employee equivalents ("FTEs"), engaged in related research and development activities 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 similar enzyme development and services as we currently provide to our pharmaceutical customers.

We are looking to expand our fine chemicals market opportunities beyond the food market, including into 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. As with our pharmaceuticals business, we also seek to market and sell intermediates that are manufactured using our custom enzymes for use in fine chemicals products.

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 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 have conducted studies in a PKU animal model that demonstrate proof of concept for our therapeutic enzyme product candidate. In these studies, our enzyme therapeutic candidate was introduced into the stomach of the animal resulting in decreased blood phenylalanine levels. 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. We are seeking partners for our PKU program to advance its development. We expect to begin IND-enabling studies for our enzyme therapeutic candidate in 2015.

License 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 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. We entered into our first CodeEvolver® protein engineering technology platform licensing agreement in July 2014 with GlaxoSmithKline Intellectual Property Development Limited ("GSK").

GSK

On July 10, 2014, we entered into a Platform Technology Transfer, Collaboration and License Agreement (the "Agreement") with GSK.

The 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 for 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 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 Agreement.

Under the Agreement, we will transfer our CodeEvolver® protein engineering technology platform to GSK over an estimated three-year period (the "Technology Transfer Period") starting on the effective date of the Agreement (the "Effective Date"). As a part of this technology transfer, we will provide to GSK our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. In addition, teams of our and GSK scientists will 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 are granted under our patents, patent applications and know-how that we own or controls as of the Effective Date 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 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 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.

During the five-year period beginning on the Effective Date (the "Embargo Period"), GSK is prohibited from using the Platform Technology 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.
CodeEvolver Protein Engineering Technology Platform

We engineer custom enzymes and microorganisms, 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 enzyme engineering, metabolic pathway engineering and fermentation microbe improvement, to develop novel enzymes and microorganisms 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 processes begins by conceptually designing the most cost-effective and practical manufacturing 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.

Microbe Optimization using Gene Optimization

For fermentation microbes, we enhance metabolic pathways by using gene optimization to improve the production and/or productivity of one or more enzymes in a series of in vivo reactions that make a desired product. We optimize the gene/enzyme as described above using either in vitro or in vivo screening. For fermentation applications, the microbes containing the improved gene(s) are directly evaluated in laboratory scale fermenters.

The metabolic pathway may naturally exist in the microbe, but productivity and/or selectivity improvements are needed to produce more of the desired natural product and/or less of an undesired by-product economically. We can

also introduce a new metabolic pathway to produce a desired product using our gene shuffling technology in combination with synthetic biology, a type of metabolic engineering in which new genes are introduced into a microbe.

Microbe Optimization using Whole Genome Shuffling

In addition to our gene optimization technology for enzymes, we have another complimentary technology in our platform for the optimization of fermentation microbes called Whole Genome Shuffling. Whole Genome Shuffling allows us to improve the performance of a fermentation microbe by shuffling unidentified mutations in unidentified genes across the genome. We start with a diversity of mutational variants of a fermentation organism, generated by conventional means such as random mutagenesis. Our Whole Genome Shuffling involves introducing the entire genome of two or more such cells into a single cell, in which the genetic machinery of the combined cell recombines, or shuffles, the genomes. In one method, this is accomplished by protoplast fusion, in which the cell walls are removed to leave the cells' contents contained only by their cell membranes. The cell membranes of these protoplasts in the diverse population are induced to fuse together into fusants containing the genome of two or more of the parent cells. From these fusants, we regenerate normal cells, each with one copy of a hybridized genome. Microbial colonies are then grown and screened for their performance in the fermentative production of the desired product. This process can be repeated, including with the introduction of new mutations, until the desired performance in the fermentation process is achieved. One of our collaborators is operating a fermentation process for a generic pharmaceutical product using microbes we developed by Whole Genome Shuffling.

Metabolic Engineering and Synthetic Biology

In addition to our proprietary enzyme and microbe optimization technologies, we have built expert capabilities in a suite of metabolic engineering technologies for the development and optimization of fermentation microbes. Genomics, transcriptomics, proteomics and metabolomics all provide more in-depth analyses of the metabolic functioning of fermentation microbes, and differences between variants, to guide further improvements. In many cases, these analyses help to identify enzymes that need to be modified (removed, increased, stabilized or otherwise modified) in order to increase the overall productivity and performance of the strain.

Synthetic biology involves the design, synthesis and introduction of new genetic programming to organisms for new biological functions. This field has rapidly developed in recent years as DNA synthesis and sequencing costs have rapidly dropped. Using synthetic biology, we are taking advantage of the publicly available gene and genome sequence information when useful in our research and development activities. This information is being leveraged by our ProSAR™ and MOSAIC® software and multiplexed gene SOEing methodologies.

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, 2014, we owned or controlled approximately 448 issued patents and approximately 318 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 2014 and 2034. Our United States intellectual property rights directed to our second generation enabling technologies have terms that expire from 2021 to 2034. We continue to file new patent applications, for which terms generally extend 20 years from the 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. or Maxygen, including patents, trademarks, copyrights, software and certain assumed contracts. Prior to this transaction, we and Maxygen were parties to a license agreement pursuant to which Maxygen granted us a worldwide, exclusive license to certain Maxygen intellectual property related to the use of directed evolution technology in a variety of fields of use.

Since we now own substantially all of the intellectual property rights subject to the original license, the original license with Maxygen has been terminated. 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 Perseid Therapeutics LLC ("Perseid"), and to Novozymes A/S ("Novozymes"). Perseid retains exclusive licenses to use the intellectual property for the discovery, research and development of protein pharmaceuticals. We and Novozymes enjoy co-exclusive rights in certain fields. Novozymes did not receive a license to all of the rights we were using for biofuels applications and which we believe are critical to pursuing such applications.

Novozymes also has exclusive rights to certain 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.

As part of the transaction with Maxygen, we entered into a new license agreement with Maxygen, pursuant to which we granted to Maxygen certain license rights to the intellectual property assets that we acquired to the extent necessary for Maxygen to fulfill its contractual obligations under the license agreements retained by Maxygen.

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 do 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®, Hit from a Kit™, ProSAR™ and a Codexis and design mark (i.e., the Codexis logo).

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. Any 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 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, 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 pharmaceutical companies, 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 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, namely applying our biocatalysis technology in the food market. We face similar forms of competition in this market as in the pharmaceutical markets, with the exceptions that our fine chemicals customers do not have the in-house biocatalysis capabilities that some of our pharmaceutical customers have and 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 market 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.

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, including DSM and BASF, 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. 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.

We are aware that other companies, organizations and persons have developed technologies that appear to have some similarities to our patented proprietary technologies. In addition, academic institutions are also working in this field. 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 Merck Serono 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 manufacturing and research and development 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 17 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. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to Lactosan.

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,		
	2014	2013	2012
Customers:			
Merck	24 %	39 %	13 %
Exela	21 %	15 %	— %
GSK	17 %	— %	— %
Novartis	*	14 %	1 %
Shell (1)	— %	— %	51 %

* Percentage was less than 10%

(1) Our research agreement with Shell terminated effective August 31, 2012 and we will not receive any additional collaboration funding from Shell.

Revenue Trends

Revenues for our statin-family of products contributed approximately 6% in 2014, 11% in 2013, 24% in 2012 of our total revenues and our sales of products used in hepatitis C therapies were approximately 0% in 2014, 19% in 2013 and 10% in 2012 of our total revenues for those periods; we expect these revenue trends to continue. In addition, revenue sharing arrangement revenue may decline in future periods due to increased competition that may result from the expiration of a third-party patent related to the production of argatroban.

Employees

As of December 31, 2014, we had 91 employees worldwide. Of these employees, 48 were engaged in research and development, 16 were engaged in manufacturing and operations, and 27 were engaged in selling, general and administrative

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activities, respectively. None of our employees is 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 it 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, and the collaboration accounted for 0%, 0% and 51% of our revenues in 2014, 2013 and 2012, respectively. Upon the termination of the Shell collaboration in August 2012, we undertook a significant restructuring of our operations as a result 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 much of a basis to evaluate our current business or predict our future performance. Any assessments of our current business and predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history or if we had not experienced significant changes to our business. 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 ability to obtain substantial additional capital that may be necessary to expand our business;
- our dependence on a limited number of customers;
- our ability to develop and successfully commercialize new products for the biocatalysis market(s);
- charges to earnings as a result of any impairment of goodwill, intangible assets or other long-lived assets;
- our customers' ability to timely pay amounts owed to us;

- our dependence on a limited number of products in our pharmaceutical business;
- our ability to maintain internal control over financial reporting;
- our reliance on one contract manufacturer for large scale production of substantially all of our enzymes;
- our relationships with, and dependence on, collaborators in our principal markets;
- our ability to deploy our technology platform in the fine chemicals markets;

- our dependence on, and the need to attract and retain key management and other personnel;
- 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 control and to improve pharmaceutical product gross margins;
- risks associated with the international aspects of our business;
- our ability to integrate any businesses we may acquire with our business;
- our ability to accurately report our financial results in a timely manner;
- our ability to obtain, protect and enforce our intellectual property rights;
- our ability to prevent the theft or misappropriation of our biocatalysts, the genes that code for our biocatalysts, know-how or technologies;
- potential advantages that our competitors and potential competitors may have in securing funding or developing products;
- 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 comply with laws and regulations;
- our ability to properly handle and dispose of hazardous materials used 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 $19.1 million in 2014, $41.3 million in 2013 and $30.9 million in 2012. As of December 31, 2014, we had an accumulated deficit of $275.9 million. 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 and 2014. Our research and development collaboration with Shell terminated effective as of 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 biocatalysis 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 Sharp and Dohme Corp. ("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.

Additionally, despite the termination of the research term of our three-way research collaboration with Shell and Iogen, many elements of our collaborative research and license agreement with Shell and Iogen will continue. For example, the collaborative research and license agreement provides for certain rights, licenses and obligations of each party with respect to intellectual property and program materials that will continue after the research activities have ended. Disagreements or conflicts between and among the parties could develop even though the research program 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 ended December 31, 2014, customers that each individually contributed 10% or more of our net revenue accounted for 62% of our total revenues. For the year ended December 31, 2013, customers that each contributed 10% or more of our net revenue accounted for 68% 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 pharmaceutical business.

Our current product revenues are derived from a limited number of pharmaceutical products. We expect a limited number of pharmaceutical products to continue to account for a significant portion of our pharmaceutical 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 pharmaceutical products could materially adversely affect our revenues, financial condition and results of operations. For instance, product revenues for the year ended December 31, 2014 was $13.1 million, a decrease from $20.4 million in product revenues for the year ended December 31, 2013, and $35.9 million in product revenues for the year ended December 31, 2012, primarily due to lower revenues for generic statin-family products. These products were approximately $0.5 million in product revenues for the year ended December 31, 2014, 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"), 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.

We are dependent on one contract manufacturer for large scale production of substantially all of our enzymes.

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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. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to Lactosan. 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. While we have qualified other contract manufacturers to manufacture biocatalysts, we do not currently rely on them for any of our supply requirements.

Accordingly, we face risks of difficulties with, and interruptions in, performance by Lactosan, 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, due to a viral contamination. Manufacturing delays at Lactosan could negatively affect our business, reputation, results of operations and financial condition. The failure of any contract manufacturers that we may use to supply manufactured enzymes on a timely basis or at all, 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, cause delays in our ability to deliver products to our customers, increase our costs and decrease our profit margins.

We do not have any supply agreements in place with any enzyme contract manufacturers, other than Lactosan. 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 pharmaceutical and fine and complex chemicals 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.

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 program is early stage, highly regulated and expensive. Our ability to obtain a development partner for this program, to advance our product candidate to clinical trials and to ultimately receive regulatory approval is highly uncertain.

We have developed a 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:

- 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 U.S. Food and Drug Administration 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 are, or in the future may become, subject to significant economic and other challenges that affect their cash flow, and many customers outside of the United States are generally accustomed to vendor financing in the form of extended payment terms which may exceed contractual payment terms. To remain competitive in markets outside of the United

States, we may offer selected customers payment flexibility. We consider arrangements with extended payment terms not to be fixed or determinable, and accordingly, we defer revenue until payment is received. The costs associated with such revenue deferral are also deferred and classified as other current assets in the financial statements. If these customers fail to pay us on a timely basis it may cause our financial results to fluctuate and 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 $6.2 million and other long-lived assets of $4.3 million as of December 31, 2014. 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 the Company's 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, 2014. 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, 2014. 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 Global Market, or other material adverse effects on our business, reputation, results of operations, financial condition or liquidity.

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, we

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.

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 we may be unable to pursue collaborations or develop our own products.

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. In particular, our product and process development programs are dependent on our ability to attract and retain highly skilled scientists and engineers. 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.

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 drug 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 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 that we have recently begun performing services for is unable to receive regulatory approval for its product, or 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 pharmaceutical product gross margins are variable and may decline from quarter to quarter.

Our pharmaceutical 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.

Significant portions of our operations are conducted outside of the United States and we expect to continue to have significant foreign operations in the foreseeable future. International business operations are subject 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 diversified, global 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.

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 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 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, 2014, we owned or controlled approximately 448 issued patents and approximately 318 pending patent applications in the United States and in various foreign jurisdictions. Our intellectual property rights have terms that expire between 2014 and 2034. 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 are 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, enacted in September 2011, brings 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. The effects of these changes on our patent portfolio and business are currently uncertain as the United Stated Patent and Trademark Office has just implemented regulations related to these changes and the courts have yet to address many of these provisions in the context of a dispute. We have not assessed the applicability of the act 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. Moreover, 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 the 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, interferences, opposition proceedings 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 a significant number of 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.

If any of our competitors have filed patent applications or obtained patents that claim inventions also claimed by us, we may have to participate in interference proceedings before the United States Patent and Trademark Office to determine priority of invention and, thus, the right to the patents for these inventions in the United States. 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 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 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 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 would 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.

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 Royal DSM N.V. ("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, 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 pharmaceutical companies, 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, namely applying our biocatalysis technology in the food and solvents markets. We face similar forms of competition in this market as in the pharmaceutical markets, with the exceptions that our fine chemicals customers do not have the in-house biocatalysis capabilities that our pharmaceutical customers have and 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 markets 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 Merck Serono 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.

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.

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.

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.

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, 2014, our officers, directors and stockholders who hold at least 5% of our stock together beneficially own approximately 47% 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, 2014, two stockholders beneficially owned approximately 23% 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 that we did not incur as a private company. 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

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Our headquarters are located in Redwood City, California, where we lease approximately 107,000 square feet of office and laboratory space. In March 2011, we entered into a Fifth Amendment to Lease (the "Fifth Amendment") with Metropolitan Life Insurance Company ("MetLife") with respect to our offices located at 200 and 220 Penobscot Drive, Redwood City, California (the "Penobscot Space"), 400 Penobscot Drive, Redwood City, California (the "Building 2 Space") and 640 Galveston Drive, Redwood City, California (the "Galveston Space"), and with respect to approximately 29,921 square feet of additional space located at 101 Saginaw Drive, Redwood City, California (the "Saginaw Space"). Under the Fifth Amendment, 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. Pursuant to the Fifth Amendment, we surrendered the Galveston Space in August 2011. In February 2014, we agreed to sublet approximately 26,000 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 3,420 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 February 2015, we agreed to sublet approximately 26,500 square feet of the Saginaw Space to a subtenant for a period of approximately three years and the subtenant has an option to extend the sublease term for such portion of the Saginaw Space for an additional period of two years. We are currently marketing our office located at 200 Penobscot Drive, Redwood City, California for sublease.

We also lease space in the 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

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 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
Fiscal 2013	High	Low
First Quarter	$2.67	$2.00
Second Quarter	2.89	1.99
Third Quarter	2.59	1.62
Fourth Quarter	1.90	1.24

As of February 27, 2015, there were approximately 169 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 graph compares our total common stock return with the total return for (i) the NASDAQ Composite Index and (ii) the NASDAQ Biotechnology Index for the period April 22, 2010 through December 31, 2014. The figures represented below assume an investment of $100 in our common stock at the closing price on April 22, 2010 and in the NASDAQ Composite Index and the NASDAQ Biotechnology Index on April 22, 2010 and the reinvestment of dividends into shares of common stock. The comparisons in the table are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock. This 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	4/22/2010	6/30/2010	9/30/2010	12/31/2010	3/31/2011	6/30/2011	9/30/2011	12/31/2011
Codexis	CDXS	100.00	66.06	72.40	79.94	89.14	72.62	34.46	39.97
Nasdaq Composite Index	IXIC	100.00	83.73	94.03	105.31	110.40	110.10	95.88	103.42
Nasdaq Biotechnology Index	NBI	100.00	86.13	96.40	104.46	112.07	119.34	104.40	116.79

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$100 investment in stock or index	Ticker	3/31/2012	6/30/2012	9/30/2012	12/31/2012	3/31/2013	6/30/2013	9/30/2013	12/31/2013
Codexis	CDXS	27.53	27.98	22.85	16.67	18.02	16.67	13.27	10.56
Nasdaq Composite Index	IXIC	122.73	116.51	123.71	119.87	129.71	135.10	149.72	165.80
Nasdaq Biotechnology Index	NBI	137.94	145.53	160.02	154.06	179.73	195.22	235.68	255.13

$100 investment in stock or index	Ticker	3/31/2014	6/30/2014	9/30/2014	12/31/2014
Codexis	CDXS	15.38	11.01	17.57	19.00
Nasdaq Composite Index	IXIC	174.50	183.77	187.89	198.59
Nasdaq Biotechnology Index	NBI	265.83	289.25	307.85	342.13

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, 2014, 2013, and 2012 and the consolidated balance sheets data as of December 31, 2014 and 2013 from our audited consolidated financial statements appearing elsewhere in this filing. The consolidated statements of operations data for the fiscal years ended December 31, 2011 and 2010 and the consolidated balance sheets data as of December 31, 2012, 2011 and 2010 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,				
	2014	2013	2012	2011	2010
	(In Thousands, Except Per Share Amounts)				
Consolidated Statements of Operations Data:					
Revenues:					
Biocatalyst product revenues	$13,064	$20,423	$35,924	$49,021	$32,835
Biocatalyst research and development	14,945	6,868	49,977	70,918	70,196
Revenue sharing arrangement	7,298	4,631	150	450	—
Government awards	—	—	2,247	3,476	4,073
Total revenues	35,307	31,922	88,298	123,865	107,104
Costs and operating expenses:					
Cost of biocatalyst product revenues	9,726	14,554	30,647	41,781	27,982
Research and development	22,755	31,606	56,785	61,049	52,405
Selling, general and administrative	21,937	26,908	31,379	36,942	33,841
Total costs and operating expenses	54,418	73,068	118,811	139,772	114,228
Loss from operations	(19,111)	(41,146)	(30,513)	(15,907)	(7,124)
Interest income	18	60	252	273	166
Other expense	(234)	(304)	(326)	(675)	(1,199)
Loss before income taxes	(19,327)	(41,390)	(30,587)	(16,309)	(8,157)
Provision for (benefit from) income taxes	(256)	(87)	270	241	384
Net loss	$(19,071)	$(41,303)	$(30,857)	$(16,550)	$(8,541)
Net loss per share, basic and diluted	$(0.50)	$(1.08)	$(0.84)	$(0.46)	$(0.35)
Weighted average common shares used in computing net loss per share, basic and diluted	38,209	38,231	36,768	35,674	24,594
	December 31,				
	2014	2013	2012	2011	2010
Consolidated Balance Sheets Data:	(In Thousands)				
Cash, cash equivalents and short-term investments	$26,487	$25,135	$45,527	$53,482	$72,396
Working capital	19,272	24,582	43,486	50,940	64,708
Total assets	48,122	58,840	99,965	135,922	141,300
Total liabilities	21,811	17,357	21,525	33,232	33,939
Total stockholders' equity	26,311	41,483	78,440	102,690	107,361

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. 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 or microbes 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 microorganisms in order to give rise to changes in 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 our 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 our CodeEvolver® protein engineering technology platform for their internal development purposes, and we are pursuing additional license opportunities with other 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 largest global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development, including in the production of some of the world's best-selling and fastest growing drugs.

We also use our technology to develop biocatalysts for use in the fine chemicals market. The fine chemicals market is similar to our pharmaceutical business and consists of several large market verticals, including: food, animal feed, flavors, 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 $35.3 million in 2014, an 11% increase from $31.9 million in 2013. Biocatalyst product sales revenues, which consist primarily of sales of biocatalyst intermediates, APIs and Codex® Biocatalyst Panels and Kits, were $13.1 million in 2014, a decrease of 36% compared with $20.4 million in 2013. The decrease was primarily due to the expected 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 to a decrease in sales of statin family products of $1.4 million resulting from increased competition from generic pharmaceuticals.

Biocatalyst research and development revenues, which include license, technology access and exclusivity fees, research services, contingent payments, royalties, and optimization and screening fees, totaled $14.9 million in 2014, an increase of 118%, compared with $6.9 million in 2013. The increase was primarily due to a milestone payment of $5.0 from GSK and an increase in services provided to pharmaceutical customers.

Revenue sharing arrangement sales were $7.3 million in 2014, an increase of 58%, compared with $4.6 million in 2013, which relates to the license agreement with Exela PharmSci, Inc. ("Exela") for their sale of the anticoagulant drug argatroban.

Research and development expenses were $22.8 million in 2014, a decrease of 28% from $31.6 million in 2013. 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, as well as lower employee-related expenses associated with the company-wide restructurings implemented in late 2013.

Selling, general and administrative expenses were $21.9 million in 2014, a decrease of 18% compared to $26.9 million in 2013. The decrease was primarily due to reductions in headcount and other discretionary expense reductions implemented as part of those same company-wide restructurings begun in late 2013.

Net loss was $19.1 million, or a loss of $0.50 per share, in 2014. This compares favorably to a net loss of $41.3 million, or a loss of $1.08 per share, in 2013. The reduced loss is primarily related to higher revenue as well as reduced research spending as a result of exiting the CodeXyme® cellulase enzyme program in the fourth quarter of 2013 and reduced selling, general and administrative expenses.

The combined balance of cash and cash equivalents and short-term investments increased to $26.5 million as of December 31, 2014 compared to $25.1 million as of December 31, 2013. In addition, net cash provided by operations was $0.3 million in 2014, as compared to net cash used in operations of $23.0 million in 2013.

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.

GlaxoSmithKline platform technology license agreement

In July 2014, we entered into a License Agreement (the "License Agreement") with GlaxoSmithKline ("GSK"). Under the terms of the License Agreement, we granted 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. This license to GSK is exclusive for the use of the CodeEvolver® protein engineering technology platform to develop novel enzymes for the synthesis of small-molecule compounds owned or controlled by GSK.

We received a $6.0 million up-front fee upon signing the License Agreement and subsequently a $5.0 million non-creditable, non-refundable milestone payment upon achievement of a milestone in 2014. We are eligible to receive additional contingent payments up to $14.0 million, of which $6.5 million are considered milestone payments, over the next 30 months subject to satisfactory completion of the remaining technology transfer milestones and $7.5 million upon completion of the technology transfer period. We also have the potential to receive numerous 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. We do not expect to begin receiving these additional contingent payments, if any, during the first three years of the License Agreement. We will also be eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using our CodeEvolver® protein engineering technology platform. In addition, for up to three years following the end of the three-year period during which we will transfer our CodeEvolver® protein engineering technology platform to GSK, GSK can exercise an option, upon payment of certain

option fees, that would extend GSK's license to include certain improvements to the CodeEvolver® protein engineering technology platform that arise during such period.

The term of the License Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the License Agreement. At any time following the completion of the first technology transfer stage, GSK can terminate the

License Agreement by providing 90 days written notice to us. If GSK exercises this termination right during the three-year technology transfer period, GSK will make a one-time termination payment to us.

Sale of Hungarian Subsidiary

On March 13, 2014, we entered into an agreement with Intrexon Corporation to sell 100% of our equity interests in our Hungarian subsidiary, Codexis Laboratories Hungary Kft. On March 15, 2014, the sale transaction closed and we received gross proceeds of $1.5 million from the sale and recorded a net gain of $0.8 million which was included in research and development expenses in connection with the sale. As part of the purchase, the buyer assumed all employment and facility lease related contract obligations. There were 32 employees at the time of the sale. There were no transaction related costs incurred other than legal fees, which were recorded in selling, general and administrative expenses. As a result of the sale of our Hungarian subsidiary, we estimate that we will reduce our operating expenses, not including depreciation, by approximately $3.0 million per year. Prior to the sale of our Hungarian subsidiary, we transferred certain of the subsidiary's equipment to another European subsidiary of Codexis and incurred a VAT liability of approximately $0.4 million. We paid this VAT amount in July 2014 and expect to recover the VAT payment within the next 12 months.

Winding Down of CodeXyme® Cellulase Enzyme and CodeXol® Detergent Alcohols Businesses

During 2013 we maintained a reduced level of spending in biofuels research while seeking to obtain funding or sell the rights for this business. In the fourth quarter of 2013, we announced that we would begin winding down our CodeXyme® cellulase enzyme program and stop further development of our CodeXol® detergent alcohols program. As a result, we committed to a restructuring plan (the "Q4 2013 Restructuring Plan") to reduce our cost structure to align with our projected future revenue from our pharmaceutical business. The Q4 2013 Restructuring Plan included a reduction of employees in the United States and Hungary and the sale of excess assets which will reduce future research and development costs and related expenditures. We recorded restructuring charges of $0.8 million in the year ended December 31, 2013, which included a total of 15 employee terminations in the United States. We also recorded $1.6 million in asset impairment charges related to excess equipment reclassified as held for sale as of December 31, 2013.

Plans to utilize certain CodeXol® assets changed in the second quarter of 2014 such that assets with a carrying value of $1.8 million were no longer recoverable. Accordingly, we recorded an impairment charge of $1.8 million, reducing the carrying value to zero, which is our estimated fair value of the assets, net of costs. The impairment charge was recorded within research and development expense in 2014.

Arch Manufacturing Collaboration

Prior to November 2012, Arch Pharmalabs Limited ("Arch") produced statin-family APIs and intermediates for us and we sold these directly to end customers primarily in India. In November 2012, we entered into a new commercial arrangement with Arch (the "New Arch Enzyme Supply Agreement") whereby we agreed to supply Arch with enzymes for use in the manufacture of certain of Arch's products and Arch agreed to market these products directly to end customers. We recognized product sales revenue for the sale of enzyme inventory to Arch and its affiliates pursuant to the New Arch Enzyme Supply Agreement of $0.5 million in 2014 and $2.1 million in 2013, as biocatalyst product sales revenue. We do not anticipate significant Arch revenue in future periods.

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.

Revenue from Multiple Element Arrangements

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 or as an accrued liability and recognized as a reduction of research and development expenses 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 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 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.

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 (see Note 16, "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.

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 Codexis' equity incentive plans. The Black-Scholes-Merton option valuation model requires the use of assumptions, including the expected term of the award and the expected stock price volatility. We used the "simplified" method as described in Staff Accounting Bulletin No. 107, "Share-Based Payment," for the expected option term because Codexis' historical option exercise data is limited due to its initial public offering in 2010. We used Codexis' 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 option. The expected dividend assumption was based on Codexis' 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 Codexis' 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 account for stock awards issued to non-employees based on their estimated fair value determined using the Black-Scholes-Merton option-pricing model. Compensation expense for the stock awards granted to non-employees is recognized based on the fair value of awards as they vest, during the period the related services are rendered.

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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.

Assets Held for Sale

We reclassify long-lived assets to Assets Held for Sale when all required criteria are met. The assets are recorded at the lower of the carrying value or fair value less costs to sell. Assets held for sale must meet the following conditions: 1) management, having authority to approve the action, commits to a plan to sell the asset, 2) the asset is available for immediate sale in its present condition, 3) an active program to locate a buyer and other actions required to complete the plan to sell the asset have been initiated, 4) the sale of the asset is probable, and transfer of the asset is expected to qualify for recognition as a completed sale, within one year, 5) the asset is being actively marketed for sale at a price that is reasonable in relation to its current fair value, and 6) actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

In determining the fair value of the assets less cost to sell, we consider factors including current sales prices for comparable assets, recent market analysis studies, appraisals and any recent legitimate offers. If the estimated fair value, less the cost to sell an asset, is less than its current carrying value, the asset is written down to its estimated fair value less cost to sell. Due to uncertainties in the estimation process, it is reasonably possible that actual results could differ from the estimates used in our historical analyses. The assumptions about equipment sales prices require significant judgment related to equipment condition and certain selling costs. We calculate the estimated fair values of assets held for sale based on current market conditions and assumptions made by management, which may differ from actual results and may result in additional impairments if market conditions deteriorate.

Impairment of Long-Lived Assets

Our intangible assets are finite-lived and consist of customer relationships, developed core technology, trade names, 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 Codexis 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 Codexis has 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 Codexis' identifiable cash flow generating capacity. Consequently, we do not believe that identification of independent cash flows associated with Codexis long-lived assets is currently possible at any lower level than the Asset Group.

The Core IP is the only finite-lived intangible asset on Codexis' consolidated balance sheet as of December 31, 2014. 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 Codexis' 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 Codexis' 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 Codexis' 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.

Long lived assets were tested for impairment in the fourth quarter of 2014. We concluded that the fair value of the reporting unit exceeded the carrying value and no impairment existed. No impairment charges were recorded during the years ended December 31, 2014 and 2013.

Valuation of Goodwill

We determined that Codexis has only one operating segment and reporting unit under the criteria in ASC 280, "Segment Reporting." Accordingly, our review of goodwill impairment indicators is performed at the Codexis level. We review goodwill impairment annually in the fourth quarter of each of Codexis' fiscal years 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 Codexis' 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 Codexis' market capitalization as an indicator of fair value. We believe that since its 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 Codexis' reporting unit as a whole to exceed its market capitalization. However, we believe that the fair value measurement need not be based solely on the quoted market price of an individual share of Codexis' 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 Codexis' projected future cash flows expected to be generated from its 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 Codexis' market capitalization be less than the total stockholder's equity as of our annual test date or as of any interim impairment testing date, we would also consider market comparables, recent trends in Codexis' 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 purchase method. Goodwill is not subject to amortization. Goodwill was tested for impairment in the fourth quarter of 2014. 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 Codexis' goodwill as of December 31, 2014 and 2013.

Income Taxes

We use the liability method of accounting for income taxes, whereby deferred tax assets 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 deferred tax asset in jurisdictions where ultimate realization of deferred tax assets is more likely than not to occur.

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 could 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, Income Taxes, 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.

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		
	2014	2013	2012	2014	2013	2012
Revenues:						
Biocatalyst product sales	$13,064	$20,423	$35,924	37 %	64 %	40 %
Biocatalyst research and development	14,945	6,868	49,977	42 %	22 %	57 %
Revenue sharing arrangement	7,298	4,631	150	21 %	14 %	— %
Government awards	—	—	2,247	— %	— %	3 %
Total revenues	35,307	31,922	88,298	100 %	100 %	100 %
Costs and operating expenses:						
Cost of biocatalyst product sales	9,726	14,554	30,647	28 %	46 %	35 %
Research and development	22,755	31,606	56,785	64 %	99 %	64 %
Selling, general and administrative	21,937	26,908	31,379	62 %	84 %	36 %
Total costs and operating expenses	54,418	73,068	118,811	154 %	229 %	135 %
Loss from operations	(19,111)	(41,146)	(30,513)	(54)%	(129)%	(35)%
Interest income	18	60	252	— %	— %	— %
Other expense	(234)	(304)	(326)	(1)%	(1)%	— %
Loss before income taxes	(19,327)	(41,390)	(30,587)	(55)%	(130)%	(35)%
Provision for (benefit from) income taxes	(256)	(87)	270	(1)%	— %	— %
Net loss	$(19,071)	$(41,303)	$(30,857)	(54)%	(129)%	(35)%

Revenues

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

- Biocatalyst product sales revenue consists of sales of biocatalysts intermediates, APIs and Codex® Biocatalyst Panels and Kits.

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- Biocatalyst research and development revenue includes: license, technology access and exclusivity fees, research services FTE, contingent payments, royalties, and optimization and screening fees.
- Revenue sharing arrangement revenue is recognized based upon sales of licensed products by Exela.
- Government awards consist of payments from government entities. The terms of these awards generally provide us with cost reimbursement for certain types of expenditures in return for research and development activities over a contractually defined period. Historically, we have received government awards from Germany, Singapore and the United States. In 2014 and 2013 we did not generate revenue from government awards.

	Years Ended December 31,			Change 2014		2013	
(In Thousands)	2014	2013	2012	$	%	$	%
Biocatalyst product sales	$13,064	$20,423	$35,924	$(7,359)	(36)%	$(15,501)	(43)%
Biocatalyst research and development	14,945	6,868	49,977	8,077	118%	(43,109)	(86)%
Revenue sharing arrangement	7,298	4,631	150	2,667	58%	4,481	2,987%
Government awards	—	—	2,247	—	*	(2,247)	(100)%
Total revenues	$35,307	$31,922	$88,298	$3,385	11%	$(56,376)	(64)%

* Change is not calculable

The timing of orders and delivery of products fluctuates from quarter-to-quarter, and may not be comparable on a sequential or year over year basis. In addition, we have limited internal capacity to manufacture enzymes and 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.

2014 compared to 2013

Total revenue increased $3.4 million in 2014 to $35.3 million, as compared to 2013. The increase was driven by 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 expected 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 primarily driven by a $5.0 million milestone payment and an increase in license fee revenue resulting primarily from the GSK License 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. 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.

2013 compared to 2012

Total revenue decreased $56.4 million in 2013 to $31.9 million, as compared to 2012. The decrease in revenues in 2013 was primarily due to the termination of the Shell agreement in 2012. Biocatalyst research and development revenues received from Shell were $0 and $45.3 million in 2013 and 2012, respectively, and accounted for 0% and 51% of our total revenues, respectively, for the same periods.

Biocatalyst product sales decreased $15.5 million in 2013 to $20.4 million, as compared to 2012. Our biocatalyst product sales accounted for 64% and 40% of total revenues in 2013 and 2012, respectively. The decrease in biocatalyst product sales in 2013

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as compared to 2012 is primarily due to lower revenues for generic statin-family and hepatitis C products, primarily to India-based generic manufacturers. Statin-family products revenues were $3.4 million and Hepatitis C product revenues were $6.2 million in 2013. In 2012, following patent expiration, pricing for Lipitor generic products dropped due primarily to competition from Chinese manufacturers. To counter this pricing pressure, we signed the New Arch Enzyme Supply Agreement in November 2012 to allow Arch to supply these customers directly, while we supplied enzyme products to Arch. During 2013, Arch was unable to competitively supply statin family products to end customers due to financial difficulties. As a result, our revenues for statin family products decreased by $17.5 million in 2013 compared to 2012. Hepatitis C product revenues decreased $2.9 million in 2013 as a result of decreased demand resulting from newer products entering the market. We do not expect statin family and hepatitis C product revenues to be a significant portion of total revenues in future periods as a result of both unfavorable market pricing and newer products entering the market. Sales of on-patent products to pharmaceutical innovator customers increased by $2.5 million in 2013 to $13.1 million, as compared to 2012, as newer on-patent products utilizing our enzymes were released to the market and began to ramp production.

Biocatalyst research and development revenue increased $2.3 million in 2013 to $6.9 million, as compared to 2012, excluding revenues of $45.3 million from Shell in 2012. Biocatalyst research and development revenue accounted for 22% and 5% of our total revenues in 2013 and 2012, respectively. The increase in biocatalyst research and development revenue in 2013 was primarily due to higher licensing and royalties revenues.

Revenue sharing arrangement revenue increased $4.5 million in 2013 to $4.6 million, as compared to 2012. Our revenue sharing arrangement revenue accounted for 14% in 2013 and less than 1% of our total revenues in 2012. We base our revenue recognition estimates upon notification of revenue share. The increase in revenues was the result of volume shipments of argatroban and a change from quarterly reporting to monthly reporting of results from our partner, Exela.

Governmental awards revenue decreased $2.2 million in 2013 to $0, as compared to 2012. The ARPA-E Recovery Act program for carbon capture technology concluded on June 30, 2012, and our award from the EDB was terminated as a result of closing our Singapore facility in December 2012. As of December 31, 2013, we did not have any government awards from which we expect to receive revenues in future periods.

Cost and Operating Expenses

	Years Ended December 31,			Change 2014		Change 2013	
(In Thousands)	2014	2013	2012	$	%	$	%
Cost of biocatalyst product sales	$9,726	$14,554	$30,647	$(4,828)	(33)%	$(16,093)	(53)%
Research and development	22,755	31,606	56,785	(8,851)	(28)%	(25,179)	(44)%
Selling, general and administrative	21,937	26,908	31,379	(4,971)	(18)%	(4,471)	(14)%
Total operating expenses	$54,418	$73,068	$118,811	$(18,650)	(26)%	$(45,743)	(39)%

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.

2014 compared to 2013

Our 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.

2013 compared to 2012

Our cost of biocatalyst product sales decreased $16.1 million in 2013 to $14.6 million, as compared to 2012 primarily due to the decrease of biocatalyst product sales related to reduced statin-family product sales primarily to India-based pharmaceutical product generic manufacturers. Our biocatalyst product gross margins improved to 29% in 2013 compared to 15% in 2012. The increase in gross margin percentage is a result of a different mix of biocatalyst product

sales in 2013 as gross margins for statin-family biocatalyst product sales sold in 2012 were below product gross margins for on-patent customers in 2013.

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, as well as (iii) external costs. Research and development expenses, including costs to acquire technologies that are utilized in research and development and that have no alternative future use, are expensed when incurred. We budget total research and development expenses on an internal department level basis, because we do not have project or program level reporting capabilities.

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, primarily related to write down of assets associated with our CodeXol® program. 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.

2013 compared to 2012

Research and development expenses decreased $25.2 million in 2013 to $31.6 million, as compared to 2012. The decrease was primarily due to the restructuring actions taken by us during the third quarter of 2012 following the termination of the Shell Research Agreement. Our research and development headcount decreased by 17 employees to 82 employees at December 31, 2013 from 99 employees at December 31, 2012. As a result of the cost reduction efforts, we reduced compensation and related costs by $17.0 million, lab supply costs by $2.2 million, and outside services costs by $2.0 million for the year ended December 31, 2013, as compared to the year ended December 31, 2012. Depreciation cost decreased $2.5 million as a result of excess equipment disposed of as part of the restructuring efforts. We reduced facility costs by $1.9 million as a result of closing our Singapore research facility for the year ended December 31, 2013, as compared to the same period of 2012. Research and development expenses included stock-based compensation expense of $1.2 million in 2013 as compared to $2.3 million in 2012. The stock-based compensation expense decrease resulted from cancellation of equity awards related to termination of employees in 2012. Asset impairment charges increased by $1.5 million in 2013 primarily due to the write-down of excess equipment reclassified as assets held for sale as a result of winding down the CodeXol® business.

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.

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.

2013 compared to 2012

Selling, general and administrative expenses decreased $4.5 million in 2013 to $26.9 million, as compared to 2012. The decrease was primarily due to the restructuring actions taken by us during the third quarter of 2012 following the termination of the Shell Research Agreement. Our selling, general and administrative headcount decreased to 16 engaged in manufacturing operations and 27 engaged in general and administrative activities at December 31, 2013

from 20 engaged in manufacturing operations and 35 engaged in general and administrative activities at December 31, 2012. The decrease in expense of $4.5 million is primarily due to reduced compensation expense and related employee costs of $2.2 million, reduced accounting fees of $0.5 million, and reduced losses on the disposal of fixed assets of $2.2 million as a result of excess equipment disposed of as

part of the restructuring efforts for the year ended December 31, 2012. Selling, general and administrative expenses included stock-based compensation expense of $3.2 million in 2013 as compared to $2.7 million in 2012. The stock-based compensation expense increase resulted from the issuance of equity awards to new management employees in 2013. During 2013, there were no losses recorded for equity investments, as compared to a loss of $0.8 million recorded for the year ended December 31, 2012.

Restructuring Charges

All Restructuring Plans	Years Ended December 31,		
(In Thousands)	2014	2013	2012
Research and development	$—	$573	$974
Selling, general and administrative	—	210	1,982
Total restructuring expenses	$—	$783	$2,956

During the fourth quarter of 2013, our board of directors approved and committed to the "Q4 2013 Restructuring Plan" to reduce our cost structure as a result of the winding down of our CodeXyme® cellulase enzyme program. We recorded restructuring expenses for the Q4 2013 Restructuring Plan 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.

During the third quarter of 2012, our board of directors approved and committed to a restructuring plan (the “Q3 2012 Restructuring Plan”) to reduce our cost structure following the termination of the Shell Agreement. Pursuant to the Q3 2012 Restructuring Plan, we terminated 173 employees in the United States and Singapore and closed our Singapore facility. Approximately 150 of the total 173 employee terminations were in research and development while the remaining 23 employees were selling, general and administrative employees. We recorded restructuring expenses for the Q3 2012 Restructuring Plan of $2.4 million, comprised of $1.1 million of leasehold improvement write down, $0.7 million for employee severance and other termination benefits, $0.3 million for facility lease termination costs and $0.3 million for equipment disposal charges. During the year ended December 31, 2012, costs of $1.5 million were recognized in selling, general and administrative expenses and $0.9 million were recognized in research and development on our consolidated statements of operations.

During the first quarter of 2012, our board of directors approved and committed to a restructuring plan (the “Q1 2012 Restructuring Plan”) to reduce our cost structure, which included a total of 13 employee terminations in Hungary, Singapore, and the United States. We recorded expenses for the Q1 2012 Restructuring Plan of $0.5 million, comprised primarily of employee severance and other termination benefits. During the year ended December 31, 2012, costs of $0.5 million were recognized in selling, general and administrative expenses on our consolidated statements of operations.

Other Income (Expense), net

				Change					
	Years Ended December 31,			2014			2013		
(In Thousands)	2014	2013	2012	$	%		$	%	
Interest income	$18	$60	$252	$(42)	(70)	%	$(192)	(76)	%
Other expense	(234)	(304)	(326)	70	(23)	%	22	(7)	%
Total other income (expense), net	$(216)	$(244)	$(74)	$28	(11)	%	$(170)	230	%

Interest Income

Interest income decreased less than $0.1 million in 2014, compared to 2013, and $0.2 in 2013 compared to 2012. The decreases were primarily due to decreased balances in our cash equivalents and short-term investments.

Other expense

Other expense decreased $0.1 million in 2014, compared to 2013, and less than $0.1 million in 2013, compared to 2012. The decreases were primarily due to decreases in foreign currency translations related to our operations in Hungary, India and Singapore.

Provision for (benefit from) Income Taxes

	Years Ended December 31,			Change 2014		2013	
(In Thousands)	2014	2013	2012	$	%	$	%
Provision for (benefit from) income taxes	$(256)	$(87)	$270	$(169)	194%	$(357)	(132)%

The tax benefit for 2014 primarily related to the release of reserves related to uncertain tax positions from previous years. 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 unrecognized 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. The tax provision for 2012 primarily consisted of income taxes attributable to foreign operations and expenses related to uncertain tax positions. 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 stock option exercises. We actively manage our cash usage and investment of liquid cash to ensure the maintenance of sufficient funds to meet our daily 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 combined balance of cash and cash equivalents and short-term investments totaled $26.5 million as of December 31, 2014, as compared to $25.1 million as of December 31, 2013.

	December 31,		
(In Thousands)	2014	2013	2012
Cash and cash equivalents	$26,487	$22,130	$32,003
Short-term investments	—	3,005	13,524
Accounts receivable, net	3,870	5,413	7,545
Accounts payable, accrued compensation and accrued liabilities	10,238	9,198	14,097
Working capital	19,272	24,582	43,486

We have historically experienced negative cash flows from operations as we continue to invest in key technology development projects, improvements to our biocatalysis technology platform, and expand our business development and collaboration with new pharmaceutical customers. Our cash flows from operations will continue to be affected principally by sales and gross margins from biocatalyst product sales to pharmaceutical 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 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 are actively collaborating with new and existing pharmaceutical customers and 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 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 pharmaceutical 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.

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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.

	Years Ended December 31,		
(In Thousands)	2014	2013	2012
Net cash provided by (used in) operating activities	$321	$(22,998)	$(11,892)
Net cash provided by investing activities	4,647	13,272	16,711
Net cash provided by (used in) financing activities	(611)	(147)	1,257
Effect of exchange rate changes on cash and cash equivalents	—	—	165
Net increase (decrease) in cash and cash equivalents	$4,357	$(9,873)	$6,241

Cash Flows from Operating Activities

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 with Arch.

Our operating activities in 2012 used cash of $11.9 million, primarily due to our net loss of $30.9 million in 2012, adjusted for decreases in our accounts payable of $6.7 million resulting from the timing of our vendor payments and decreases in our accrued compensation expenses of $3.3 million primarily from lower employee-accrued compensation, and increases in prepaid expenses and other current assets of $3.1 million primarily due to advances to our contract manufacturer. These were partially offset by decreases in accounts receivable of $11.4 million primarily due to decreased product revenues and decreases in product inventory of $3.2 million primarily due to the New Arch Enzyme Supply Agreement entered into with Arch in the fourth quarter of 2012. We also had net non-cash charges of $20.4 million, comprised primarily of non-cash share-based compensation expense of $5.1 million and $12.4 million in depreciation and amortization. Additionally, we had non-cash charges of $0.8 million related to an other-than-temporary impairment of our equity investment in CO2 Solutions Inc. ("CO2 Solutions"), and $1.6 million in non-cash charges related to the disposal of property and equipment resulting from our restructuring efforts during 2012.

Cash Flows from Investing Activities

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

In 2013, net 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.

In 2012, net cash provided by investing activities totaled $16.7 million and primarily consisted of a net decrease in marketable securities of $19.6 million, offset by capital expenditures of $2.9 million primarily related to improvements for our facility expansion and purchase of lab equipment.

Cash Flows from Financing Activities

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 exercises of employee stock options.

Net cash used in financing activities was $0.1 million for the year ended December 31, 2013, and net cash provided by financing activities was $1.3 million for the year ended December 31, 2012. In 2013, the cash used in financing activities resulted from taxes paid to net share settlement of equity awards, which was partially offset by proceeds from the exercise of employee stock options. In 2012, the cash provided by financing activities resulted from the exercise of employee stock options.

Off-Balance Sheet Arrangements

As of December 31, 2014, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K as promulgated by the SEC.

Contractual Obligations and Commitments

The following summarizes the future commitments arising from our contractual obligations at December 31, 2014 (in thousands):

	Total	Less than 1 year	1 to 3 years	4 to 5 years	More than 5 years
Operating leases	$14,037	$2,743	$5,504	$5,554	$236
Total	$14,037	$2,743	$5,504	$5,554	$236

We have excluded from the above table $7.8 million in contractual obligations related to uncertain tax positions as we cannot make a reasonably reliable estimate of the period of cash settlement.

Accounting Guidance Update

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 May 2014, the FASB issued Accounting Standards Update (“ASU”) 2014-09, "Revenue from Contracts with Customers". This 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). This guidance is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period, and early application is not permitted. We are currently in the process of evaluating the impact of the pending adoption of ASU 2014-09 on Codexis' consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, "Presentation of Financial Statements-Going Concern (Sub Topic 205-40): Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern". This ASU provides guidance to an entity’s management with principles and definitions that are intended to reduce diversity in the timing and content of disclosures that are commonly provided by entities today in the financial statement footnotes. This ASU is effective for annual periods ending after December 15, 2016, and interim periods within annual periods beginning after December 15, 2016. Early application is permitted for annual or interim reporting periods for which the financial statements have not previously been issued. We are currently evaluating the impact of this ASU on our consolidated financial statements and footnote disclosures.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Sensitivity

We had unrestricted cash and cash equivalents totaling $26.5 million at December 31, 2014. 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 2014, our interest income would have declined by approximately $2,000, assuming consistent investment levels.

Foreign Currency Risk

Our operations include manufacturing and sales activities in the United States, Austria, Belgium, France, Germany, Italy, Japan and India, as well as research activities in countries outside the United States. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. For example, we purchase products for sale in the United States from foreign companies and have agreed to pay them in currencies other than the United States dollar. As a result, our expenses 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 it is possible to do so, we have not hedged our foreign currency since the exposure has not been material to our historical operating results. 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% adverse change in exchange rates on foreign denominated receivables as of December 31, 2014 would have had no effect on foreign exchange losses recognized as a component of other expense in our consolidated statement of operations. We may consider hedging for our foreign currency risk in the future.

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 City, Canada ("CO_2 Solutions"), whose shares are publicly traded in Canada on the TSX Venture Exchange. During 2012, we evaluated our investment in the common shares of CO_2 Solutions. At the time of the evaluation the fair value of our investment in CO_2 Solutions' common stock was $0.6 million and our carrying cost for the investment was $1.3 million and we determined the impairment was other-than-temporary considering the length of time and extent to which the fair value had been less than our cost, the financial condition and near term prospects of CO_2 Solutions, and our management's ability and intent to hold the securities until fair value recovers. As a result of our analysis, we recorded an impairment of $0.8 million during 2012 as an expense in our consolidated statement of operations as selling, general and administrative expense. As of December 31, 2014, the fair value of our investment in CO_2 Solutions' common stock was $0.7 million with an unrealized gain of $0.1 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, 2014 would have been an unrealized loss of approximately $70,000, recognized as a component of our consolidated statement of comprehensive loss. The effect of a 10% adverse change in the exchange rates between the United States dollar and the Canadian dollar as of December 31, 2014 would have been an unrealized loss of approximately $70,000, 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, 2014 and 2013 and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2014. 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 31, 2014 and 2013, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2014, 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, 2014, 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 5, 2015 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP
San Jose, California
March 5, 2015

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, 2014, 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, 2014, 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, 2014 and 2013, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for the years ended December 31, 2014 and 2013 and our report dated March 5, 2015 expressed an unqualified opinion thereon.

/s/ BDO USA, LLP

San Jose, California

March 5, 2015

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders

Codexis, Inc.

We have audited the accompanying consolidated statements of operations, comprehensive income, redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows of Codexis, Inc. (the Company) for the year ended December 31, 2012. 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 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 the financial statements are free of material misstatement. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated results of operations of Codexis, Inc. and its cash flows for the year ended December 31, 2012, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

San Jose, California

April 2, 2013

Codexis, Inc.
Consolidated Balance Sheets
(In Thousands, Except Share Amounts)

	December 31, 2014	2013
Assets		
Current assets:		
Cash and cash equivalents	$26,487	$22,130
Short-term investments	—	3,005
Accounts receivable, net of allowances of $428 at December 31, 2014 and $460 at December 31, 2013	3,870	5,413
Inventories	1,395	1,487
Prepaid expenses and other assets, current	1,255	1,567
Assets held for sale	—	2,179
Total current assets	33,007	35,781
Restricted cash	711	711
Marketable securities	688	795
Property and equipment, net	3,995	8,446
Intangible assets, net	6,186	9,560
Goodwill	3,241	3,241
Other assets, non-current	294	306
Total assets	$48,122	$58,840
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$4,673	$3,961
Accrued compensation	2,946	3,625
Other accrued liabilities	2,619	1,612
Deferred revenues	3,497	2,001
Total current liabilities	13,735	11,199
Deferred revenues, net of current portion	3,813	1,114
Other liabilities	4,263	5,044
Commitments and contingencies (Note 15)		
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; outstanding: 39,563 at December 31, 2014 and 38,351 at December 31, 2013	4	4
Additional paid-in capital	302,379	298,370
Accumulated other comprehensive loss	(142)	(32)
Accumulated deficit	(275,930)	(256,859)
Total stockholders' equity	26,311	41,483
Total liabilities and stockholders' equity	$48,122	$58,840

See Notes to Consolidated Financial Statements

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

	Years Ended December 31,		
	2014	2013	2012
Revenues:			
Biocatalyst product sales	$13,064	$20,423	$35,924
Biocatalyst research and development	14,945	6,868	49,977
Revenue sharing arrangement	7,298	4,631	150
Government awards	—	—	2,247
Total revenues	35,307	31,922	88,298
Costs and operating expenses:			
Cost of biocatalyst product revenues	9,726	14,554	30,647
Research and development	22,755	31,606	56,785
Selling, general and administrative	21,937	26,908	31,379
Total costs and operating expenses	54,418	73,068	118,811
Loss from operations	(19,111)	(41,146)	(30,513)
Interest income	18	60	252
Other expense	(234)	(304)	(326)
Loss before income taxes	(19,327)	(41,390)	(30,587)
Provision for (benefit from) income taxes	(256)	(87)	270
Net loss	$(19,071)	$(41,303)	$(30,857)
Net loss per share, basic and diluted	$(0.50)	$(1.08)	$(0.84)
Weighted average common shares used in computing net loss per share, basic and diluted	38,209	38,231	36,768

See Notes to Consolidated Financial Statements

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

	Years Ended December 31,		
	2014	2013	2012
Net loss	$(19,071)	$(41,303)	$(30,857)
Other comprehensive income (loss):			
Foreign currency translation adjustments	—	—	165
Reclassification of other-than-temporary loss in marketable securities included in net loss	—	—	753
Unrealized gain (loss) on marketable securities, net of tax expense of nil in 2014, $68 in 2013 and $70 in 2012	(110)	104	(647)
Other comprehensive income (loss)	(110)	104	271
Total comprehensive loss	$(19,181)	$(41,199)	$(30,586)

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, 2011	35,996	$4	$287,792	$ (407)	$(184,699)	$ 102,690
Exercise of common warrants	3	—	—	—	—	—
Exercise of stock options	708	—	1,257	—	—	1,257
Cancellation of shares	(17)	—	(65)	—	—	(65)
Release of stock awards	982	—	—	—	—	—
Employee stock-based compensation	—	—	5,040	—	—	5,040
Non-employee stock-based compensation	20	—	104	—	—	104
Total comprehensive loss	—	—	—	271	(30,857)	(30,586)
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

See Notes to Consolidated Financial Statements

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

	Years Ended December 31,		
	2014	2013	2012
Operating activities:			
Net loss	$(19,071)	$(41,303)	$(30,857)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Amortization of intangible assets	3,374	3,374	3,509
Depreciation and amortization of property and equipment	3,311	6,944	8,908
Accretion of asset retirement obligation	—	—	30
Stock-based compensation	4,620	4,389	5,076
Accretion of premium on marketable securities	2	42	697
Loss on disposal of property and equipment	24	—	1,551
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	—	—
Other than temporary change in marketable securities	—	—	753
Gain from extinguishment of asset retirement obligation	—	—	(212)
Common stock issuances for royalty payment to a licensor	—	—	68
Changes in operating assets and liabilities:			
Accounts receivable	1,587	1,629	11,372
Inventories	92	(185)	3,186
Prepaid expenses and other current assets	(339)	850	(3,051)
Other assets	(78)	337	(1,330)
Accounts payable	713	308	(6,710)
Accrued compensation	(530)	130	(3,290)
Other accrued liabilities	555	(2,724)	197
Deferred revenues	4,195	1,629	(1,789)
Net cash provided by (used in) operating activities	321	(22,998)	(11,892)
Investing activities:			
Purchase of property and equipment	(302)	(1,175)	(2,933)
Proceeds from disposal of property and equipment	167	238	—
Proceeds from sale of Hungarian subsidiary	1,500	—	—
Proceeds from sale of assets held for sale	282	—	—
Purchase of marketable securities	—	—	(20,638)
Proceeds from sale of marketable securities	3,000	—	10,397
Proceeds from maturities of marketable securities	—	13,409	29,885
Decrease in restricted cash	—	800	—
Net cash provided by investing activities	4,647	13,272	16,711
Financing activities:			
Proceeds from exercises of stock options	195	318	1,257
Proceeds from issuance of common stock, net of issuance costs	9	—	—
Taxes paid related to net share settlement of equity awards	(815)	(465)	—
Net cash provided by (used in) financing activities	(611)	(147)	1,257
Effect of exchange rate changes on cash and cash equivalents	—	—	165
Net increase (decrease) in cash and cash equivalents	4,357	(9,873)	6,241

Cash and cash equivalents at the beginning of the year	22,130	32,003	25,762

Cash and cash equivalents at the end of the year	$26,487	$22,130	$32,003
Supplemental disclosures of cash flow information:			
Cash paid for income taxes	$15	$103	$126
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

Codexis, Inc.
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 or microbes 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 microorganisms in order to give rise to changes in 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 our 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 our CodeEvolver® protein engineering technology platform for their internal development purposes, and we are pursuing additional license opportunities with other 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 largest global pharmaceutical companies, use our technology, products and services in their manufacturing processes and process development, including in the production of some of the world's best-selling and fastest growing drugs.
We also use our technology to develop biocatalysts for use in the fine chemicals market. The fine chemicals market is similar to our pharmaceutical business and consists of several large market verticals, including: food, animal feed, flavors, 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.
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 in the United States, Brazil, Hungary (through the sale date of March 13, 2014), India, Mauritius, the Netherlands, and Singapore (dissolved in October 2014). 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 investment securities and 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

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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. The Company's chief operating decision maker is Codexis' Chief Executive Officer. The Chief Executive Officer reviews financial information presented on a consolidated basis, accompanied by information about revenues by geographic region, for purposes of allocating resources and evaluating financial performance. The Company has 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, the Company has a single reporting segment.

Foreign Currency Translation

The assets and liabilities of foreign subsidiaries, where the local currency is the functional currency, are translated from their respective functional currencies into United States dollars at the exchange rates in effect at the balance sheet date, with resulting foreign currency translation adjustments recorded in the consolidated statement of comprehensive loss. Revenue and expense amounts are translated at average rates during the period.

Where the United States dollar is the functional currency, 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 accompanying consolidated statements of operations. Gains and losses realized from transactions, including intercompany balances not considered as permanent investments, denominated in currencies other than an entity’s functional currency, are included in other expense in the accompanying 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.

Revenue from Multiple Element Arrangements

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 or as an accrued liability and recognized as a reduction of research and development expenses 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 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.

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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 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.

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") (see Note 16, "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.

Government Awards

Through 2012, we received payments from government entities for work performed in the form of government awards. Government awards are agreements that generally provide us with cost reimbursement for certain types of expenditures in return for research and development activities over a contractually defined period. Revenues from government awards are recognized in the period during which the related costs are incurred, provided that the conditions under which the government awards were provided have been met and we have only perfunctory obligations outstanding.

Cost of Biocatalyst Product Sales

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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. 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 2014, $0.5 million in 2013 and $0.4 million in 2012.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model to estimate the fair value of options granted under Codexis' equity incentive plans. The Black-Scholes-Merton option valuation model requires the use of assumptions, including the expected term of the award and the expected stock price volatility. We used the "simplified" method as described in Staff Accounting Bulletin No. 107, "Share-Based Payment," for the expected option term because Codexis' historical option exercise data is limited due to its initial public offering in 2010. We used Codexis' 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 option. The expected dividend assumption was based on Codexis' 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 Codexis' 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 account for stock awards issued to non-employees based on their estimated fair value determined using the Black-Scholes-Merton option-pricing model. Compensation expense for the stock awards granted to non-employees is recognized based on the fair value of awards as they vest, during the period the related services are rendered.

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.

Restructuring Costs

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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. We determined the facility accrual based on expected cash payments, under the applicable facility lease, reduced by any estimated sublease rental income for such facility (see Note 18).

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 $26.5 million and was comprised of cash of $11.9 million and money market funds of $14.6 million at December 31, 2014. Cash and cash equivalents totaled $22.1 million and was comprised of cash of $6.0 million and money market funds of $16.1 million at December 31, 2013.

Investment Securities

We invest in debt and equity securities and we classify those investments as available-for-sale. These securities are carried at estimated fair value (see Note 6, “Investment Securities,” below) with unrealized gains and losses included in accumulated other comprehensive loss in stockholders’ equity. Available-for-sale equity securities and available-for sale debt securities with remaining maturities of greater than one year 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 the 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 Codexis' financial instruments, including cash equivalents, short-term investments, 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: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for assets or liabilities.
- Level 2: Directly or indirectly observable inputs as of the reporting date through correlation with market data, including quoted prices for similar assets and liabilities in active markets and quoted prices in markets that are not active. Level 2 also includes assets and liabilities that are valued using models or other pricing methodologies that do not require significant judgment since the input assumptions used in the models, such as interest rates and volatility factors, are corroborated by readily observable data from actively quoted markets for substantially the full term of the financial instrument.

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- Level 3: Unobservable inputs that are supported by little or no market activity and reflect the use of significant management judgment. These values are generally determined using pricing models for which the assumptions utilize management's estimates of market participant assumptions.

For Level 2 financial instruments, our investment adviser provides monthly account statements documenting the value of corporate bonds and U.S. Treasury obligations based on prices received from an independent third-party valuation service provider. This third party evaluates the types of securities in our investment portfolio and calculates a fair value using a multi-dimensional pricing model that includes a variety of inputs, including quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, interest rates and yield curves observable at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks and default rates that are observable at commonly quoted intervals. As we are ultimately responsible for the determination of the fair value of these instruments, we perform quarterly analyses using prices obtained from another independent provider of financial instrument valuations, to validate that the prices we have used are reasonable estimates of fair value.

Accounts Receivable

We currently sell primarily to pharmaceutical companies throughout the world by the extension of trade credit terms based on an assessment of each customers' 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.

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.

Restricted Cash

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

Concentrations of Credit Risk

Our financial instruments that are potentially subject to concentration of credit risk primarily consist of: cash equivalents, short-term investments, accounts receivable, marketable securities, and restricted cash. We invest cash that is not required for immediate operating needs principally in money market funds and corporate securities through banks and other financial institutions in the United States, as well as in foreign countries.

Inventories

Inventories consist of raw materials and work-in-process and finished goods related to the production of our biocatalysis products. Raw materials include active pharmaceutical ingredients and other raw materials.

Work-in-process and finished goods include third party manufacturing costs and labor and indirect costs we incur in the production process. Included in inventories are materials that may be used as clinical products, which are charged to research and development expense when consumed.

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, trade names, 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 Codexis acquired the assets and, for those assets having finite useful lives, are amortized using the straight-line method over their estimated useful lives.

Assets Held for Sale

We reclassify long-lived assets to Assets Held for Sale when all required criteria for such reclassification are met. The assets are recorded at the lower of the carrying value or fair value less costs to sell. Assets held for sale must meet the following conditions: (1) management, having authority to approve the action, commits to a plan to sell the asset, (2) the asset is available for immediate sale in its present condition, (3) an active program to locate a buyer and other actions required to complete the plan to sell the asset have been initiated, (4) the sale of the asset is probable, and transfer of the asset is expected to qualify for recognition as a completed sale, within one year, (5) the asset is being actively marketed for sale at a price that is reasonable in relation to its current fair value, and (6) actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

In determining the fair value of the assets less cost to sell, we consider factors including current sales prices for comparable assets, recent market analysis studies, appraisals and any recent legitimate offers. If the estimated fair value less cost to sell of an asset is less than its current carrying value, the asset is written down to its estimated fair value less cost to sell. The assumptions about equipment sales prices require significant judgment related to equipment condition and certain selling costs. Due to uncertainties in the estimation process, it is reasonably possible that actual results could differ from the estimates used in our historical analyses and may result in additional impairments if market conditions deteriorate.

Impairment of Long-Lived Assets

Our long-lived assets include property and equipment and intangible assets. We determined that Codexis has 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 Codexis' identifiable cash flow generating capacity. Consequently, we do not believe that identification of independent cash flows associated with Codexis long-lived assets is currently possible at any lower level than the Asset Group.

The Core IP is the only finite-lived intangible asset on Codexis' consolidated balance sheet as of December 31, 2014. 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 Codexis' 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 Codexis' 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 Codexis' 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.

2012 Analysis

As of December 31, 2012 we determined that our continued operating losses and the termination of the Shell Research Agreement were indications of impairment.

As a result, in 2012 we performed the recoverability test and calculated estimated cash flows through the remaining period of the estimated useful life of the Core IP. The undiscounted cash flows included revenue and expense from Codexis' biocatalyst business, both from the pharmaceuticals market and from enzyme markets adjacent to its business in the pharmaceuticals market, including fine chemicals markets.

Codexis typically receives revenues from the pharmaceuticals market and expects to receive revenues from other enzyme markets adjacent to its pharmaceutical business in the form of one or more of the following: up-front payments, milestone payments, payments based upon the number of FTEs engaged in related research and development activities and licensing fees and royalties. Our best estimate of future cash flows did not include any CodeXol® and CodeXyme® revenues associated with collaboration research and development agreements, but did include an estimate of cash flows from potential strategic transactions with respect to its CodeXyme® and CodeXol® programs, as described below.

In our 2012 impairment analysis, approximately 69% and 31% of Codexis' revenues included in the estimated undiscounted cash flows (excluding cash flows from potential strategic transactions with respect to Codexis' CodeXyme® and CodeXol® programs) over the remaining useful life of the Core IP were derived from the pharmaceuticals market and from adjacent enzyme market opportunities, respectively.

Codexis' pharmaceuticals revenues were estimated based on existing commercial relationships, signed agreements or contracts, and conservative estimates for the capture of additional market share that we determined to be reasonably achievable. For existing and in process customer revenues we assumed a modest rate of growth based on our historical business model for Codexis' core pharmaceutical business, including research and development services revenue from partners and customers, which we determined to be reasonably achievable. We have historically worked closely with our pharmaceutical partners to evolve, engineer and develop enzymes that meet their specific needs. Our business model is based on having our partners and customers pay in whole or in part for the research and development required to engineer the enzymes required.

In determining which adjacent enzyme markets to exploit, we assessed various segments of the large and growing enzyme markets and selected those adjacent markets where we already had entry points through our existing pharmaceutical business relationships, such as fine chemicals markets. Estimated revenues associated with these adjacent markets were based on market penetration and adoption rates that we determined to be reasonably achievable.

The expected residual value was determined by applying a Gordon Growth Model to normalized net cash flows using a discount rate of 18.0% (“Estimated Weighted-Average Cost of Capital”) and a long term growth rate of 2%. The 18.0% discount rate reflects the nature and the risk of the underlying forecast, and includes such financial components as the risk free rate, systemic stock price risk based on an evaluation with peer companies (“beta”), equity risk premium, size premium, and company specific risk. The long term growth rate of 2% reflects projected inflation and general economic conditions. Based on the results obtained, we determined there was no impairment of Codexis' intangible assets as of December 31, 2012.

We also included in the undiscounted cash flows an estimate of cash flows from potential strategic transactions with respect to the Codexis' existing CodeXyme® cellulase enzymes and CodeXol® detergent alcohol programs. The amount of estimated cash flows related to CodeXol® and CodeXyme® represented 38% of the total undiscounted cash flows associated with the Asset Group. These amounts were not based on any existing contracts or agreements.
The results of our fourth quarter 2012 impairment analysis indicated that the undiscounted cash flows for the Asset Group were greater than the carrying value of the Asset Group by approximately 14%. Based on the results obtained, we determined there was no impairment of the Company's intangible assets as of December 31, 2012.
2013 Analysis
In the fourth quarter of 2013, we determined that Codexis' continued annual operating losses and a decline in market price of the Codexis' common stock, reduced anticipated future cash flows related to potential CodeXyme® cellulase enzyme and CodeXol® detergent alcohols transactions and reduced future revenue growth to reflect our most recent outlook were indicators of impairment.
As a result, in the fourth quarter of 2013 we performed the recoverability test and calculated estimated cash flows through the remaining period of the estimated useful life of the Core IP. The undiscounted cash flows included revenue and expense from Codexis' biocatalyst business, both from the pharmaceuticals market and from enzyme markets adjacent to its business in the pharmaceuticals market, including fine chemicals markets.
The methodology employed in our 2013 analysis was consistent with that used in our impairment analysis performed as of December 31, 2012, although certain assumptions changed in 2013 based on new developments, including reduced anticipated future cash flows related to potential strategic transactions with respect to the Codexis' CodeXyme® and CodeXol® programs, and reduced future revenue growth to reflect our most recent outlook and an increase in the our fine chemicals activities.
In our 2013 impairment analysis, approximately 90% and 10% of Codexis' revenues included in its estimated undiscounted cash flows (excluding cash flows from potential strategic transactions with respect to its CodeXyme® and CodeXol® programs) through the estimated useful life of the Core IP were derived from the pharmaceuticals market and from adjacent enzyme market opportunities, respectively.
The expected residual value was determined by applying a Gordon Growth Model to normalized net cash flows using a discount rate of 19.5% (“Estimated Weighted-Average Cost of Capital”) and a long term growth rate of 2%. The 19.5% discount rate reflects the nature and the risk of the underlying forecast, and includes such financial components as the risk free rate, systemic stock price risk based on an evaluation with peer companies (“beta”), equity risk premium, size premium, and Codexis' specific risk. The long term growth rate of 2% reflects projected inflation and general economic conditions.
The Company also included in the undiscounted cash flows an estimate of cash flows from potential strategic transactions with respect to the Company’s CodeXyme® cellulase enzymes and CodeXol® detergent alcohol programs. The amount of estimated cash flows related to CodeXol® and CodeXyme® represented 7% of the total undiscounted cash flows associated with the Asset Group. These amounts are not based on any existing contracts or agreements.
The results of our fourth quarter 2013 impairment analysis indicated that the undiscounted cash flows for the Asset Group were greater than the carrying value of the Asset Group by approximately 37%. Based on the results obtained, we determined there was no impairment of Codexis' intangible assets as of December 31, 2013.
Although our analysis indicated that the estimated future undiscounted cash flows exceeded the carrying value of the Asset Group, we performed a supplemental analysis to determine the fair value of the Core IP. In determining the fair value, we prepared cash flow forecasts over the remaining economic life of the Core IP consistent with the time period for final patent expiration from the Maxygen patent portfolio. We utilized the multi-period Excess Earnings model and obtained key financial inputs from a review of market participants, Codexis specific factors and generally accepted valuation methods. We used a discount rate of 19.5% which reflects the nature and the risk of the underlying forecast and includes other financial components. Based on these estimates, judgments and factors, we determined that the fair value of the Core IP exceeded its carrying value by 44% as of December 31, 2013.
2014 Analysis

The Company performed an analysis to estimate cash flows from equipment used in potential strategic transactions with respect to the Company's CodeXyme® cellulase enzymes and CodeXol® detergent alcohol programs. Based on this analysis the Company determined there were no future cash flows and recognized a $1.8 million impairment charge, which is reflected in research and development expense.

In the fourth quarter of 2014, we determined that 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 intangible assets were recorded during the year ended December 31, 2014.

Goodwill

We determined that Codexis has only one operating segment and reporting unit under the criteria in ASC 280, "Segment Reporting." Accordingly, our review of goodwill impairment indicators is performed at the Codexis level. We review goodwill impairment annually in the fourth quarter of each of Codexis' fiscal years 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 Codexis' 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 Codexis' market capitalization as an indicator of fair value. We believe that since its 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 Codexis' reporting unit as a whole to exceed its market capitalization. However, we believe that the fair value measurement need not be based solely on the quoted market price of an individual share of Codexis' 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 Codexis' projected future cash flows expected to be generated from its 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 Codexis' market capitalization be less than the total stockholder's equity as of our annual test date or as of any interim impairment testing date, we would also consider market comparables, recent trends in Codexis' 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 purchase method. Goodwill is not subject to amortization. Goodwill was tested for impairment in the fourth quarter of 2014. 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 Codexis' goodwill as of December 31, 2014 and 2013.

Income Taxes

We use the liability method of accounting for income taxes, whereby deferred tax assets 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 Codexis' 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 deferred tax asset in jurisdictions where ultimate realization of deferred tax assets is more likely than not to occur.

We make estimates and judgments about Codexis' 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 could 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. With the sale of the Hungarian subsidiary in the quarter ended March 31, 2014, the related net operating losses and other tax attributes are no longer available to Codexis. The related deferred tax assets had a full valuation allowance and, as a result, their removal did not have a material impact to the financial statements.

We account for uncertainty in income taxes as required by the provisions of ASC Topic 740, "Income Taxes," 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 Codexis' 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 Codexis 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 May 2014, the FASB issued Accounting Standards Update (“ASU”) 2014-09, "Revenue from Contracts with Customers". This 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). This guidance is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period, and early application is not permitted. We are currently in the process of evaluating the impact of the pending adoption of ASU 2014-09 on Codexis' consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, "Presentation of Financial Statements-Going Concern (Sub Topic 205-40): Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern". This ASU provides guidance to an entity’s management with principles and definitions that are intended to reduce diversity in the timing and content of disclosures that are commonly provided by entities today in the financial statement footnotes. This ASU is effective for annual periods ending after December 15, 2016, and interim periods within annual periods beginning after December 15, 2016. Early application is permitted for annual or interim reporting

periods for which the financial statements have not previously been issued. We are currently evaluating the impact of this ASU on our consolidated financial statements and footnote disclosures; however, we do not expect it to have any impact.

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,		
	2014	2013	2012
Shares issuable under Equity Incentive Plan	6,193	6,722	7,091
Shares issuable upon the conversion of warrants	75	75	260
Total anti-dilutive securities	6,268	6,797	7,351

Note 4. Collaborative Research and Development Arrangements

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, Codexis entered into a platform technology license agreement (the "License Agreement") with GlaxoSmithKline ("GSK"). Under the terms of the License Agreement, Codexis granted GSK a license to use its proprietary CodeEvolver® protein engineering technology platform.

We received a $6.0 million up-front licensing fee upon signing the License Agreement and subsequently a $5.0 million non-creditable, non-refundable milestone payment upon achievement of a milestone. We are eligible to receive additional contingent payments up to $14.0 million, of which $6.5 million are considered milestone payments, over the next 30 months subject to satisfactory completion of the remaining technology transfer milestones and $7.5 million upon completion of the technology transfer period. We also have the potential to receive numerous 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 three-year period during which we will transfer our CodeEvolver® protein engineering technology platform to GSK, 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 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 our CodeEvolver® protein engineering technology platform. The term of the License Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the License Agreement. At any time following the completion of the first technology transfer stage, GSK can terminate the License Agreement by providing 90 days written notice to us. If GSK exercises this termination right during the three-year technology transfer period, GSK will make a one-time termination payment to us.

Under the License 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, and we determined that the license and the platform technology transfer (together the "License") and our participation in joint steering committee activities represent a single unit of accounting. We determined that our participation in the joint steering committee in connection with the platform technology transfer 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 described above will be recognized as revenue to the extent that GSK purchases enzymes from us.

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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 $1.0 million in 2014, as biocatalyst research and development revenue, and we had a deferred revenue balance of $5.0 million from GSK related to the up-front License fee at December 31, 2014.

Merck Sitagliptin Catalyst Supply Agreement

On February 1, 2012, Codexis entered into a five-year Sitagliptin Catalyst Supply Agreement ("Sitagliptin Catalyst Supply Agreement") whereby Merck Sharp and Dohme Corp. ("Merck") may obtain commercial scale substance for use in the manufacture of one of its products, Januvia®. Merck may extend the term of the Sitagliptin Catalyst Supply Agreement for an additional five years at its sole discretion.

The Sitagliptin Catalyst Supply Agreement calls for Merck to pay an annual license fee for the rights to the Sitagliptin technology each year for the term of the Sitagliptin Catalyst Supply Agreement. The license fee is being recognized as collaborative research and development revenue ratably over the five year term of the Sitagliptin Catalyst Supply Agreement. We recognized license fees of $2.0 million in 2014 and $1.8 million in 2013, as biocatalyst research and development revenue, and we had a deferred revenue balance of $1.1 million at December 31, 2014, and $0.7 million at December 31 2013, from Merck related to the license fee. In addition, pursuant to the Sitagliptin Catalyst Supply Agreement, Merck may purchase supply from us for a fee based on contractually stated prices and we recognized $2.5 million in 2014 and $1.0 million in 2013 in product revenue under this agreement.

Arch Manufacturing Collaboration

From 2006 through November 2012, Arch Pharmalabs Limited ("Arch") of Mumbai, India manufactured substantially all of Codexis' commercialized intermediates and active pharmaceutical ingredients ("APIs") for sale to generic and innovative pharmaceutical manufacturers. Prior to November 2012, Arch produced atorva-family APIs and intermediates for us and it sold these directly to end customers primarily in India. In November 2012, Codexis entered into a new commercial arrangement with Arch (the "New Arch Enzyme Supply Agreement") 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 recognized product sales revenue for the sale of enzyme inventory to Arch and its affiliates pursuant to the New Arch Enzyme Supply Agreement of $0.5 million in 2014 and $2.1 million in 2013, as biocatalyst product sales revenue. We recorded an allowance for bad debt of $0 in 2014 and $0.4 million in 2013.

Shell and Raízen

In November 2006, we entered into a collaborative research agreement and a license agreement with Shell to develop biocatalysts and associated processes that use such biocatalysts. In November 2007, we entered into a new and expanded five-year collaborative research agreement (“Shell Research Agreement”) and a license agreement (the “Shell License Agreement”) with Shell.

In September 2012, we entered into an agreement with Shell (the “New Shell Agreement”) which among other things, terminated the Shell Research Agreement effective as of August 31, 2012, except for certain provisions of the Shell Research Agreement which will survive such termination, including provisions regarding intellectual property rights, patent prosecution and maintenance, confidentiality and indemnification. The New Shell Agreement required Shell to pay us approximately $7.5 million as full, complete and final satisfaction of amounts that Shell may have owed us under the Shell Research Agreement with respect to (i) FTEs assigned to the Shell Research Agreement and (ii) milestones achieved or achievable by us under the Shell Research Agreement. The $7.5 million was recognized as revenue during the third quarter of 2012 when all of our obligations were fulfilled under the New Shell Agreement and was collected during the fourth quarter of 2012.

Beginning September 1, 2012, we had no further obligations to Shell under the Shell Research Agreement to provide any FTEs to perform work under or after the collaboration and Shell has no future obligations to us under the Shell Research Agreement to provide funding for FTEs to perform work under or after the collaboration. We remain eligible to receive a one-time $3.0 million payment from Shell under the Shell Research Agreement upon the first sale by Shell of a product in the field of converting cellulosic biomass into fermentable sugars in Brazil, or in the fields of converting fermentable sugars derived from biomass into liquid fuel or liquid fuel additives or into lubricants.

Under the New Shell Agreement, Shell granted us royalty-bearing, non-exclusive rights and licenses to develop, manufacture, use and sell enzymes and microbes in the field of converting cellulosic biomass into fermentable sugars on a worldwide basis, except for Brazil, where such sugars are converted into liquid fuels, fuel additives or lubricants

(the “Field of Use”). Raízen holds the exclusive rights to use our enzymes and microbes for converting cellulosic biomass into fermentable sugars in Brazil, where such sugars are converted into ethanol. Following the date on which our biocatalysts are used to produce sugars used in

the Field of Use sufficient to produce 30.0 million gallons of liquid fuel, we will be required to pay Shell a royalty on our sales to third parties of our enzymes and microbes in the Field of Use, equal to a low single-digit percentage of net sales and we will also be required to pay Shell a royalty on our use of biocatalysts in the Field of Use, equal to a low single-digit percentage of its applicable net sales of such enzymes or microbes. Shell is also entitled to discounted pricing under the New Shell Agreement for biocatalysts purchased from us by Shell for use in the Field of Use, but we are under no obligation to sell such biocatalysts to Shell.

Under the New Shell Agreement, we also granted to Shell a non-exclusive, royalty-free license to manufacture, use and import, solely for the use of Shell and its affiliates, (i) enzymes developed by us during the ten year period following August 31, 2012 outside of the Shell Research Agreement for use in the Field of Use and (ii) improvements to any microbe developed by us during the ten year period following August 31, 2012 outside of the Shell Research Agreement that is derivative of an identified microbe for use in the Field of Use. Shell remains subject to existing royalty obligations to us for future sales of products covered by the intellectual property and technology that remain exclusively licensed to Shell under the License Agreement.

Additionally, with respect to each invention relating to technology or materials regarding novel liquid fuel compounds, liquid fuel additives or lubricants, Shell will continue to be required to work exclusively with us, for a period of three years after the first nonprovisional patent application filing for such invention, to identify biological methods of synthesis of the compound(s) that are claimed, or whose use as a liquid fuel compound, additive or lubricant, is claimed, in such patent filing.

The New Shell Agreement has a term that commences on August 31, 2012 and continues until the later of August 31, 2032 or the date of the last to expire patent rights included in our collaboration that claim a biocatalyst or a microbe for use in the Field of Use.

In June 2011, Shell completed the transfer of all of its equity interests in us to Raízen, Shell's joint venture with Cosan S.A. Indústria e Comércio, ("Cosan") in Brazil. As a result, Shell is no longer considered a related party. Notwithstanding the above, Shell did not transfer the Shell Research Agreement to Raízen. Additionally, in September 2011, we entered into a joint development agreement directly with Raízen. Work under this joint development agreement was completed in 2012 and we do not expect this project to continue.

Note 5. Joint Development Agreement with CO2 Solutions

On December 15, 2009, we entered into an exclusive joint development agreement with CO_2 Solutions, a company based in Quebec City, Quebec, Canada, whose shares are publicly traded in Canada on TSX Venture Exchange. The joint development agreement expired in January 2011. In January 2011, we extended our joint development agreement with CO_2 Solutions on essentially the same terms as the original agreement. This exclusive arrangement expired in February 2013 and has not been extended.

Under the agreement, we obtained a research license to CO_2 Solutions' intellectual property and agreed to conduct research and development activities jointly with CO_2 Solutions with the goal of advancing the development of carbon management technology. We also purchased 10,000,000 common shares (approximately 16.6% of the total common shares outstanding at the time of investment) of CO_2 Solutions in a private placement subject to a four-month statutory resale restriction. This restriction expired on April 15, 2010. We concluded that we did not have the ability to exercise significant influence over CO_2 Solutions' operating and financial policies through December 31, 2014.

Our investment in CO_2 Solutions is classified as available for sale and is recorded at its fair value. During the year ended December 31, 2012, we recorded an impairment charge of $0.8 million, as the decline in the fair value of the investment was deemed to be other-than-temporary. No impairment charges were recorded during the years ended December 31, 2014 and 2013.

Note 6. Investment Securities

At December 31, 2014, cash equivalents and marketable securities consisted of the following (in thousands):

	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	

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. At December 31, 2014, the Company had no marketable securities in an unrealized loss position.

At December 31, 2013, cash equivalents, short-term investments and marketable securities consisted of the following (in thousands):

	December 31, 2013				
	Adjusted Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Average Contractual Maturities (in days)
Money market funds	$16,089	$—	$—	$16,089	n/a
Corporate bonds	1,002	3	—	1,005	140
U.S. Treasury obligations	2,000	—	—	2,000	59
Common shares of CO2 Solutions	563	232	—	795	n/a
Total	$19,654	$235	$—	$19,889	

The total cash and cash equivalents balance of $22.1 million as of December 31, 2013 was comprised of money market funds of $16.1 million and cash of $6.0 million held with major financial institutions worldwide. At December 31, 2013, the Company had no marketable securities in an unrealized loss position.

Note 7. 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.

For Level 2 financial investments, our investment adviser provides us with monthly account statements documenting the value of each investment based on prices received from an independent third-party valuation service provider. This third party evaluates the types of securities in our investment portfolio and calculates a fair value using a multi-dimensional pricing model that includes a variety of inputs, including quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, interest rates and yield curves observable at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks and default rates that are observable at commonly quoted intervals. As we are ultimately responsible for the determination of the fair value of these instruments, we perform quarterly analyses using prices obtained from another independent provider of financial instrument valuations, to validate that the prices we have used are reasonable estimates of fair value.

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Fair Value of Financial Instruments

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

	December 31, 2014			
Financial Assets	Level 1	Level 2	Level 3	Total
Money market funds	$14,602	$—	$—	$14,602
Common shares of CO2 Solutions		688	—	688
Total	$14,602	$688	$—	$15,290

The following table presents the financial instruments that were measured at fair value on a recurring basis at December 31, 2013 by level within the fair value hierarchy (in thousands):

	December 31, 2013			
Financial Assets	Level 1	Level 2	Level 3	Total
Money market funds	$16,089	$—	$—	$16,089
Corporate bonds	—	1,005	—	1,005
U.S. Treasury obligations	—	2,000	—	2,000
Common shares of CO2 Solutions	—	795	—	795
Total	$16,089	$3,800	$—	$19,889

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. During 2012, we evaluated our investment in the common shares of CO_2 Solutions and determined the impairment was other-than-temporary considering the length of time and extent to which the fair value has been less than its cost, the financial condition and near term prospects of CO_2 Solutions, and our ability and intent to hold the securities until fair value recovers. As a result of the above analysis, we recorded an impairment of $0.8 million in 2012, as an expense in our consolidated statement of operations as selling, general and administrative expense.

Fair Value of Non-Financial Assets

We had no non-financial assets that required fair value measurement at December 31, 2014. See Note 9, "Assets Held for Sale" for a schedule of Level 3 activity in assets held for sale for the year ending December 31, 2014.

As of December 31, 2013, we had assets held for sale of $2,179,000 related to lab equipment located in the United States and Hungary. The fair value of these assets was determined based on Level 3 inputs, primarily sales data for similar properties. Losses recognized in fiscal year 2013 due to fair value remeasurements using Level 3 inputs were $1,571,000. The fair value of assets held for sale at December 31, 2013, measured on a nonrecurring basis, is as follows (in thousands):

	December 31, 2013		
Non-Financial Assets	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs
Assets held for sale	$—	$—	$2,179

Note 8. Balance Sheets

Accounts receivable

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

	December 31,		
	2014	2013	2012
Allowance - beginning of period	$(460)	$(150)	$(17)
Provisions for doubtful accounts	(11)	(386)	(133)
Recoveries from bad debts	—	76	—
Write-off and other	43	—	—
Allowance - end of period	$(428)	$(460)	$(150)

Inventories

Inventories consisted of the following (in thousands):

	December 31,	
	2014	2013
Raw materials	$84	$763
Work in process	65	31
Finished goods	1,246	693
Total inventories	$1,395	$1,487

Property and Equipment, net

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

	December 31,	
	2014	2013
Laboratory equipment	$23,002	$23,949
Leasehold improvements	9,773	9,493
Computer equipment and software	3,262	3,196
Office equipment and furniture	1,227	1,228
Construction in progress (1)	24	41
Property and equipment	37,288	37,907
Less: accumulated depreciation and amortization	(31,452)	(29,461)
Impairment of laboratory equipment	(1,841)	—
Property and equipment, net	$3,995	$8,446

(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, 2014			December 31, 2013			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Amortization Period (years)
Customer relationships	$3,098	$ (3,098)	$—	$3,098	$ (3,098)	$—	5
Developed and core technology	1,534	(1,534)	—	1,534	(1,534)	—	5
Maxygen intellectual property	20,244	(14,058)	6,186	20,244	(10,684)	9,560	6
Total	$24,876	$ (18,690)	$6,186	$24,876	$ (15,316)	$9,560	6

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
2015	$3,374
2016	2,812
	$6,186

Goodwill

There were no changes in the carrying value of goodwill of $3,241,000 during 2014 and 2013.

Note 9. Assets Held for Sale

In the fourth quarter of 2013, we announced that we would begin winding down Codexis' CodeXyme® cellulase enzyme program. As a result of the termination of this research program and corresponding reductions in headcount, we concluded that certain excess research and development equipment, including assets at Codexis' Hungarian subsidiary, were no longer held for use, and these assets were determined to meet the criteria to be classified as held for sale at December 31, 2013. In conjunction with classifying certain assets as held for sale, in 2013, we performed a detailed review of Codexis' excess research and development equipment with the assistance of a third party and determined that the estimated net sales price, less selling costs, was below the carrying value. The net carrying value of the excess research and development equipment totaled $3,750,000 and was reduced to an adjusted carrying value of $2,179,000 as of December 31, 2013 to reflect the estimated current fair value for these assets. A charge of $1,571,000 was recorded in the fourth quarter of 2013 to research and development expenses to reduce the value of held for sale assets to their estimated fair market value net of selling expenses. We reclassified the adjusted carrying value to Assets Held for Sale as of December 31, 2013.

In March 2014, we sold our Hungarian subsidiary including all of the equipment at this facility classified as assets held for sale for proceeds of $1.5 million and recognized a gain of $0.8 million, which is included in research and development expenses.

In 2014, we decided to expedite the disposition of assets held for sale in the United States by selling such assets through auction. As a result, we recognized a change is estimated fair value of $0.7 million in 2014, which is reflected in research and development expense. Also in 2014, we changed our plan to sell certain U.S. research and development equipment, and such equipment was put back in operational use and classified as property and equipment. In addition, certain of the U.S. research and development equipment were exchanged for more suitable research 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.

Total assets reclassified as assets held for sale along with the related expense to reduce carrying value to fair value were as follows (in thousands):

Assets Held for Sale	Carrying Value
Excess research and development equipment	$ 3,750
Change in estimated fair value of research equipment during three months ended December 31, 2013	(1,571)
Research & development equipment classified as held for sale at December 31, 2013	2,179
Hungarian subsidiary assets sold in 2014 (see Note 10)	(779)
Assets held for sale in the United States sold in 2014	(181)
Loss on exchange of assets held for sale in the United States sold in 2014	(188)
Change in estimated fair value of research equipment in 2014	(698)
Assets held for sale transferred to property and equipment in 2014	(333)
Research & development equipment classified as held for sale at December 31, 2014	$ —

Note 10. Sale of Hungarian Subsidiary

On March 13, 2014, we entered into an agreement with Intrexon Corporation to sell 100% of Codexis' equity interests in its Hungarian subsidiary, Codexis Laboratories Hungary Kft, as well as all assets of such subsidiary that were previously classified

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as held for sale. On March 15, 2014, the sale transaction closed and we received cash proceeds of $1,500,000 from the sale and recorded a net gain of $760,000 which was included in research and development expenses in connection with the sale. As part of the purchase, the buyer obtained all 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.

Note 11. Stock-based Compensation

Equity Incentive Plans

In March 2010, the Company's board of directors (the "Board") and stockholders approved the 2010 Equity Incentive Award Plan (the “2010 Plan”), which became effective upon the completion of Codexis' IPO in April 2010. The number of shares of the Company's commons 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 of December 31, 2014, total shares remaining available for issuance under the 2010 Plan were 6,560,731.

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

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

We issue employees RSUs, which generally vest over either a three year period with 33% of the awards vesting on each annual anniversary or a four year period with 25% of the awards vesting on each annual anniversary. We may grant RSUs with different vesting terms from time to time.

Performance-Contingent RSUs

The compensation committee of the Board has approved grants of performance-contingent RSUs ("PSUs") to employees. These awards have dual triggers of vesting based upon the successful achievement of certain corporate operating milestones in specified timelines, as well as a requirement for continued employment. When the performance goals are deemed to be probable of achievement for these types of awards, time-based vesting and, as a result, recognition of stock-based compensation expense commences.

In each of 2014 and 2013 Codexis awarded PSUs based upon the achievement of certain cash flow performance goals for each respective year. These PSUs vest such that one-half of the PSUs subject to the award vest one year following the grant, and the remainder of the PSUs vest two years following the grant, subject to Codexis achieving the performance goals and the recipient’s continued service to Codexis on each vesting date. If the performance goal is achieved at the threshold level, the number of shares issuable in respect of the PSUs would be equal to half the number of PSUs granted. If the performance goal is achieved at the target level, the number of shares issuable in respect of the PSUs would be equal to the number of PSUs granted. If the performance goal is achieved at the superior level, the number of shares issuable in respect of the PSUs would be equal to two times the number PSUs granted. The number of shares issuable upon achievement of the performance goal at the levels between the threshold and target levels or target level and superior levels is determined using linear interpolation. Achievement below the threshold level results in no shares being issuable in respect of the PSUs.

In 2014, we concluded that the 2014 PSU performance objective was achieved at a linear point between the threshold level and the target level at 53%. Accordingly, we recognized stock-based compensation expense of $0.4 million to reflect this linear point in 2014.

During 2013, we revised our estimate of forecasted performance criteria and concluded that the performance target would not likely be achieved for the PSUs that were granted in 2013. The PSUs that were granted under the 2013 PSU were canceled in

February 2014 when we determined that we had not attained the threshold performance target for the 2013 awards, and as such no expense was recognized for the year ended December 31, 2013.

Director Compensation Program

Each of our independent directors receives periodic automatic grants of equity awards under a program implemented under the 2002 Plan. These grants are non-discretionary. Only our independent directors or affiliates of such directors are eligible to receive automatic grants under the 2010 Plan. Under the program, each individual who first becomes an independent director will, on the date such individual joins the Board, automatically be granted (i) a one-time grant of RSAs covering $0.1 million shares of our common stock. These initial equity grants vest annually over the director's first three years of service.

Annually, upon his or her re-election to the Board at the Annual Meeting of Stockholders, each independent director is automatically granted a RSA covering $85,000 shares of our common stock. These standard annual equity awards vest monthly over the twelve month period of service following the date of grant. In addition, all automatic equity awards vest in full if the Company is subject to a change in control or the Board member dies while in service.

Stock-Based Compensation Expense

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

	Years Ended December 31,		
	2014	2013	2012
Research and development	$953	$1,201	$2,334
Selling, general and administrative	3,667	3,188	2,742
	$4,620	$4,389	$5,076

As of December 31, 2014, the unrecognized stock-based compensation cost, net of expected forfeitures, and the estimated weighted-average amortization period, using the straight-line attribution method, was as follows (in thousands, except amortization period):

	Unrecognized Compensation Cost	Weighted-average remaining amortization period (years)
Stock options	$1,306	2.75
RSUs	1,027	1.13
RSAs	1,222	1.24
PSUs	259	0.68
Total unrecognized stock-based compensation expense	$3,814	

Compensation Awards

The following table summarizes equity awards activity under the 2010 Plan and related information (in thousands:

	Number of Shares Subject to Outstanding Options	Weighted-average Exercise Price of Outstanding Options	Number of Shares Subject to Outstanding RSUs	Weighted Average Fair Value per Share at Grant	Number of Shares Outstanding RSAs Subject to Vesting	Weighted-average Fair Value per Share at Grant	Number of Shares Outstanding Subject to Performance Conditions	Weighted-average Fair Value per Share at Grant
December 31, 2011	7,904	$ 7.35	546	$—			—	$ —
Granted	1,521	3.42	1,148	3.54			—	—
Exercised	(708)	1.78						
Released			(167)				—	
Forfeited	(2,584)	8.23	(569)				—	—
December 31, 2012	6,133	6.65	958		800	3.41	—	—
Granted	922	2.28	2,101	1.80	216	2.32	523	2.32
Exercised	(326)	0.98						
Released			(325)		(200)	3.41	—	—
Forfeited	(2,603)	7.35	(496)		—	—	(165)	—
December 31, 2013	4,126	5.68	2,238	—	816	3.12	358	—
Granted	1,075	2.01	155	2.14	599	1.64	835	2.00
Exercised	(145)	1.33						
Released			(923)		(454)	2.45	—	—
Forfeited	(1,575)	6.11	(418)		(49)	2.54	(444)	—
December 31, 2014	3,481	4.53	1,052		912	2.51	749	—
Options/RSUs vested and expected to vest at December 31, 2014	3,341	4.64	1,002					
Options exercisable at December 31, 2014	2,072	$ 6.04						

As of December 31, 2014, the aggregate intrinsic value of the options outstanding was $0.8 million with a weighted-average remaining contractual term of 6.54 years and the aggregate intrinsic value of the options exercisable was $0.2 million with a weighted-average remaining contractual term of 5.08 years. The total intrinsic value of the options exercised were $57 thousand in 2014, $0.4 million in 2013, and $0.9 million in 2012.

Valuation Assumptions

We based the range of weighted-average estimated values of employee stock option grants and rights granted under the employee stock purchase plan, as well as the weighted-average assumptions used in calculating these values, on estimates at the date of grant, as follows:

	Years Ended December 31,		
	2014	2013	2012
Expected life (years)	6.0	6.0	6.0
Volatility	65 %	65 %	61 %
Risk-free interest rate	1.9 %	1.2 %	1.0 %
Expected dividend yield	0.0 %	0.0 %	0.0 %
Weighted-average estimated fair value of stock options granted	$1.20	$1.34	$1.91

Range of Stock Option Exercise Prices

The following table summarizes information about stock options outstanding and exercisable at December 31, 2014 (amounts in thousands, except per share and years):

	Options Outstanding			Options Exercisable	
Exercise Prices	Number of Options	Weighted Average Remaining Contractual Term (Years)	Weighted Average Exercise Price per Share	Number of Options	Weighted Average Exercise Price per Share
$0.90 - $1.97	889	8.16	$1.83	113	$1.05
$1.98 - $2.45	920	6.46	2.35	491	2.38
$3.41 - $7.46	916	6.24	4.67	719	4.98
$7.81 - $11.87	756	5.12	10.21	749	10.22
	3,481	6.54	$4.53	2,072	$6.04

Note 12. Capital Stock

Warrants

The Company's outstanding warrants are exercisable for common stock at any time during their respective terms. During the year ended December 31, 2012, 6,066 warrants were exercised in a net share transaction to acquire 3,308 shares of the Company's common stock. No warrants were exercised during 2014 or 2013.

At December 31, 2014, the following warrants were issued and outstanding:

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

Stockholder Rights Plan

In August 2012, the Board adopted a stockholder rights plan and declared a dividend of one preferred share purchase right for each share of the Company's common stock held by stockholders of record as of September 18, 2012. Each right entitles stockholders, after the rights become exercisable, to purchase one one thousandth of a share of the Company's Series A Junior Participating Preferred Stock, par value $0.0001, at a purchase price of $11.35 per one-thousandth of a share of Series A Junior Participating Preferred Stock. In general, the rights become exercisable when a person or group acquires 15% or more of the Company's common stock or a tender offer for 15% or more of the Company's common stock is announced or commenced. These rights expired in accordance with the terms of the stockholder rights plan on September 2, 2013. Therefore, the shares of the Company's common stock are no longer accompanied by the rights, and the plan is of no further force or effect.

Note 13. 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 $0.4 million in 2014, $0.5 million in 2013, and nil in 2012 as we did not make any contributions to the 401(k) Plan on behalf of eligible employees in 2012.

Note 14. Income Taxes

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

	Years Ended December 31,		
	2014	2013	2012
United States	$(20,980)	$(41,696)	$(30,743)
Foreign	1,653	306	156
Loss before provision for income taxes	$(19,327)	$(41,390)	$(30,587)

The tax provision for the years ended December 31, 2014, 2013 and 2012 consists primarily of taxes attributable to foreign operations. The components of the provision for income taxes are as follows (in thousands):

	Years Ended December 31,		
	2014	2013	2012
Current provision (benefit):			
Federal	$—	$—	$—
State	5	5	7
Foreign	(371)	(45)	178
Total current provision	(366)	(40)	185
Deferred provision (benefit):			
Federal	—	(59)	(62)
State	—	(7)	(7)
Foreign	110	19	154
Total deferred provision	110	(47)	85
Total provision for (benefit from) income taxes	$(256)	$(87)	$270

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,		
	2014	2013	2012
Tax benefit at federal statutory rate	$(6,571)	$(14,073)	$(10,399)
State taxes	249	(1,948)	(1,063)
Research and development credits	(57)	(195)	—
Foreign operations taxed at different rates	447	(108)	7
Stock-based compensation	(2)	117	312
Other nondeductible items	(364)	(1,272)	204
Change in federal statutory rate	—	—	1,493
Change in valuation allowance	6,042	17,392	9,716
Provision for (benefit from) income taxes	$(256)	$(87)	$270

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,	
	2014	2013
Deferred tax assets:		
Net operating losses	$70,666	$67,507
Credits	4,421	4,194
Deferred revenues	2,697	1,198
Stock-based compensation	2,988	3,043
Reserves and accruals	2,701	3,626
Depreciation	2,295	2,247
Intangible assets	4,639	4,208
Capital losses	933	—
Unrealized gain/loss	148	112
Other assets	101	159
Total deferred tax assets:	91,589	86,294
Deferred tax liabilities:		
Other	(186)	—
Total deferred tax liabilities:	(186)	—
Valuation allowance	(91,513)	(86,294)
Net deferred tax liabilities	$(110)	$—

ASC Topic 740 requires that the tax benefit of NOL, temporary differences and credit carryforwards are 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, accordingly, 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 $5.2 million, $14.6 million and $8.6 million during the years ended December 31, 2014, 2013 and 2012, 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 of December 31, 2014 (in thousands):

	December 31, 2014	
	Amount	Expiration Years
Net operating losses, federal	$196,941	2022-2034
Net operating losses, state	146,916	2015-2034
Tax credits, federal	5,141	2022-2034
Tax credits, state	5,975	Do not expire
Net operating losses, foreign	3,241	Various
Tax credits, foreign	$16	Various

Current federal and California tax laws include substantial restrictions on the utilization of NOLs and tax credit carryforwards in the event of an ownership change of a corporation. Accordingly, the Company's 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.

During the current year 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 December 31, 2014. The Company has not provided for U.S. federal and state income taxes on all of the remaining non-U.S. subsidiaries’ undistributed earnings as

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of December 31, 2014, because such earnings are intended to be indefinitely reinvested. As of December 31, 2014, cumulative un-remitted foreign earnings that are considered to be permanently invested outside the United States and on which no U.S. taxes have been provided were approximately $0.1 million. The residual U.S. tax liability, if such amounts were remitted, would be nominal.

We adopted ASC's Topic 740's provision for accounting for uncertainty in income taxes on January 1, 2007. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	December 31,		
	2014	2013	2012
Balance at beginning of year	$8,306	$7,429	$6,611
Additions based on tax positions related to current year	346	1,116	718
Additions to tax provision of prior years	—	6	316
Reductions to tax provision of prior years	(814)	(87)	(29)
Lapse of the applicable statute of limitations	—	(158)	(187)
Balance at end of year	$7,838	$8,306	$7,429

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 $(47,000), $29,000 and $11,000, respectively, in 2014, 2013 and 2012. Total penalties and interest recognized in the balance sheet was $232,000 and $280,000, respectively, in 2014 and 2013. The total unrecognized tax benefits that, if recognized currently, would impact the Company's effective tax rate were $0.5 million and $1.0 million as of December 31, 2014 and 2013, 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 2008.

Note 15. Commitments and Contingencies

Operating Leases

Codexis' headquarters are located in Redwood City, California where it occupies approximately 107,000 square feet of office and laboratory space in four buildings within the same business park from Metropolitan Life Insurance Company ("MetLife"). Codexis 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.

We incurred $3.6 million of capital improvement costs related to the facilities leased from MetLife through December 31, 2012. During 2011 and 2012, we requested and received $3.1 million of reimbursements from the landlord from the tenant improvement and HVAC allowances for the completed construction. The reimbursements were recorded once cash was received and is amortized on a straight line basis over the term of the lease as a reduction in rent expense. The remaining lease incentive obligation was $1.7 million at December 31, 2014, and is reflected in other liabilities on the consolidated balance sheet. Rent expense for the Redwood City properties is recognized on a straight-line basis over the term of the lease.

We are required to restore certain 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. In 2014, we entered into a sublease agreement whereby certain changes were made to facility by our sublessor. As such, on December 31, 2014, we revised our estimated asset retirement obligation to restore the sublet facility to its original form and recognized an asset retirement obligation of $0.3 million and we increased our related estimated cash payments $0.3 million. We recognized accretion expense related to our asset retirement obligations of nil in each of 2014 and 2013, and $30 thousand in 2012.

In accordance with 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, 2014 and 2013. These deposits are recorded as restricted cash on the consolidated balance sheets.

Prior to March 2014, we also rented facilities in Hungary. Rent expense was being recognized on a straight-line basis over the respective terms of the leases. The facility lease was transferred to Intrexon Corporation to in connection with the sale of Codexis Laboratories Hungary Kft (see Note 10).

Our leased facility in Singapore was vacated in 2012, the lease terminated and we recorded a cease use liability of $354,000 representing the remaining six months lease term for the facility as an accrued expense at December 31, 2012, which was paid in 2013.

Rent expense, was $3.4 million in 2014 and $3.6 million in 2013, partially offset by sublease income of $0.4 million in 2014 and nil in 2013.

Future minimum payments under noncancellable operating leases are as follows at December 31, 2014 (in thousands):

	Lease Payments
Years ending December 31,	
2015	$ 2,743
2016	2,827
2017	2,677
2018	2,736
2019	2,818
2020 and beyond	236
Total	$ 14,037

The total future minimum rentals to be received under noncancellable subleases as of December 31, 2014 are $1.4 million.

Legal Proceedings

Codexis has been subject to various legal proceedings related to matters that have arisen during the ordinary course of business. Although there can be no assurance as to the ultimate disposition of these matters, we have determined, based upon the information available, that the expected outcome of these matters, individually or in the aggregate, will not have a material adverse effect on the consolidated financial position, results of operations or cash flows.

On July 30, 2013, Dyadic International, Inc. ("Dyadic") delivered notice to Codexis alleging that it is in breach under the Dyadic license agreement and stating that Dyadic intended to terminate the Dyadic license agreement in 60 days if the alleged breach was not cured to Dyadic's satisfaction. This notice was subsequently withdrawn by Dyadic in February 2014 in light of Codexis' decision to wind down its CodeXyme® cellulase enzyme program. Although we do not believe that the use of the licensed technology in its CodeXyme® cellulase enzyme program constituted a breach of the Dyadic license agreement, we can make no assurances that Dyadic will not make such allegations again in the future, or regarding our ability to resolve any possible future disputes with Dyadic on commercially reasonable terms or our ability to dispute with success, through legal action or otherwise, any possible future allegations by Dyadic that such use may have breached the Dyadic license agreement.

Other Contingencies

In November 2009, one of Codexis' foreign subsidiaries sold intellectual property to Codexis. Under the local laws, the sale of intellectual property to a nonresident legal entity is deemed an export and is not subject to VAT. However, there is uncertainty regarding whether the items sold represented intellectual property or research and development services, which would subject the sale to VAT. We believe that the uncertainty results in an exposure to pay VAT that is more than remote but less than likely to occur and, accordingly, we have not recorded an accrual for this exposure. If the sale is deemed a sale of research and development services, Codexis could be obligated to pay an estimated amount of $0.6 million.

Indemnifications

Codexis is required to recognize a liability for the fair value of any obligations Codexis assumes upon the issuance of a guarantee. Codexis has certain agreements with licensors, licensees and collaborators that contain indemnification provisions. In such provisions, Codexis typically agrees 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 16. Related Party Transactions

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Shell and Raízen

As discussed in Note 4, “Collaborative Research and Development Agreements,” Shell transferred full ownership of our common stock held by it to Raízen, Shell’s joint venture with Cosan S.A., ("Cosan"), in Brazil, in June 2011. Upon Shell’s transfer of ownership interest to Raízen in 2011, Raízen owned 5.6 million shares of our common stock. In July 2011, we appointed Pedro Mizutani to the Board. Mr. Mizutani also serves as the Chief Operating Officer of Raízen S.A. and other affiliated companies as well as a director of Cosan. At a regularly scheduled meeting of the Board held on November 6, 2014, Pedro Mizutani resigned from the Board effective November 6, 2014. There were no related party transactions with either Raízen or Cosan for the years ended December 31, 2014, 2013 and 2012.

Exela PharmSci, Inc.

We signed a commercialization agreement with 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, also serves on the board of directors of Exela. In addition, Mr. Baruch is a limited partner in CMEA Ventures, which owns more than 10% of Exela’s outstanding capital stock. As such, Mr. Baruch has an indirect pecuniary interest in the shares of Exela held by CMEA Ventures.

We recognized $7.3 million in 2014 and $4.6 million in 2013 and $0.2 million in 2012, shown in the consolidated statement of operations as revenue sharing arrangement. We had no receivables from Exela at December 31, 2014 and $0.4 million at December 31, 2013.

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 $60,000 in 2014 and $120,000 in 2013, and there was no amount owed as of December 31, 2014 and 2013.

Note 17. 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,		
	2014	2013	2012
Customers:			
Merck	24%	39%	13%
Exela	21%	15%	—%
GSK	17%	—%	—%
Novartis	*	14%	1%
Shell	—%	—%	51%

* Percentage was less than 10%

Customers that contributed 10% or more of our net revenue who also had an accounts receivable balance for the periods presented were as follows:

	Percentage of Accounts Receivables as at December 31,	
	2014	2013
Customers:		
Merck	63%	—%
GSK	2%	—%
Novartis	*	50%

* Revenue Percentage was less than 10%, accounts receivable balance not applicable

Geographic Information

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

	Years Ended December 31,		
	2014	2013	2012
Revenues			
United States	$16,136	$11,005	$51,714
Europe	15,067	9,568	11,150
Asia			
India	919	3,099	16,813
Singapore	1,435	7,220	7,507
Others	1,637	1,030	1,114
Others	113	—	—
	$35,307	$31,922	$88,298

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,	
	2014	2013
Long-lived assets		
United States	$10,475	$16,189
Europe (1)	—	2,123
Asia	—	—
	$10,475	$18,312

(1) Primarily Hungary

Note 18. Restructuring

Q1 2012 Restructuring Plan

During the first quarter of 2012, the Board approved and committed to a restructuring plan (the “Q1 2012 Restructuring Plan”) to reduce its cost structure, which included a total of 13 employee terminations in Hungary, Singapore, and the United States. Costs of $572,000 were originally recognized in selling, general and administrative expenses during the year ended December 31, 2012, comprised of employee severance and other termination benefits. We made cash payments of $512,000 and recorded $60,000 of reductions to previously recorded charges during 2012 and have no further obligations under this restructuring plan.

Q3 2012 Restructuring Plan

As a result of the termination of the Shell Research Agreement, we initiated a series of cost reduction measures. During the third quarter of 2012, the Board approved and committed to a restructuring plan (the “Q3 2012 Restructuring Plan”) to reduce its cost structure which included approximately 173 employee terminations in the United States and Singapore and the closing of our Singapore facility. Approximately 150 of the total 173 employee terminations impacted the research and development functions with the remaining 23 employees impacted the general and administrative functions.

Our cost of the Q3 2012 Restructuring Plan was $2,418,000, comprised of $1,071,000 of leasehold improvement write down, $684,000 for employee severance and other termination benefits, $320,000 for facility lease termination costs and $342,000 for equipment disposal charges. For the twelve months ended December 31, 2012, costs of $1,470,000 have been recognized in selling, general and administrative expenses and $948,000 have been recognized in research and development on the consolidated statements of operations. As of December 31, 2013, there was $68,000 recorded in accrued compensation and $352,000 recorded as accrued expenses on the consolidated balance sheet and the remaining payments were made in 2013. We do not anticipate recording any further costs under this restructuring plan.

Q4 2013 Restructuring Plan

During the fourth quarter of 2013, the Board approved and committed to a restructuring plan (the "Q4 2013 Restructuring Plan") to reduce its cost structure resulting from our decision to begin winding down its 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 $809,000 of employee severance and other termination benefits have been recognized, consisting of $573,000 in research and development expenses and $236,000 in selling, general and administrative expenses. As of December 31, 2013, there was $277,000 recorded in accrued compensation on the consolidated balance sheet. Associated with the Q4 2013 Restructuring Plan, we announced we were selling certain research and development assets that have become excess to future requirements (see Note 9). We do not anticipate recording any further costs under this restructuring plan.

The following table summarizes the activity in the restructuring accrual during the periods presented (in thousands):

	Q1 2012 Restructuring Plan	Q3 2012 Restructuring Plan	Q4 2013 Restructuring Plan	Total
Restructuring charges	$572	$2,537	$—	$3,109
Cash payments	(512)	(611)	—	(1,123)
Leasehold improvements write-down and equipment disposal charges	—	(1,413)	—	(1,413)
Adjustments to previously accrued charges	(60)	(93)	—	(153)
Balance at December 31, 2012	—	420	—	420
Restructuring charges	—		809	809
Cash payments	—	(345)	(532)	(877)
Non-cash items	—	(49)	—	(49)
Adjustments to previously accrued charges	—	(26)	—	(26)
Balance at December 31, 2013	—	—	277	277
Cash payments	—	—	(238)	$(238)
Adjustments to previously accrued charges	—	—	(39)	$(39)
Balance at December 31, 2014	$—	$—	$—	$—

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Selected Quarterly Financial Data (Unaudited)

The following table provides the selected quarterly financial data for 2014 and 2013 (in thousands):

Condensed Consolidated Statements of Operations

(In Thousands, Except Per Share Amounts)

	Quarter Ended (1)							
	December 31, 2014	September 30, 2014	June 30, 2014	March 31, 2014	December 31, 2013	September 30, 2013	June 30, 2013	March 31, 2013
Revenues:								
Biocatalyst product sales	$4,741	$ 2,562	$2,776	$2,985	$ 5,263	$ 1,076	$4,948	$9,136
Biocatalyst research and development	7,769	3,364	1,666	2,146	1,931	2,028	1,609	1,300
Revenue sharing arrangement	1,681	1,546	2,128	1,943	2,331	839	417	1,044
Total revenues	14,191	7,472	6,570	7,074	9,525	3,943	6,974	11,480
Costs and operating expenses:								
Cost of biocatalyst product sales	3,547	1,532	2,123	2,524	4,764	494	3,631	5,665
Research and development (2)	5,047	5,038	7,733	4,834	8,829	6,831	8,624	7,322
Selling, general and administrative (2)	5,147	5,157	5,625	6,112	5,783	5,832	7,169	8,124
Total costs and operating expenses	13,741	11,727	15,481	13,470	19,376	13,157	19,424	21,111
Income (loss) before income taxes	403	(4,255)	(8,911)	(6,396)	(9,858)	(9,227)	(12,617)	(9,688)
Net income (loss)	$345	$ (4,562)	$(8,479)	$(6,375)	$ (9,813)	$ (9,262)	$(12,606)	$(9,623)
Net income (loss) per share, basic and diluted	$0.01	$ (0.12)	$(0.22)	$(0.17)	$ (0.26)	$ (0.24)	$(0.33)	$(0.25)
Weighted average common shares used in computing net loss per share, basic and diluted (3)	38,641	38,450	37,980	38,506	38,329	38,102	38,060	37,842

(1) The 2014 and 2013 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.

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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, 2014. 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, 2014 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, 2014 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, 2014. We reviewed the results of management’s assessment with our Audit Committee.

Our internal control over financial reporting as of December 31, 2014 has been audited by BDO USA, LLP, an independent registered public accounting firm, as stated in their report which is included in Part II, 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, 2014 which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

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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 2015 (the "2015 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 2015 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 2015 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 2015 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 2015 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 5, 2015

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 5, 2015
/s/ Gordon Sangster Gordon Sangster	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	Date: March 5, 2015
/s/ Thomas R. Baruch Thomas R. Baruch	Chairman of the Board of Directors	Date: March 5, 2015
/s/ Pam Cheng Pam Cheng	Director	Date: March 5, 2015
/s/ Byron L. Dorgan Byron L. Dorgan	Director	Date: March 5, 2015
/s/ Kathy Glaub Kathy Glaub	Director	Date: March 5, 2015
/s/ Bernard J. Kelley Bernard J. Kelley	Director	Date: March 5, 2015
/s/ Dennis P. Wolf Dennis P. Wolf	Director	Date: March 5, 2015
/s/ Patrick Y. Yang Patrick Y. Yang	Director	Date: March 5, 2015

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*	Fourth Amended and Restated Investor Rights Agreement dated November 13, 2007.
4.3*	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.
4.4*	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.
4.5*	Warrant to purchase shares of Common Stock issued to Alexandria Equities, LLC.
4.6*	Registration Rights Agreement among the Company, Jülich Fine Chemicals GmbH and the other parties named therein, dated February 11, 2005.
4.7*	Fifth Amended and Restated Voting Agreement dated March 4, 2009.
4.8*	Amendment to Fifth Amended and Restated Voting Agreement dated February 25, 2010.
10.1A†*	Amended and Restated Collaborative Research Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of November 1, 2006.
10.1B†*	Amendment to the Amended and Restated Collaborative Research Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of March 4, 2009.
10.1C†*	Amendment No. 2 to the Amended and Restated Collaborative Research Agreement, by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of February 23, 2010.
10.2A†*	Amended and Restated License Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of November 1, 2006.

10.2B*	Amendment to the Amended and Restated License Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of March 4, 2009.
10.2C†*	Exclusive Negotiation Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of July 10, 2012 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 7, 2012).
10.2D*	Agreement by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US effective as of August 31, 2012 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 7, 2012).
10.3†*	Collaborative Research and License Agreement by and among the Company, Iogen Energy Corporation and Equilon Enterprises LLC dba Shell Oil Products US effective as of July 10, 2009.

Exhibit No.	Description
10.4†*	License Agreement by and among the Company, Dyadic International (USA), Inc. and Dyadic International, Inc. effective as of November 14, 2008.
10.5A†*	Product Supply Agreement by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.5B†*	Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.5C†*	Memorandum of Understanding for Transfer Pricing and Royalty Calculation by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.5D†*	Memorandum of Understanding for Transfer Pricing by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.5E	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).
10.5F	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).
10.5G†	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).
10.5H†	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).
10.5I†	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).
10.5J	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).
10.5K†	

	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).
10.6A*	Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of February 1, 2004.
10.6B*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of June 1, 2004.
10.6C*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 9, 2007.
10.6D*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 31, 2008.

Exhibit No.	Description
10.6E	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).
10.6F	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).
10.6G	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).
10.7+*	Codexis, Inc. 2002 Stock Plan, as amended, and Form of Stock Option Agreement.
10.8+*	Codexis, Inc. 2010 Equity Incentive Award Plan and Form of Stock Option Agreement.
10.9+	Transition and Separation Agreement by and between the Company and Alan Shaw dated as of February 17, 2012 (incorporated by reference to Exhibit 10.11B to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2011, filed on March 5, 2012).
10.10+*	Offer Letter Agreement by and between the Company and Douglas T. Sheehy dated as of February 26, 2007.
10.11+*	Transition and Separation Agreement by and between the Company and David L. Anton dated as of July 24, 2013 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, filed on August 9, 2013).
10.12A+*	Consulting Agreement by and between the Company and Alexander A. Karsner dated as of December 14, 2009.
10.12B+	Consulting Agreement by and between the Company and Alexander A. Karsner dated as of January 1, 2014. (incorporated by reference to Exhibit 10.13B to the Company's Annual Report on Form 10-K for the year ended December 31, 2013, filed on March 13, 2014)
10.13*	Form of Indemnification Agreement between the Company and each of its directors, officers and certain employees.
10.14+*	Form of Change of Control Severance Agreement between the Company and certain of its officers.
10.15A*	Letters of Offer and Acceptance, dated as of September 28, 2009, by and between Codexis Laboratories Singapore Pte Ltd and the Economic Development Board of Singapore regarding the grant for the development of the Codexis Gene Shuffling Centre of Excellence.
10.15B†	Letters of Amendment and Acknowledgment, effective as of August 30, 2011, by and between Codexis Laboratories Singapore Pte Ltd and the Economic Development Board of Singapore regarding the grant from the development of the Codexis Gene Shuffling Centre of Excellence (incorporated by

	reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, filed on November 7, 2011).
10.15C	Letters of Amendment and Acknowledgment, effective as of May 22, 2012, by and between Codexis Laboratories Singapore Pte Ltd and the Economic Development Board of Singapore regarding the award from the development of the Codexis Gene Shuffling Centre of Excellence (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.16	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).
10.17A†	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).

Exhibit No.	Description
10.17B	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).
10.18A+	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).
10.18B+	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).
10.18C+	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).
10.19A†	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).
10.19B†	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).
10.20A†	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).
10.20B†	Amendment No. 1 to the License Agreement between Exela PharmaSci, 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) .
10.21+	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).
10.22	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).
10.23+	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).

10.24+	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).
21.1	List of Subsidiaries.
23.1	Consent of BDO USA, LLP, independent registered public accounting firm
23.2	Consent of Ernst & Young 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.
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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.