CODEXIS INC
Form 10-K
March 05, 2012
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended: December 31, 2011

¨ **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 (Address of Principal Executive Offices)	94063 (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 x

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 x

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 x 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 x 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 Form10-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	x
Non-accelerated filer	¨	Smaller reporting company	¨

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

The aggregate market value of voting common stock held by non-affiliates of Codexis as of June 30, 2011 was approximately $259.4 million based upon the closing price reported for such date on The NASDAQ Global Select Market.

As of February 23, 2012, there were 36,099,107 shares of the registrant s Common Stock, par value $0.0001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant s Definitive Proxy Statement to be filed with the Commission pursuant to Regulation 14A in connection with the registrant s 2012 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, 2011. 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.

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Codexis, Inc.

Annual Report on Form 10-K

For The Year Ended December 31, 2011

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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, estimate, 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. Particular uncertainties that could affect future results include: our ability to achieve or maintain profitability; our ability to obtain additional capital that may be necessary to expand our business; our relationships with and dependence on collaborators in our principal markets; our dependence on our collaborative research agreement with Shell for the development and commercialization of advanced biofuels, which agreement is set to expire in October 2012; our ability to obtain approval from Shell to begin collaboration with Raízen Energia Participações S.A. on cellulosic ethanol in Brazil; our dependence on, and need to attract and retain, key management and other personnel, including a replacement Chief Executive Officer and Chief Financial Officer; the feasibility of producing and commercializing biofuels and bio-based chemicals derived from cellulose; our dependence on a limited number of customers; our dependence on a limited number of products in our pharmaceutical business; our dependence on one contract manufacturer for commercial scale production of substantially all of our enzymes; the ability of Arch Pharmalabs Limited to market our pharmaceutical products effectively; our ability to maintain internal control over financial reporting; our ability to manage our growth; 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 improve pharmaceutical product gross margins; our ability to develop and successfully commercialize new products for the pharmaceuticals market; our ability to maintain license rights for commercial scale expressions systems for cellulases; fluctuations in the price of and demand for commodities that our enzymes can be employed to produce or for substitute commodities; the availability, cost and location of renewable cellulosic biomass sources; reductions or changes to existing biofuel regulations and policies; our ability to obtain and maintain governmental grants; risks associated with the international aspects of our business; our ability to integrate any businesses we may acquire with our business; potential issues related to 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; our ability to independently develop, manufacture, market, sell and distribute commercial cellulase enzymes; 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; the existence of government subsidies or regulation with respect to carbon dioxide emissions; and our ability to use our net operating loss carryforwards to offset future taxable income. 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, or SEC. The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date

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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.

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PART I

ITEM 1. BUSINESS

Company Overview

We are a producer of custom industrial enzymes. Our products enable novel, sustainable processes for the manufacture of biofuels, bio-based chemicals and pharmaceutical ingredients.

We are developing our flagship CodeXyme cellulase enzymes to convert non-food plant material, which we call cellulosic biomass, into affordable sugars, which can then be converted into renewable fuels and chemicals. We have been developing these cellulase enzymes with Royal Dutch Shell plc, or Shell, since 2006 for applications in the biofuels markets. We intend to market CodeXyme cellulase enzymes to chemicals manufacturers worldwide. We are also developing our own manufacturing processes for certain specialty and commodity bio-based chemicals, which we intend to commercialize with strategic partners. The first of these products is CodeXol detergent alcohols. Detergent alcohols are used to manufacture surfactants, which are key, active cleaning ingredients in consumer products such as shampoos, liquid soaps and laundry detergents.

We have commercialized our technology, products and services in the pharmaceuticals market. There are currently over 50 pharmaceutical firms using our technology, products and services in their manufacturing process development, including in the production of some of the world s bestselling and fastest growing drugs.

We create our products by applying our CodeEvolver directed evolution technology platform which introduces genetic mutations into microorganisms, giving rise to changes in the enzymes which they produce. Once we identify potentially beneficial mutations, we test combinations of these mutations until we have created variant enzymes that exhibit marketable performance characteristics superior to competitive products. This process allows us to make continuous, efficient improvements to the performance of our enzymes.

CodeXyme Cellulase Enzymes

Many of the fuels and chemicals that make modern, everyday life possible are derived from non-renewable petroleum resources. CodeXyme cellulase enzymes enable these same fuels and chemicals to be made from renewable resources, such as cellulosic biomass. Fuels and chemicals produced from these types of materials and wastes are known as second generation, next generation, or cellulosic products. Today, cellulosic fuels and chemicals are not manufactured at commercial scale because their unit production economics have not yet been shown to be competitive with incumbent petroleum-based fuels and chemicals. We believe CodeXyme cellulase enzymes will be a key factor in driving competitive production economics for cellulosic fuels and chemicals, thereby enabling their integration into global commodity markets and creating a sugar economy.

CodeXyme cellulase enzymes function by transforming cellulosic biomass into sugars, a process known as saccharification. The resulting sugars from saccharification can be converted into fuels and chemicals through fermentation. Our goal is to make CodeXyme cellulase enzymes the leader in the cellulase enzyme category.

Our partnership-driven commercialization strategy for CodeXyme cellulase enzymes is designed to leverage our primary competitive strength, which we believe is our ability to optimize the performance of CodeXyme cellulase enzymes rapidly for varying feedstocks and process conditions.

For the commercialization of CodeXyme cellulase enzymes in the fuels market, we are collaborating jointly with Shell and Iogen Energy Corporation, or Iogen, for the production of cellulosic ethanol from wheat straw and corn stover feedstocks. We have agreed to work exclusively with Shell in the production of cellulosic biofuels until November 2012. Shell is one of the world s largest distributors of biofuels, with about 2.5 billion gallons (9.5 billion liters) distributed in 2010.

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For the commercialization of CodeXyme cellulase enzymes in the chemicals market, our strategy is to collaborate with leading technology partners and customers to develop a proprietary, cost-effective saccharification process using our cellulase enzymes. For example, we are collaborating with Chemtex, a subsidiary of Gruppo Mossi & Ghisolfi, on the saccharification of various forms of cellulosic biomass for use in the production of CodeXol detergent alcohols.

Our Bio-Based Chemicals

We are also developing microorganisms that produce chemicals from cellulosic sugars. These microorganisms function as mini fermentation factories that convert sugars into specialty or commodity chemicals. Our first chemical development initiative is our bio-based CodeXol detergent alcohols program.

Detergent alcohols are used to manufacture surfactants, an active ingredient in consumer products, such as shampoos, liquid soaps and laundry detergents. The annual global market for detergent alcohols is approximately $4 billion, which represents approximately 2 million metric tons with an average selling price, or ASP, of approximately $2,000 per ton today. Major consumer products companies such as Procter & Gamble, Unilever and Henkel purchase or produce a majority of the surfactants derived from detergent alcohols. We plan to sell CodeXol detergent alcohols as a drop-in substitute for over 70% of the detergent alcohols market.

Currently, detergent alcohols are manufactured using two alternative processes. The process of manufacturing detergent alcohols using vegetable oils, such as palm, kernel and coconut oils, is known as the oleochemical production route. The process of manufacturing detergent alcohols using ethylene is known as the petrochemical production route. We believe that our CodeXol detergent alcohols process, by using cellulosic sugars, has the potential to offer attractive production economics compared to incumbent oleochemical and petrochemical production routes.

We are developing our fully integrated cellulosic CodeXol detergent alcohols manufacturing process, from feedstock to product, in collaboration with Chemtex. We believe that our CodeXol detergent alcohols process may be used with a wide variety of cellulosic biomass, including sugarcane bagasse, wheat straw, corn stover and various energy crops such as *Arundo donax*. We believe that this process has the potential to decrease the manufacturing costs of CodeXol detergent alcohols below current incumbent production costs. We also believe that in comparison to using oleochemical and petrochemical production routes, the raw materials of which raise concerns regarding deforestation, climate change and other environmental impacts, using CodeXol detergent alcohols in their manufacturing process would better enable major consumer products companies to achieve their sustainability and corporate social responsibility goals. One example of such corporate social responsibility goal is the Sustainable Living Plan announced by Unilever, under which Unilever is committed to sourcing 100% of its agricultural raw materials sustainably by 2020. We intend to bring this process to commercial scale by establishing manufacturing partnerships or by directly licensing our process technology to manufacturers.

We are also identifying promising biological routes for the production of other specialty and commodity chemicals from cellulosic sugars. We expect to partner with global chemicals manufacturing companies and consumer goods companies to develop and commercialize these potential new products.

Our Pharmaceutical Enzymes and Intermediates

We market and sell enzymes, development services and screening tools that enable novel manufacturing processes for active pharmaceutical ingredients, or 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.

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Our pharmaceutical products and services enable novel manufacturing processes that lower production costs and reduce capital intensity. These products and services provide numerous benefits to our customers, including:

- reducing the use of raw materials and intermediate products;
- 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; and
- reducing the need for late-stage purification steps.

We sell our products and services to both the generic and on-patent 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 Strategy

Become the leading supplier of cellulase enzymes. We intend to become a leading supplier of cellulase enzymes for manufacturers of second generation biofuels and bio-based chemicals globally. We expect that our customers will be able to use our CodeXyme cellulase enzymes to convert various cellulosic biomass to fermentable sugars efficiently and economically.

Develop and commercialize our technology in a capital-light partnership model. Our business model leverages our collaborators engineering, manufacturing and commercial expertise, their distribution infrastructure and their ability to fund commercial scale production facilities. For instance, if Shell commercializes biofuels using our technology, such as CodeXyme cellulase enzymes, Shell, or other parties selected by Shell, would design and build the commercial scale fuel production facilities and distribute the fuel to market. In the pharmaceuticals market, our supply relationship with contract manufacturing organizations, like Arch Pharmalabs Limited, or Arch, enables us to bring intermediates and/or APIs for branded pharmaceutical products to market with very limited additional capital.

Continue growing our pharmaceutical business. We intend to pursue new collaborations in the pharmaceutical industry to integrate our products and services more deeply into drug development and manufacturing processes for clinical stage and commercially approved pharmaceutical products. As part of that effort, we will continue to market our Codex® Biocatalyst Panels and our Codex® Biocatalyst Kits aggressively to pharmaceutical companies to demonstrate the capabilities of our technology platform.

Develop chemicals from cellulosic sugars. We intend to develop chemicals from cellulosic sugars instead of petroleum or other non-renewable feedstocks. Our first chemical development initiative is our bio-based CodeXol detergent alcohols program, which we are developing in collaboration with Chemtex. We are also identifying promising biological routes for the production of other specialty and commodity chemicals from cellulosic sugars.

Our CodeXyme Cellulase Enzyme Business

Industry Overview

The global economy is heavily dependent on petroleum. Many of the fuels and chemicals that are used throughout the world are derived from non-renewable petroleum and concerns about the long-term supply of petroleum and its price volatility have increased the desire to find renewable alternatives to this limited commodity. Many fuels and chemicals manufactures are looking for alternatives to non-renewable petroleum, including cellulosic biomass, as a feedstock for their products.

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Fuels and chemicals derived from corn starch, sugar cane or plant oils are called first generation products and those derived from cellulosic biomass (such as corn stover, wheat straw and sugar cane bagasse) are known as second generation, next generation or cellulosic products. In order to produce a cellulosic product successfully, a manufacturer must first pretreat the cellulosic biomass and then introduce cellulase enzymes into the manufacturing process. Together, these steps work to break down the cellulose and hemicellulose found in the cell walls of the cellulosic biomass into sugars. This process is commonly referred to as saccharification. These sugars can then be converted into biofuels and chemicals through fermentation. Producing second generation fuels and chemicals is a more complicated process than producing first generation products. As a result, most biofuel and bio-based chemical manufacturers have chosen to develop and commercialize first generation products.

Sources of cellulosic biomass vary greatly by plant species and geographic region. One of the challenges for manufacturing cellulosic products is the need for technology that can convert the vast array of cellulosic biomass found throughout the world into fermentable sugars. Solving this challenge requires cellulosic biofuels and chemicals manufacturers to develop innovative, robust cellulase enzymes that have greater product yield, are more cost-effective, and react quickly and continually under industrial conditions. We do not believe that anyone has successfully accomplished this goal cost-effectively and at commercial scale.

Our Solution: CodeXyme Cellulase Enzymes

We believe that CodeXyme cellulase enzymes will enable the production of cellulosic fuels and bio-based chemicals cost-effectively and at commercial scale. We believe CodeXyme cellulase enzymes will be a key factor in driving competitive production economics for cellulosic fuels and chemicals, thereby enabling their integration into global commodity markets. CodeXyme cellulase enzymes have the potential to convert a wide variety of cellulosic biomass into fermentable sugars, an important feature because the cellulosic biomass that we expect will be used to produce cellulosic products is highly variable from region to region and can change over time. To optimize the local and seasonal conversion of cellulosic biomass to fermentable sugars, we expect to customize our cellulase enzymes so that products manufacturers can select and customize the enzymes that they use at each production facility. This technical innovation may ultimately make our sugar platform feedstock agnostic. For example, CodeXyme cellulase enzymes convert both sugar cane bagasse and wheat straw to fermentable sugars. In addition, we licensed a commercial-scale enzyme production system from Dyadic International, Inc., or Dyadic, in 2008 that we expect will enable the cost-effective production of CodeXyme cellulase enzymes. We believe that the combination of our high-performing CodeXyme cellulase enzymes and the ability to produce these cellulase enzymes cost-effectively at commercial scale, will enable us to develop a scalable, global sugar platform that will provide us and our customers a competitive advantage in the cellulosic products market.

For the commercialization of our CodeXyme cellulase enzymes products in the fuels market, we are collaborating jointly with Shell and Iogen for the production of ethanol from wheat straw and corn stover. We have also agreed to work with Shell, one of the world s largest distributors of biofuels, exclusively in the production of cellulosic biofuels. Since 2006, we have been engaged with Shell in a research and development collaboration under which we are developing enzymes and microorganisms for use in producing cellulosic biofuels. Under our collaboration with Shell, Shell has the right, but not the obligation, to commercialize any technology that we develop in this Shell program. If Shell commercializes our biofuels technology, we will collect a royalty for every gallon of fuel that Shell produces using our technology. If Shell chooses to commercialize any biofuels products developed through our collaboration, we believe that the combination of our technology platform with Shell s proven product development capabilities and resources could enable a biofuels solution that extends from the conversion of cellulosic biomass into biofuels to delivery and distribution of biofuels to consumers at the pump.

For the commercialization of our CodeXyme cellulase enzymes in the bio-based chemicals market, our strategy is to collaborate with leading technology partners and customers to develop novel, cost-effective saccharification processes using our enzymes. For example, we are collaborating with Chemtex, a subsidiary of Gruppo Mossi & Ghisolfi, on the saccharification of various types of cellulosic biomass for use in the production of CodeXol detergent alcohols.

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Our Chemicals Business

Industry Overview

Detergent alcohols are used to manufacture surfactants, a key, active cleaning ingredient in consumer products such as shampoos, liquid soaps and laundry detergents. Sodium lauryl sulfate and ammonium lauryl sulfate are two such common surfactants. The annual global market for detergent alcohols is approximately $4 billion, which represents approximately 2 million metric tons with an ASP of approximately $2,000 per ton. Major consumer products companies, such as Procter & Gamble, Unilever and Henkel, purchase or produce a majority of the surfactants made from detergent alcohols.

Currently, detergent alcohols are manufactured using two alternative processes. The process of manufacturing detergent alcohols using vegetable oils, such as palm, kernel and coconut oils, is known as the oleochemical production route. The process of manufacturing detergent alcohols using ethylene is known as the petrochemical production route. The production economics of traditional detergent alcohol manufacturing routes are primarily based on the market prices of their respective feedstocks. Both ethylene and palm kernel oil prices have risen considerably in recent years, leading to a significant rise in the price of detergent alcohols. Between 2002 and 2008, global detergent alcohol prices rose from $2,000 per ton to over $3,000 per ton, and in early 2011, prices higher than approximately $4,000 per ton were observed for the first time in recent history before returning back to the $2,000 per ton range.

In addition to price volatility, consumer products companies face sustainability and corporate social responsibility issues with traditional detergent alcohols. The oleochemical route, which is also referred to as the production route, which as of 2009 accounted for over two-thirds of global detergent alcohol production, has led to concerns of deforestation due to the rapid expansion of palm oil plantations to meet growing demand. The petrochemical route, which is also referred to as the synthetic route, uses petroleum-based ethylene manufacturing processes that are also considered unsustainable. Many major consumer products companies today have adopted corporate social responsibility platforms in which they have pledged to their customers and stockholders that they will use sustainable, socially responsible materials in their commercial products. For example:

Unilever s Sustainable Living Plan sets specific goals including halving the environmental footprint of the company s products and sourcing 100% of the company s agricultural raw materials sustainably.

Procter & Gamble s Environmental Sustainability vision includes using 100% renewable or recycled materials for all products and packaging, and designing products that appeal to customers while maximizing conservation of resources.

Our Solution: CodeXol Detergent Alcohols

CodeXol detergent alcohols can act as a drop-in substitute for over 70% of the estimated $4 billion detergent alcohol market. We expect that CodeXol detergent alcohols will offer advantages in price-volatility, production economics and sustainability when compared to traditional detergent alcohols.

We are developing our CodeXol detergent alcohols manufacturing process, from feedstock to end product, in collaboration with Chemtex. Chemtex has licensed to us, on an exclusive basis in the field of detergent alcohols, its PROESA pretreatment technology, which we are integrating with CodeXyme cellulase enzymes to create fermentable sugars. Our proprietary microorganism will then convert these sugars into CodeXol detergent alcohols. We have agreed to use the PROESA pretreatment technology exclusively to produce CodeXol detergent alcohols. Similarly, Chemtex has agreed to work exclusively with us in the production of cellulosic detergent alcohols. We expect that Chemtex will pilot this manufacturing process using CodeXyme cellulase enzymes and their PROESA pretreatment technology in 2012. Chemtex will provide engineering services for the design and construction of our commercial facilities for the production of CodeXol detergent alcohols and we will market products resulting from the collaboration.

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CodeXol detergent alcohols are manufactured using a process which is amenable to various types of cellulosic biomass, including sugarcane bagasse, wheat straw, corn stover and various energy crops such as *Arundo donax*. We believe that this process has the potential to lower CodeXol detergent alcohols manufacturing costs and make them less volatile than current incumbent manufacturing costs. Our vision is to engage in long-term agricultural supply contracts for the cellulosic biomass needed to manufacture CodeXol detergent alcohols. We intend to bring this process to commercial scale by establishing manufacturing partnerships or by directly licensing our process technology to manufacturers.

Additionally, CodeXol detergent alcohols are better aligned with the sustainability and corporate social responsibility goals of major consumer products companies, like Unilever and Procter & Gamble, since it is sourced from sustainable and renewable cellulosic biomass.

Other Bio-based Chemicals Opportunities

We are also identifying promising biological routes for the production of other specialty and commodity chemicals from sugars. We expect to partner with global chemical manufacturing companies and consumer goods companies to develop and commercialize these potential new products. There are significant market opportunities in the chemical industry for companies that can help reduce or eliminate petroleum dependency, as well as costly and wasteful manufacturing processes.

Our Pharmaceutical Business

Our Opportunity in the Pharmaceutical Market

The pharmaceutical industry continues to represent a significant market opportunity for us. 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 products whose patents have expired, the importance of cost reduction is even higher, as the pharmaceutical manufacturers that developed those patent-protected drugs, known as innovators, compete with generics manufacturers.

The pharmaceutical product lifecycle begins with the discovery of new chemical entities and continues through preclinical and clinical development, product launch 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 active pharmaceutical ingredients, or APIs.

Our Solution for the Pharmaceutical Market

Our CodeEvolver directed evolution 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;

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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 FDA-approved product, we expect the innovator to continue to use these products or processes for the patent life of the approved drug.

After a product is launched, customers 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 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.

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 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 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. Over 50 customers, including leading pharmaceutical companies such as F. Hoffman-La Roche Ltd., GlaxoSmithKline plc, Merck, Novartis and Pfizer, have used our 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.

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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.

Our screening services:

- allow innovators to screen and identify possible enzymatic manufacturing processes rapidly and inexpensively through access to our extensive enzyme libraries; 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 the customers particular needs, ranging from small quantities for clinical trials to full commercial production, in all cases providing inexpensively produced, pure drugs.

We have provided screening services to numerous innovator and generic pharmaceutical manufacturers.

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 new 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. We have also entered into agreements

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with several leading contract manufacturing organizations, or CMOs, including Royal DSM N.V., or DSM, Dishman Pharmaceuticals and Chemicals, Ltd., and AMPAC, under which these CMOs can use our enzymes in their manufacturing processes.

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 are currently supplying Pfizer with an intermediate in the manufacture of Lipitor , a cholesterol-lowering drug that is the world s best-selling prescription drug. We also developed a key intermediate for boceprevir, which is Merck s hepatitis C drug. We have also developed enzymes for use in the manufacture of certain generic intermediates and APIs by various companies, including Arch and Teva Pharmaceutical Industries Ltd., or Teva. 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.

Our Ethanol Fermentation Business

First Generation Ethanol

We are collaborating with our largest stockholder, Raízen Energia Participações S.A., or Raízen, to improve Raízen s current first generation process for manufacturing ethanol from sugarcane. Raízen, a $12 billion Brazil-based joint venture between Shell and Cosan S.A. Indústria e Comércio, or Cosan, has annual production capacity of over 2 billion liters of ethanol, and is the world s largest producer of ethanol from sugar cane, with 600 million gallons produced in 2010. As part of this collaboration, we are developing enhanced yeasts that may improve Raízen s ethanol production yield. We are also developing enzymes that may be used to increase the efficiency of the first generation ethanol process.

Cellulosic Ethanol

The goal of our cellulosic ethanol program, as part of our broader biofuels collaboration with Shell and Iogen, is to develop specialized commercial yeasts that optimally produce high levels of ethanol from cellulose-derived sugars. Cellulosic biomass produces a mix of several types of sugars, including glucose, xylose and arabinose. Glucose is the main type of sugar in the mix and it is readily converted to ethanol by fermentation using commercial yeast. Xylose is another significant component of the mix but is not converted to ethanol by the yeast currently used in today s first generation ethanol production. Therefore, it is important to develop yeast that can rapidly convert not only glucose but also xylose and other sugars into ethanol. The yeast that we developed must be sufficiently robust to be able to produce ethanol in the presence of a variety of chemical compounds that have been shown to inhibit yeast activity.

Using a number of our core technologies we have developed a yeast strain that rapidly converts more of these sugars to ethanol under a range of industrial conditions, which should result in greater ethanol production and lower capital and ethanol production costs.

Additional Bioindustrial Opportunities

We believe that our CodeEvolver directed evolution technology platform, together with the knowledge and experience gained from our efforts in our cellulase enzyme and chemicals programs and in the

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pharmaceutical market, will allow us to capitalize on opportunities in other bioindustrial markets. One such opportunity that we have identified is in the carbon management market, where we are seeking to apply our technology platform to the management of carbon dioxide emissions from stationary point sources such as coal-fired power plants. We believe our biocatalysts have the potential to enhance the effectiveness of carbon capture processes in harsh industrial conditions. In June 2010, we received a $4.7 million ARPA-E Recovery Act program grant from the U.S. Department of Energy for development of innovative technology to remove carbon dioxide from coal-fired power plant emissions. This grant supports our development of biocatalysts for more efficient carbon capture from these plants. The grant term expires in July 2012.

Strategic Collaborations

Our strategic collaborations allow us to develop our products while operating our business with maximum capital efficiency. By collaborating with companies such as Shell and Arch, we are able to leverage both our CodeEvolver directed evolution technology platform and our collaborators strengths in production and distribution. This allows us to focus our capital on key areas such as research and development.

Shell and Other Biofuels Partners

We collaborate with Shell, to develop commercially viable fuels from cellulosic biomass. If Shell chooses to commercialize any biofuels products developed through our collaboration, we believe that the combination of our CodeEvolver directed evolution technology platform with Shell s proven project development capabilities and resources could enable a biofuels solution, from converting cellulosic biomass into biofuels that extends to delivering and distributing refined biofuels to consumers at the pump.

In November 2006, we entered into a research agreement with Shell. After exceeding targets related to biocatalyst performance under the research agreement, we entered into a new research and development collaboration under a five year amended and restated collaborative research agreement in November 2007, which was amended further in March 2009 and February 2010. Under the terms of the amended and restated collaborative research agreement, we agreed to use our proprietary technology platform to discover and develop enzymes and microorganisms for use in converting cellulosic biomass into biofuels and related products. We received an up-front payment of $20 million in 2007 upon signing the amended and restated collaborative research agreement. We have agreed to work exclusively with Shell until November 2012 to convert cellulosic biomass into fermentable sugars that are used in the production of fuels and related products and to convert these sugars into fuels and related products. However, Shell is not required to work exclusively with us, and could develop or pursue alternative technologies that it decides to use for commercialization purposes instead of any technology developed under our collaborative research agreement. Even if Shell decides to commercialize products based on our technologies, they have no obligation to purchase their enzymes or microorganisms from us. The up-front fee is refundable under certain conditions, such as a change in control in which we are acquired by a competitor of Shell. This refundability lapses ratably on a straight-line basis over a five-year period which started in November 2007 and which ends in November 2012.

In March 2009, we agreed to devote to the research and development collaboration 128 full-time employee equivalents, or FTEs, which Shell funded at an annual base rate per FTE of $441,000 for FTEs located in the United States, and $350,000 for FTEs located in Hungary. These annual base rates per FTE have been subject to annual adjustments based on changes in the consumer price index for the United States and Hungary for each subsequent year of the collaboration. Shell has the right to reduce the number of funded FTEs, with any one reduction not to exceed 98 funded FTEs, following advance written notice. The required notice period ranges from 30 to 270 days. Following any such reduction, Shell is subject to a standstill period of between 90 and 360 days during which period Shell cannot provide notice of any further FTE reductions. The notice and standstill periods are dependent on the number of funded FTEs reduced, with the length of notice and standstill periods increasing commensurately with the number of FTEs reduced. Effective August 2011, Shell reduced the number of FTEs engaged in our joint research and development collaboration from 128 to 116. We are also eligible for

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annual milestone payments that are contingent upon the achievement of certain technical goals, and a milestone payment of $10.0 million upon achievement of certain commercial goals. Our technical goals have included filing patent applications relating to our development program, and matching predetermined benchmarks for the production of sugars from pre-treated cellulosic biomass using our cellulases and the production of ethanol from cellulosic biomass. We have met or exceeded the vast majority of our milestones to date.

Shell can terminate the amended and restated collaborative research agreement, which is currently scheduled to expire in October 2012 unless extended by the parties, for any or no reason by providing us with at least nine months notice. We will have the right to terminate the amended and restated collaborative research agreement upon 90 days notice if Shell decides to fund less than a certain number of our FTEs in the performance of activities under the amended and restated collaborative research agreement and provided certain other conditions are met. Each party also has the right to terminate the agreement in the case of a breach by the other party if such breach is uncured within 60 days. Each party also can terminate the agreement if such party believes the other party has assigned the agreement to a direct competitor of such party in the field of converting cellulosic biomass into fermentable sugars that can be converted into fuels and related products.

Under our agreements with Shell, we retain ownership of all intellectual property we develop, other than patent rights related to certain fuel innovations, and Shell will have an exclusive license to such intellectual property we develop. If we acquire or license technology from third parties for the purpose of these research activities, we will own or control such intellectual property while Shell will be granted a license in its field of use for research and commercial use consistent with the licenses granted to Shell, under the license agreements.

In November 2006, we also entered into a license agreement with Shell, which was amended and restated in November 2007, and further amended in March 2009. Under the terms of the amended and restated license agreement, we granted to Shell a worldwide, exclusive, royalty-bearing license, including the right to grant sublicenses, to manufacture, have manufactured, use, sell, offer for sale and import any product covered by our Shell-program patents or which utilizes our technology for use in the field of converting cellulosic biomass into biofuels and related products. The patents and technology licensed include our then existing patent rights and technology and patent rights and technology developed or acquired during performance of the research agreement, in each case related to converting cellulosic biomass into biofuels and related products. We additionally granted Shell royalty-free licenses which allow Shell to manufacture or have manufactured enzymes and microorganisms developed under the research agreement solely for the purposes of using such enzymes and microorganisms in the manufacture of products for use in the field of converting cellulosic biomass into biofuels and related products, such licenses to be used only in accordance with the royalty-bearing license described above. These royalty-free licenses are (i) an exclusive license under the patents and technology related to converting cellulosic biomass into biofuels and related products and developed or acquired during performance of the research agreement and (ii) a non-exclusive license to patents and technology controlled by us that are necessary or useful for converting cellulosic biomass into biofuels and related products.

Shell will be required to pay us a royalty per gallon with respect to certain fuel products manufactured using our technology platform, including liquid fuels, fuel additives and lubricants, if Shell or any of its licensees manufactures such products. The applicable fuel products are those products which are covered by patents or utilize technology related to converting cellulosic biomass into biofuels and related products that were either developed or acquired during performance of the research agreement or are controlled by us and necessary or useful for such purpose. With respect to cellulosic biomass converted into sugars, Shell agreed to pay us a royalty per gallon of fuel product made from those sugars. With respect to sugars converted into fuel, Shell agreed to pay us a separate royalty per gallon of fuel product made from those sugars. We may be entitled to receive one or both of these royalties depending on whether Shell uses our technology to commercialize one or both of these steps.

Shell can terminate the amended and restated license agreement for any or no reason by providing us with six months notice. If Shell terminates the amended and restated license agreement, Shell will no longer have the

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right to use any of our biofuels technology. Each party also has the right to terminate the amended and restated license agreement in the case of a breach by the other party if such breach is uncured within 60 days. The duration of the amended and restated license agreement differs for each of the fields of use covered by the license agreement, but for each field of use it continues until the later of (i) 20 years after the first sale of product licensed under the agreement in the field of use or (ii) expiration of the last to expire patents covering products licensed under the agreement in the field of use that were either developed or acquired during performance of the research agreement or are controlled by us and necessary or useful for such purpose.

In connection with our collaboration with Shell, we entered into a collaborative research and license agreement with Iogen and Shell in July 2009. Under the collaborative research and license agreement with Iogen and Shell, we agreed to collaborate with Iogen and Shell to develop technology relating to the conversion of cellulosic biomass to ethanol and to implement this technology at commercial scale. We solely own any inventions arising under the research activities pursuant to the collaborative research and license agreement that we invent or that we invent jointly with Shell. We also solely own any inventions that are invented jointly with Iogen, either with or without Shell, in certain defined areas, including certain fermentation and scale up processes for enzyme production, certain genes and related enzymes, certain gene expression systems, methods of developing novel biocatalysts, research tools, and certain technologies related to ethanol fermentations. Similarly, Iogen solely owns any inventions arising under the research activities that are invented by Iogen or by Iogen and Shell jointly. Iogen also solely owns any inventions that are invented jointly with Codexis, either with or without Shell, in certain other defined areas relating to Iogen s core technologies. Ownership of any inventions that are jointly invented by us and Iogen and that fall outside the scope of the defined areas of sole ownership are jointly owned. Inventions that we own under the collaborative research and license agreement are subject to the licenses granted by us to Shell, as well as the payments from Shell to us, under our other agreements with Shell. Iogen has agreed to pay us a royalty per gallon with respect to certain fuel products, which include liquid fuels, fuel additives and lubricants, that are covered by inventions jointly made by us and Iogen, but that are solely owned by Iogen. We will be entitled to collect royalties from Shell for any use of our biofuels technology by Shell or Iogen. Shell can choose to commercialize cellulosic ethanol manufactured using our technology independently, or in collaboration with Iogen.

The term of the collaborative research and license agreement with Iogen and Shell shall continue until expiration or termination of our separate research and collaboration agreement with Shell (set to expire in November 2012, unless extended by the parties) or Iogen s separate technology development agreement with Shell. Shell can terminate the collaborative research and license agreement for any or no reason by providing us and Iogen with 30 days notice. Each party also has the right to terminate the collaborative research and license agreement in the case of breach by another party if that breach is uncured within 60 days.

In June 2011, subsidiaries controlled by Shell and Cosan formed Raízen. Raízen is a $12 billion Brazil-based biofuels joint venture with annual production capacity of over 2 billion liters of ethanol. Raízen has a retail network of 4,500 fuel stations, 24 sugar mills and an installed capacity of 900 MW of electric energy from sugar cane bagasse. In connection with the closing of the joint venture, Shell transferred all of its Codexis common stock to Raízen, together with all of Shell s rights and obligations under two Codexis stockholder agreements, the Fifth Amended and Restated Voting Agreement dated March 4, 2009, as amended, or the Voting Agreement, and the Fifth Amended and Restated Investor Rights Agreement dated March 4, 2009, or the Investor Rights Agreement. Raízen assumed all of Shell s rights under the Voting Agreement and the Investor Rights Agreement. As a result of the share transfer and the assignment of the Voting Agreement to Raízen, Raízen is now our largest stockholder, with approximately 15.7% of our total outstanding shares, and has the right to appoint a representative to our Board of Directors. In September 2011, we entered into a joint development agreement with Raízen to develop an improved first generation ethanol process with enhanced performance economics.

Dyadic

We have acquired access to a fungal expression system that is capable of producing enzymes at commercial scale through a license agreement with Dyadic and its affiliate in November 2008. Under the license agreement

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with Dyadic, we obtained a non-exclusive license relating to Dyadic s proprietary fungal expression technology for the production of enzymes. We can use these enzymes to make products in the fields of biofuels, certain pharmaceuticals, chemicals, air treatment, water treatment and the conversion of cellulosic biomass into fermentable sugars for use in non-fuel products. We also obtained access to specified materials of Dyadic relating to this Dyadic technology. Our license is sublicenseable to Shell in the field of biofuels, and sublicenseable to third parties in the non-biofuels fields of certain pharmaceuticals, chemicals, air treatment, water treatment and the conversion of cellulosic biomass into fermentable sugars for non-fuel products. Each party agreed that neither it nor its affiliates or sublicensees will assert any claim of infringement of any patent covering improvements to the Dyadic materials that were made by that party or its affiliates or sublicensees against the other party, or its affiliates, sublicensees, successors, distributors, or customers. We agreed to pay Dyadic certain license issuance fees, milestone payments, and fees based on volume of enzyme products sold or manufactured using this Dyadic technology. We have the right to terminate the license agreement at will upon notice after payment of the license issuance fees. Either party has the right to terminate the license agreement for a material breach of the other party that is uncured within a period of time after notice. Dyadic has the right to terminate our licenses under the license agreement if we challenge the validity of any of the patents licensed under the license agreement. Our licenses, and access to Dyadic s materials, under the license agreement will terminate as a result of any termination of the license agreement other than due to Dyadic s material breach.

Arch

We are collaborating with Arch of Mumbai, India in the manufacture and sale of certain specified APIs, and intermediates used in the manufacture of APIs, such as the API in Lipitor, that are produced using enzymes that we supply to Arch. Arch has extensive expertise in chemical process development and scale-up, and is a leading producer of intermediates and generic APIs in India.

We have had contractual arrangements with Arch since August 2006. In February 2010, we consolidated and modified certain of the contractual terms in our agreements with Arch by simultaneously terminating all of our existing agreements with Arch, other than the Master Services Agreement with Arch entered into as of August 1, 2006, and entered into two new agreements with Arch. These new agreements are a product supply agreement and an enzyme and product supply agreement, which we refer to as the Arch Agreements. Under the terms of the Arch Agreements, we supply certain enzymes to Arch for use in the manufacture of certain APIs, and intermediates used in the manufacture of APIs, all of which we refer to as the Collaboration Products. We granted Arch the exclusive right to use these enzymes to manufacture the Collaboration Products with certain specified exceptions. Arch has the exclusive right to manufacture and supply the Collaboration Products for us and on our behalf and we have agreed to purchase such Collaboration Products exclusively from Arch. Upon the occurrence of certain specified events, these exclusive rights may be converted to non-exclusive rights, including on a Collaboration Product-by-Collaboration Product basis, (1) for each Collaboration Product if, after two years, we determine that it is not commercially feasible to continue to supply enzymes for manufacture of such Collaboration Product and (2) for certain Collaboration Products if, after 18 months, Arch fails to make specified regulatory filings related to such product. Pursuant to the Arch Agreements, we have the exclusive right to sell the Collaboration Products to innovator pharmaceutical companies worldwide, generic pharmaceutical companies in the United States, Canada, Europe and Israel, and certain pharmaceutical companies in India. Arch has the exclusive right to manufacture, market and sell the Collaboration Products to generic pharmaceutical companies in countries other than the United States, Canada, Europe and Israel, and certain other pharmaceutical companies in India. Upon the occurrence of certain events, including the bankruptcy of our company, our failure to supply enzymes for the manufacture of a Collaboration Product or our determination that it is not commercially feasible to continue to supply enzymes for the manufacture of a Collaboration Product, Arch has an option to obtain the non-exclusive right, for a fee, under certain of our intellectual property rights to use and manufacture enzymes to manufacture and sell Collaboration Products to any third party.

The Arch Agreements will continue until February 2020 unless extended by mutual agreement or earlier terminated in accordance with their terms. Each party also has the right to terminate the Arch Agreements or

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convert the exclusive rights in the Arch Agreements to non-exclusive rights in their entirety or on a Collaboration Product-by-Collaboration Product basis in the case of certain material breaches by the other party.

We may to enter into additional agreements with Arch to manufacture additional intermediates and APIs, including the manufacture of products for innovator customers.

Technology

We engineer custom industrial enzymes and microorganisms, which we sometimes refer to as biocatalysts. In simple terms, our enzymes and microorganisms initiate or accelerate chemical reactions. We use our CodeEvolver directed evolution 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 we apply our technology platform to develop CodeXyme cellulase enzymes, CodeXol detergent alcohols and other bio-based chemicals.

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 evolution 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, biocatalyst immobilization (for stability and/or reuse), special equipment and costly product isolation and purification methods. We circumvent the need for these types of costly process design features 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 CodeEvolver directed evolution 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 tightly 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 in 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 a 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 multiplexed gene SOEing, or Splicing by Overlap Extension.

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With our proprietary gene shuffling methodology, we generate libraries of genes that have random combinations of the mutations we are testing. The pool of genes is used to transform host cells, which entails introducing the various genes, one each, into host cells. These cells are then segregated and 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 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 tool, ProSAR, 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. Earlier directed evolution methods did not separately evaluate individual mutations 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 bioinformatics software relates the screening results to the mutations and ranks the individual mutations with regard to their degree of benefit or detriment, relative to whichever process parameter(s) the screening tested. Using that 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 ProSAR results also help us develop ideas about new diversity to test. ProSAR, combined with efficient gene synthesis and high quality library generation methods, has 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 enough 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-driven shuffling of beneficial mutations, is a particularly effective approach, providing rapid gains in enzyme performance.

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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 our biofuels research and development collaboration with Shell, we are developing a library of cellulases that have the potential to convert a wide variety of cellulosic biomass sources into fermentable sugars. The cellulosic biomass that we expect will be used to produce advanced biofuels is highly variable from region to region and can change over time. To optimize the local and seasonal conversion of cellulosic biomass to fermentable sugars, we expect to customize the cellulases that Shell uses at each advanced biofuel production facility. This technical innovation may ultimately make our sugar platform feedstock agnostic.

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. As of December 31, 2011, Codex® Screening Kits were in use or evaluation in manufacturing process development at over 50 pharmaceutical companies worldwide.

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.

We are using our gene/enzyme optimization methodologies in our Shell program to optimize fermentation microbes, including optimization of:

native and introduced (non-native) cellulase genes for increased productivity in our cellulase production microbes;

an introduced (non-native) pathway in yeast for the conversion of xylose, a cellulose-derived sugar, to ethanol; and

an introduced (non-native) pathway in a microbe for the production of CodeXol detergent alcohols .

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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.

We are using our Whole Genome Shuffling technology in our Shell program and our CodeXol detergent alcohols program to optimize fermentation microbes, including optimization of:

- enzyme production hosts for increased production of cellulase enzymes;
- ethanol-producing yeasts for improved xylose utilization, ethanol productivity, and tolerance to higher ethanol concentrations; and
- our detergent alcohol producing strain for increased productivity.

Metabolic Engineering and Synthetic Biology

In addition to our proprietary enzyme and microbe optimization technologies, we have built expert capabilities in a suite of new metabolic engineering technologies for the development and optimization of fermentation microbes. These technologies are generally applicable to our pathway and strain engineering programs. 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 in our gene and metabolic pathway optimization projects. This information is being leveraged by our ProSAR software and multiplexed gene SOEing methodologies. For example, we use synthetic biology in our Shell program to introduce non-native pathways for xylose utilization and to optimize these pathways.

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

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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, 2011, we owned or controlled approximately 270 issued patents and approximately 280 pending patent applications in the United States and in various foreign jurisdictions. These patents and patent applications are directed to our enabling technologies and specific methods and products that support our business in the pharmaceutical and bioindustrial markets. The earliest that any of our intellectual property rights will expire is 2014. The issued patents covering our fundamental shuffling technologies have terms ending as late as 2019. Our U.S. intellectual property rights directed to our second generation enabling technologies have terms that expire from year 2021 to 2024. 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 Maxygen s directed evolution technology, known as the MolecularBreeding technology platform, 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 will continue to be subject to existing license rights previously granted by Maxygen to third parties, including Perseid Therapeutics LLC, or Perseid, and to Novozymes A/S, or 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, including biofuels. Novozymes did not receive a license to all of the rights we are using in 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. As part of the transaction, Maxygen placed $4 million of the total purchase price in escrow. As of December 31, 2011, $2 million of the escrowed purchase price has been released to Maxygen. The remaining $2 million remains subject to the escrow arrangement to satisfy any indemnification obligations of Maxygen with respect to the transaction. Escrow amounts not used to satisfy such obligations or subject to pending claims will be released to Maxygen in September 2012.

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.

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Our registered and pending U.S. and foreign trademarks include Codexis®, Codex®, CodeEvolver , CodeXporter , CodeXol CodeXyme , Powered by CodeEvolver , Driving the New Sugar Economy , We re Codexis. Proven Products. Real Results , Bringing Life to Chemistry, 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.

Competition

Overview

We are a leader in the field of directed molecular evolution of biocatalysts. We are aware that other companies, including DSM, E.I. DuPont De Nemours and Company, or DuPont, and Vercipia Biofuels, an affiliate of BP p.l.c., 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.

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We also face differing forms of competition in our various markets, as set forth below:

Cellulases

Many established companies are developing cellulases that could potentially compete with CodeXyme cellulases, including:

- Novozymes, which has partnered with Gruppo Mossi & Ghisolfi, or M&G, in Italy to be the cellulase supplier to a commercial scale cellulosic ethanol plant being built by M&G;
- DuPont, which is marketing a line of cellulases to convert cellulosic biomass into sugar;
- DuPont Danisco Cellulosic Ethanol, or DDCE, is marketing a line of cellulases to convert cellulosic biomass into sugar; and
- DSM, which received a grant from the U.S. Department of Energy to be the lead partner in a technical consortium including Abengoa Bioenergy New technologies, is developing cost effective enzyme technologies.

Although no company is currently converting cellulosic biomass into fermentable sugars at commercial scale, many of our competitors have been active in this area for many years, have invested significant resources in this effort, and have extensive patent portfolios regarding the relevant biocatalysts and related processes. In addition, several companies are focused on developing non-biocatalytic, thermochemical processes to convert cellulosic biomass into fermentable sugars. For example, Coskata, Inc. is developing a hybrid thermochemical-biocatalytic process to produce ethanol from a variety of feedstocks. Our cellulases will need to be competitive with all of these alternative products on price and performance. New companies continue to enter this marketplace. Many of these companies are actively developing and applying for intellectual property rights, including patent rights, in this space.

Detergent Alcohols and Bio-based Chemicals

We announced CodeXol detergent alcohols in 2011. We face competition in this market from Sasol, Shell, BASF, Kao Corporation and Liaoning Huaxing, all of which have been active in the detergent alcohol marketplace for many years and have an established history with customers. We expect to pursue other bio-based chemical opportunities, where we will face competition from numerous companies focusing on developing biocatalytic and other solutions for these markets, including a number of the companies described above.

Pharmaceuticals

Our primary competitors in the pharmaceutical market 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, 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, there are many large well-established fine chemical manufacturing companies that compete to supply pharmaceutical intermediate and APIs to our customers, such as DSM, BASF Corporation and Lonza Group Ltd. Finally, we face increasing competition from generic pharmaceutical manufacturers in low cost centers such as India and China.

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In addition to competition from companies manufacturing intermediates and APIs, we face competition from companies that sell enzymes for use in the pharmaceutical market. The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, such as Novozymes and Amano Enzyme Inc., whose industrial enzymes (for detergents, for example) are occasionally used in pharmaceutical processes. There is also competition in this area from several small European companies with relatively limited product offerings comprised primarily of naturally occurring enzymes. In addition to these enzyme supply companies, there is a separate group of small companies, also predominately in Europe, that offers enzyme optimization services.

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.

Ethanol

There is increasing interest and activity in the bioindustrial market directed towards developing alternative manufacturing processes for products that have traditionally been derived from fossil fuel sources, such as transportation fuels. Currently, most biofuels being produced at commercial scale are ethanol derived from sugar and starch food sources, such as sugar cane and corn, and biodiesel produced from vegetable oils, such as soy oil. These markets are well-established with multiple companies, such as The Archer Daniels Midland Company, Cargill and a number of smaller companies producing ethanol in the United States, and Shell producing ethanol in Brazil.

Our ability to remain competitive in this area will depend on our ongoing technical success in identifying and developing novel biocatalytic routes to fuel products that are cost-competitive not only with other biofuels but with petroleum-based fuels. Several of our competitors utilize synthetic biology techniques to develop their products. Because these techniques have been in the public domain for many years, we are able to use these techniques together with our gene and genome directed evolution technologies. We believe that one of our principal advantages, particularly in the bioindustrial space, is that our directed evolution technology may enable us to develop new, more efficient, and therefore more cost-effective, biocatalysts and processes in less time than our competitors.

Operations

We conduct substantial operations outside of the United States. We have facilities located throughout the world, including in Redwood City, California, Singapore, and Budapest, Hungary. As of December 31, 2011, we employed 347 people worldwide, with 260 of our employees located in Redwood City. Please see Note 13 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 outside of the United States.

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. In 2007, we established a research and development facility in Singapore to reduce our pharmaceutical research and development costs and to take advantage of the highly educated and skilled labor force in Singapore. In 2008, we established our facilities in Budapest, Hungary to create a research and development center for microbial biocatalyst improvement and fermentation development and to reduce our research and development costs. Hungary also has a highly educated and skilled work force that leverages the long history of fermentation development in Eastern Europe. Our facilities in Hungary are currently used primarily for cellulase research and development.

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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. We also conduct biocatalyst evolution, biocatalyst screening and bioprocess development in Singapore. Our facility in Hungary collaborates with our headquarters in Redwood City in research and development activities relating to microbe improvement and is our center of excellence for strain and fermentation development.

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.

We rely on a contract manufacturer, Lactosan GmbH & Co. KG, or Lactosan, to manufacture substantially all of the commercial enzymes used in our pharmaceutical business. We have qualified other contract manufacturers to manufacture biocatalysts for our pharmaceutical business, but we do not currently rely on them for any of our supply requirements. We also rely on Arch, headquartered in Mumbai, India, to manufacture certain of our pharmaceutical intermediates and APIs as well as to provide sales and marketing support for these products in Asia, Latin America and the Middle East, and marketing support for these products in India, the United States, Canada, Europe and Israel. In addition, we contract with other suppliers in Austria, Germany, Italy and India.

We intend to rely on contract manufacturers for the production of CodeXyme cellulase enzymes for our biofuels and bio-based chemical businesses.

Employees

As of December 31, 2011, we had 347 employees. Of these employees, 250 were engaged in research and development, 20 were engaged in manufacturing and operations, and 77 were engaged in general and administrative activities, respectively. We may expand our research and development activities. To support this growth, we may need to expand managerial, research and development, operations, finance and other functions. None of our employees are represented by a labor union, and we consider our employee relations to be good.

Corporate and Available Information

Our principal corporate offices are located at 200 Penobscot Drive, Redwood City, California 94063 and our telephone number is (650) 421-8100. We were incorporated in Delaware in January 2002.

Our internet address is www.codexis.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities Exchange Commission, or 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.

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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, 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. 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. We have encountered and will continue to encounter risks and difficulties frequently experienced by growing 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 and in our annual report on Form 10-K:

- our ability to achieve or maintain profitability;
- our ability to obtain substantial additional capital that may be necessary to expand our business;
- our relationships with and dependence on collaborators in our principal markets;
- our dependence on our collaborative research agreement with Shell for the development and commercialization of advanced biofuels, which agreement is set to expire in October 2012;
- our ability to obtain approval from Shell to begin collaboration with Raízen on cellulosic ethanol in Brazil;
- the feasibility of producing and commercializing biofuels derived from cellulose;
- our dependence on, and the need to attract and retain key management and other personnel, including a permanent Chief Executive Officer and a permanent Chief Financial Officer;
- our dependence on a limited number of customers;

our dependence on a limited number of products in our pharmaceutical business;

our dependence on one contract manufacturer for commercial scale production of substantially all of our enzymes;

the ability of Arch to market our pharmaceutical products effectively;

our ability to maintain internal control over financial reporting;

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our ability to manage our growth;

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 gross margins;

our ability to develop and successfully commercialize new products for the pharmaceuticals market;

our ability to maintain license rights for commercial scale expression systems for cellulases;

fluctuations in the price of and demand for commodities that our enzymes can be employed to produce or for substitute commodities;

the availability, cost and location of renewable cellulosic biomass sources;

reductions or changes to existing biofuel regulations and policies;

our potential bio-based chemical products might not be approved or accepted by our customers;

our ability to independently develop, manufacture, market, sell and distribute commercial cellulase enzymes;

our ability to obtain and maintain governmental grants;

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;

the existence of government subsidies or regulation with respect to carbon dioxide emissions; 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 $20.3 million, $8.5 million and $16.6 million in 2009, 2010 and 2011, respectively. As of December 31, 2011, we had an accumulated deficit of $184.7 million. To date, we have derived a substantial portion of our revenues from research and development agreements with our collaborators and expect to derive a substantial portion of our revenues from these sources for the foreseeable future. If we are unable to extend our existing agreements or enter into new agreements upon

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the expiration or termination of our existing agreements, our revenues could be adversely affected. In addition, some of our collaboration agreements provide for milestone payments and future royalty payments, which we will only receive if we and our collaborators develop and commercialize products. We also expect to spend significant amounts to fund the development of additional pharmaceutical and potential bioindustrial products, including our CodeXyme cellulase enzymes, CodeXol detergent alcohols and other products for the advanced biofuel and bio-based chemicals markets. 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 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, including investing in our CodeXyme cellulase enzymes and CodeXol detergent alcohols business opportunities. Although we believe that, based on our current level of operations and anticipated growth, 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 pharmaceutical business, continued funding from Shell for our cellulase and ethanol programs, our spending 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 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.

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.

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. 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 their 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

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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 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, 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. Our collaboration opportunities could be harmed 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;
- 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 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, our business could be negatively affected if any of our collaborators or suppliers undergoes a change of control or were to otherwise assign the rights or obligations under any of our agreements. For example, under our license agreement with Shell, Shell may assign the agreement without our consent to controlled affiliates or in connection with a change of control. If Shell or any of our other collaborators were to assign these agreements to a competitor of ours or to a third party who is not willing to work with us on the same terms or commit the same resources as the current collaborator, our business and prospects could be harmed.

We are heavily dependent on our collaborative research agreement with Shell, which will expire in November 2012 if not extended.

Our current business plan for biofuels is heavily dependent on our collaborative research agreement with Shell, which will continue to be critical to researching and developing successful biocatalysts for producing advanced biofuels. Advanced biofuels are transport fuels derived from non-petroleum and non-food based sources. Shell s efforts in commercializing advanced biofuels profitably will be critical to our future success. If we are unable to successfully execute on the development of advanced biofuels for Shell, our ability to expand into other bioindustrial areas may be significantly impaired, which will materially and adversely affect our ability to grow our business.

We cannot control the financial resources Shell devotes to our programs under the collaborative research agreement. Currently, we receive bi-monthly payments from Shell that are based on the number of full-time employee equivalents, or FTEs, that work on our research collaboration with Shell. The number of FTEs that work on the program, and the payments from Shell for these FTEs, are specified in our collaborative research agreement. Shell has the right to reduce the number of funded FTEs, with any one reduction not to exceed 98 funded FTEs, following advance written notice. The required notice period ranges from 30 to 270 days. Following any such reduction, Shell is subject to a standstill period of between 90 and 360 days during which period Shell cannot provide notice of any further FTE reductions. The notice and standstill periods are dependent on the number of funded FTEs reduced, with the length of notice and standstill periods increasing commensurate with the number of FTEs reduced. Effective August 2011, Shell reduced the number of funded FTEs engaged in our joint research and development collaboration from 128 to 116. Any further reduction could have a material

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adverse impact on our revenues and business plan for advanced biofuels. Moreover, disputes may arise between us and Shell, which could delay the programs on which we are working or could prevent the commercialization of products developed under our research and development collaboration. If that were to occur, we may have to use funds, personnel, equipment, facilities and other resources that we have not budgeted to undertake certain activities on our own. Disagreements with Shell could also result in expensive arbitration or litigation, which may not be resolved in our favor. Performance issues, program delays or termination or unbudgeted use of our resources may have a material adverse effect on our business and financial condition. Even if we successfully develop commercially viable technologies, our ability to derive revenues from those technologies will be dependent upon Shell s willingness and ability to commercialize them. Shell has the right, but not the obligation, to commercialize these technologies. If Shell decides to commercialize our technology, we would need to rely on Shell, or other parties selected by Shell, to design, finance and construct commercial scale advanced biofuel facilities, and operate commercial scale facilities at costs that are competitive with traditional petroleum-based fuels and other alternative fuel technologies that may be developed. Shell could merge with or be acquired by another company or experience financial or other setbacks unrelated to our research collaboration agreement that could adversely affect us.

We have agreed to work exclusively with Shell until November 2012 in the field of converting cellulosic biomass into fermentable sugars that are used in the production of fuels and related products as well as the conversion of these sugars into fuels and related products. However, Shell is not required to work exclusively with us, and could develop or pursue alternative technologies that it decides to use for commercialization purposes instead of the technology developed under our collaborative research agreement with Shell. For example, Shell is currently working with Virent Energy Systems to develop a thermo-chemical approach to developing biogasoline and biodiesel. Even if Shell decides to commercialize products based on our technologies, they have no obligation to purchase their biocatalyst supply from us. Our license agreement with Shell prohibits us from licensing any technology developed under the collaboration for the patent life of such technology, which could place us at a significant competitive disadvantage in the advanced biofuels market.

We cannot guarantee that our relationship with Shell will continue. Our collaborative research agreement with Shell expires in November 2012 unless extended by the parties. Shell can terminate its collaborative research agreement with us for any or no reason by providing us with nine months notice. Each party also has the right to terminate the license agreement and the collaborative research agreement in the case of an uncured breach by the other party, and to terminate the collaborative research agreement if that party believes the other party has assigned the collaborative research agreement to a direct competitor of the terminating party. Furthermore, in June 2011 Shell transferred all of its equity interests in us, together with its right to appoint one member to our board of directors, to Raízen Energia Participações S.A., or Raízen, a Brazil-based biofuels joint venture between Shell and Cosan S.A. If our collaboration with Shell were to end, we would likely need to find other collaborators to provide the financial assistance and infrastructure necessary for us to develop and commercialize our products and execute our strategy with respect to advanced biofuels. Failure to maintain this relationship would have a material adverse effect on our business, financial condition and prospects.

The success of our cellulosic ethanol program may be dependent on the performance of other parties.

In connection with our research and development collaboration with Shell, we entered into a multiparty collaborative research and license agreement with Shell and Iogen in July 2009, which is focused on developing technology to convert cellulosic biomass to ethanol for commercial scale production. Either Shell or Iogen may fail to perform their obligations under this collaboration, may breach or terminate the collaboration agreement or otherwise fail to conduct their collaborative activities successfully and in a timely manner. Further, they may not devote sufficient resources to the development of technology to convert cellulosic biomass to ethanol or may fail to develop the technology altogether. Moreover, disagreements or conflicts amongst the parties could develop and could negatively impact our development efforts or our relationships with Shell and Iogen. Disagreements with Shell or Iogen could also result in expensive arbitration or litigation, which may not be resolved in our favor. If any of these events occur, or if we fail to maintain this collaboration with Shell and Iogen, we may be

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unable to develop technology for use in the production of cellulosic ethanol at commercial scale, which would have an adverse impact on our ability to grow our business. In addition, the collaborative research and license agreement with Shell and Iogen terminates in the event (i) our separate research agreement with Shell terminates(which agreement will expire in October 2012, unless extended by the parties) or (ii) Iogen s separate technology development agreement with Shell terminates. In addition, Shell can terminate the collaborative research and license agreement for any or no reason by providing us and Iogen with 30 days notice. Any unilateral action by Shell to terminate either its separate license agreements with us or Iogen will prevent any further research and development activities under the multi-party collaboration. As a result, our ability to pursue research and development activities relating to the conversion of cellulosic biomass and our biofuels programs may be adversely impacted.

We need approval from Shell to begin collaboration with Raízen on cellulosic ethanol in Brazil.

Under our current commercial arrangement with Shell, we have agreed to work exclusively with Shell on second generation biofuels. We will need approval from Shell before we can collaborate with Raízen on any projects involving the production of cellulosic ethanol in Brazil. We do not know when, or if, this approval from Shell will be granted. Our business plan will be significantly impaired if we are not allowed to deploy our cellulosic ethanol technology in Brazil with Raízen.

Production and commercialization of biofuels and bio-based chemicals derived from cellulose may not be feasible.

We are developing CodeXyme cellulase enzymes for use in producing advanced biofuels and bio-based chemicals. However, production and commercialization of cellulosic biofuels and bio-based chemicals may not be feasible for a variety of reasons. For example, the development of technology for converting sugar derived from cellulosic biomass into a commercially viable biofuel or bio-based chemical is still unproven, and we do not know whether this can be done commercially or at all. To date, there has been limited private and government funding for research and development in advanced biofuels relative to the scope of the challenges presented by this development effort. Furthermore, there have been only a few well-directed public policies emphasizing investment in the research and development of, and providing incentives for the commercialization of and transition to, biofuels.

As of the date of this report, we believe that there are no commercial scale cellulosic biofuel or cellulosic bio-based chemicals production plants in operation. There can be no assurance that anyone will be able or willing to develop and operate these production plants at commercial scale or that any of these facilities can be profitable. Additionally, different cellulases may need to be developed for use in different geographic locations to convert the cellulosic biomass available in each locale into sugars that can be used in the production of these biofuels or bio-based chemicals. This will make the development of biofuels or bio-based chemicals derived from cellulose more challenging and expensive. Moreover, substantial development of infrastructure will be required for the ethanol market to grow. Areas requiring expansion include, but are not limited to, additional rail capacity, additional storage facilities for ethanol, increases in truck fleets capable of transporting ethanol within localized markets, expansion of refining and blending facilities to handle ethanol, logistics for the collection and storage of cellulosic biomass and growth in the fleet of end user vehicles capable of using ethanol blends. Substantial investments required for infrastructure changes and expansions may not be made on a timely basis or at all. Any delay or failure in making the changes to or expansion of infrastructure could harm demand or prices for ethanol and impose additional costs that would hinder its commercialization. Finally, if existing tax credits, subsidies and other incentives in the United States and foreign markets are phased out or reduced, the overall cost of commercialization of cellulosic biofuels will increase.

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If we lose key personnel, including key management personnel, or are unable to attract and retain additional personnel, including a permanent Chief Executive Officer and a permanent Chief Financial Officer, 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. We are currently conducting a search for a permanent Chief Executive Officer and a permanent Chief Financial Officer. Until we are able to hire a permanent Chief Executive Officer and a permanent Chief Financial Officer, we may be unable to manage our business effectively and it may be more difficult for us to hire and retain other personnel. Even if we are able to hire and retain a permanent Chief Executive Officer and a permanent Chief Financial Officer in a timely manner, we may continue to experience operational inefficiency and disruptions during the transition period.

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, particularly in the areas of biofuels and bio-based chemicals, 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 means 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. Additionally, we would be in breach of certain agreements, including our collaborative research agreement with Shell, if we fail to maintain a specified number of personnel.

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, 2010, our top five customers accounted for 85% of our total revenues, with Shell accounting for 62% of our total revenues. For the year ended December 31, 2011, our top five customers accounted for 77% of our total revenues, with Shell accounting for 51% of our total revenues. We expect a limited number of customers to continue to account for a significant portion oftoc 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.

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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. For the year ended December 31, 2011, we derived 83% of our product revenue from two pharmaceutical product families: statins, and hepatitis C therapies. 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.

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

We have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third party manufacturers for the commercial scale manufacturing of the enzymes used in our pharmaceutical and cellulase businesses.

We rely on one contract manufacturer for our pharmaceutical business, Lactosan GmbH & Co. KG, or Lactosan, to manufacture substantially all of the commercial enzymes used in our pharmaceutical business. Our pharmaceutical business, therefore, faces 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 qualified other contract manufacturers to manufacture enzymes for our pharmaceutical business, but we do not currently rely on them for any of our supply requirements. The failure of any contract manufacturers that we may use to supply manufactured product 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 products, could harm our relationships with our collaborators or customers and could negatively affect our revenues and operating results. For example, in 2008, we were required to secure an alternative source of certain enzymes when viruses infected the facilities of a contract manufacturer that we were using at the time. If this or any similar event disrupts the operations of any of our suppliers in the future, 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 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 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 capacity, 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.

We also expect to use contract manufacturers to produce our cellulase enzymes. Our cellulase business will encounter similar risks in engaging contract manufacturers as our pharmaceutical business in the event we elect to use contract manufacturers.

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We rely on Arch to market our products in certain regions, and Arch may not be able to effectively market our products.

Using our enzymes, Arch manufactures certain specified APIs and intermediates used in the manufacture of APIs, that we then purchase and have the right to sell to innovator pharmaceutical companies worldwide, generic pharmaceutical companies in the United States, Canada, Europe and Israel, and certain pharmaceutical companies in India. Arch has the exclusive right to manufacture market and sell such APIs and intermediaries to generic pharmaceutical companies in countries other than the United States, Canada, Europe and Israel, and certain other pharmaceutical companies in India. We must therefore rely on Arch for their financial resources and their marketing expertise for the commercialization of such APIs and intermediates in these regions. We cannot control Arch s level of activity or expenditures relating to the marketing of such products relative to the rest of their products or marketing efforts. Arch may fail to effectively market our products in these regions. Conflicting priorities, competing demands or other factors that we cannot control, and of which we may not be aware, may cause Arch to deemphasize such products. If we are unable to effectively leverage Arch s marketing capabilities or Arch does not successfully promote such products in the designated territories as our sole marketing partner, this could harm our business, our revenues and operating results, and our ability to bring such products to the marketplace.

We are required to assess our internal control over financial reporting in the future on an annual basis and any adverse findings from such assessment could impair our ability to accurately and timely report our results of operation and result in a loss of investor confidence in our financial reports, significant expenses to remediate any internal control deficiencies and adverse effects on our stock price.

Under Section 404 of the Sarbanes-Oxley Act, we are required to perform an annual evaluation of our internal control over financial reporting . Although, as of December 31, 2011, we concluded that our internal control over financial reporting was effective, we cannot make assurances that, in the future, material weaknesses or significant deficiencies will not exist or otherwise be discovered, a risk that is significantly increased in light of the complexity of our business and multinational operations. We need to maintain our processes and systems and adapt them as our business grows and changes in order to maintain compliance with Section 404, a process that is expensive, time-consuming and requires significant management attention. Furthermore, as we grow our business or acquire other businesses, our internal controls may become more complex and we may require significantly more resources to ensure they remain effective.

If we or our independent registered public accounting firm identify internal control deficiencies 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, significant expenses to remediate any such deficiencies, 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.

We may encounter difficulties managing our growth, which could adversely affect our business.

Our business has grown rapidly and this growth may continue in the future. Overall, we have grown from approximately 40 employees at the end of 2002 to approximately 347 employees as of December 31, 2011. Currently, we are working simultaneously on multiple projects targeting several markets. Furthermore, we are conducting our business across several countries, including countries in North America, South America, Europe and Asia. These diversified, global operations place increased demands on our limited resources and may require us to expand the capabilities of our administrative and operational resources and to attract, train, manage and retain qualified management, technicians, scientists and other personnel which we may be unable to do effectively. As our operations expand domestically and internationally, we will need to continue to manage multiple locations and additional relationships with various customers, collaborators, suppliers and other third parties. Our ability to manage our operations, growth, and various projects effectively may require us to make

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additional investments in our infrastructure to continue to improve our operational, financial and management controls and our reporting systems and procedures. In addition, we may not be able to successfully improve our management information and control systems, including our internal control over financial reporting, to a level necessary to manage our growth and we may discover deficiencies in existing systems and controls that we may not be able to remediate in an efficient or timely manner.

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

Our enzymes are used 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. Our business could be adversely affected if these final pharmaceutical 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, pharmaceutical products. Additionally, these pharmaceutical 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. If any pharmaceutical process that uses our enzymes 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. We do not expect product gross margins for our current generic products to improve in the near or long term, which may have a material adverse impact on our operating results and financial condition and cause our stock price to decline.

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

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

- pharmaceutical 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;
- 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 the pharmaceutical market from us on favorable terms, if at all;
- we may face product liability litigation, unexpected safety or efficacy concerns and pharmaceutical product recalls or withdrawals;

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changes in laws or regulations relating to the pharmaceutical industry could cause us to incur increased costs of compliance or otherwise harm our business;

our customers pharmaceutical 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.

If we are unable to maintain license rights to a commercial scale expression system for enzymes that convert cellulosic biomass to sugars, our business may be materially adversely affected.

We entered into a license agreement with Dyadic International, Inc. and its affiliate, or Dyadic, in November 2008 to obtain access to an expression system and the enzymes that convert cellulosic biomass to sugars. Under the license agreement with Dyadic, we obtained a non-exclusive license under intellectual property rights of Dyadic relating to Dyadic s proprietary fungal expression technology for the production of enzymes and to the cellulase enzymes. We also obtained access to specified materials of Dyadic relating to such Dyadic technology. Our license is sublicenseable to Shell in the field of biofuels. Dyadic has the right to terminate our licenses under the license agreement if we challenge the validity of any of the patents licensed under the license agreement and for various other reasons. Our licenses and access to such materials of Dyadic under the license agreement will terminate as a result of any termination of the license agreement other than due to Dyadic s material breach. If we are unable to maintain these rights on commercially reasonable terms or if the license agreement is terminated for any reason, we will need to buy or license this type of expression system from another party or develop this type of expression system ourselves, which may be difficult, costly and time consuming, in part because of the broad, existing intellectual property rights owned by Novozymes and E.I. Du Pont De Nemours and Company, or DuPont, and others. If any of these events occur, our business may be materially adversely affected.

Fluctuations in the price of and demand for certain commodities may reduce demand for the commercial products that use our technology, thus reducing demand for our technology.

Biofuels and some bio-based chemicals are anticipated to be marketed as an alternative to fossil fuel-based products. Therefore, if the price of natural gas or oil falls, any revenues that we generate from biofuel or bio-based chemical products could decline, and we may be unable to produce products that are a commercially viable alternative to fossil fuel-based products. Additionally, demand for liquid transportation fuels, including biofuels, may decrease due to economic conditions or otherwise. Demand for bio-based chemicals may also decrease if the price of natural gas or oil decreases. Similarly, CodeXyme cellulase enzymes s are used in producing fermentable sugars, which are anticipated to be marketed as an alternative to fermentable sugars from sugar and starch food sources, such as corn and sugar cane. Therefore, if the price of sugar falls, the demand for CodeXyme cellulase enzymes, may fall, and we may be unable to produce cellulase enzymes for use in producing fermentable sugars that are a commercially viable alternative to fermentable sugars from sugar and starch food sources.

Our biofuel and bio-based chemical business opportunities may be limited by the availability, cost or location of renewable feedstocks.

Our business opportunities in the biofuel and bio-based chemical markets may be dependent on the availability and price of feedstocks, including sugar, starch and cellulosic biomass. If the availability of these feedstocks decreases or their price increases, this may reduce the desirability of our biofuel and bio-based chemical products, as well as the biofuels royalties that we collect from Shell, and have a material adverse effect on our financial condition and operating results. At certain levels, prices may make these products uneconomical to use and produce.

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The price and availability of feedstocks may be influenced by general economic, market and regulatory factors. These factors include the availability of arable land to supply feedstock, weather conditions, farming decisions, logistics for collection and storage of cellulosic biomass, government policies and subsidies with respect to agriculture and international trade, and global demand and supply. The significance and relative impact of these factors on the price of feedstocks is difficult to predict, especially without knowing what types of feedstocks we may need to use.

Our current business plan for the biofuel and bio-based chemical markets is to leverage our primary competitive strength, which we believe is our ability to optimize the performance of CodeXyme cellulase enzymes rapidly for varying feedstocks and process conditions. While CodeXyme cellulase enzymes may perform well on specific feedstocks and under certain process conditions, it might not perform well on other feedstocks or process conditions. If CodeXyme cellulase enzymes do not perform as planned on our customers feedstocks, our business may be adversely affected.

Reductions or changes to existing biofuel regulations and policies may present technical, regulatory and economic barriers, all of which may significantly reduce demand for biofuels.

The market for biofuels is heavily influenced by foreign, federal, state and local government regulations and policies concerning the petroleum industry. In 2007, the U.S. Congress passed an alternative fuels mandate that currently calls for approximately 36 billion gallons of liquid transportation fuels sold in 2022 to come from alternative sources, including biofuels. Of this amount, a minimum of 21 billion gallons must be advanced biofuels, with 16 billion gallons of that to be cellulosic derived. In the U.S. and a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. For example, the U.S. Environmental Protection Agency has the authority to adjust or reduce the gallon milestones of the alternative fuels mandate to reflect the marketplace supply availability. Any reduction in mandated requirements for fuel alternatives and additives to gasoline may cause demand for biofuels to decline and deter investment in the research and development of biofuels. Congressional and market uncertainty regarding future policies will affect our ability to develop new biofuels products or to license our technologies to third parties. Any inability to address these requirements and any regulatory or policy changes could have a material adverse effect on our biofuels business, financial condition and operating results. Our other potential bioindustrial products may be subject to additional regulations.

We cannot assure you that our potential bio-based chemical products will be approved or accepted by customers.

We have only recently entered the market for bio-based chemical products used by large consumer products or chemical companies through our collaboration with Gruppo Mossi & Ghisolfi, or M&G, and we intend to explore other opportunities in these markets. In entering these markets, we intend to sell our bio-based chemical products, like CodeXol detergent alcohols, as alternatives to chemicals currently in use, and in some cases the chemicals that we seek to replace have been used for many years. The potential customers for our bio-based chemical products generally have well developed manufacturing processes and arrangements with suppliers of the chemical components of their products and may resist changing these processes and components. These potential customers frequently impose lengthy and complex product qualification procedures on their suppliers. Factors that these potential customers consider during the product qualification process include consumer preference, manufacturing considerations such as process changes and capital and other costs associated with transitioning to alternative components, supplier operating history, regulatory issues, product liability and other factors, many of which are unknown to, or not well understood by, us. Satisfying these processes may take many months or years. If we are unable to convince these potential customers that our products are comparable to the chemicals that they currently use or that the use of our products produces benefits to them, we will not be successful in these markets and our business will be adversely affected. Additionally, in contrast to the tax incentives relating to biofuels, tax credits and subsidies are not currently available in the United States for consumer products or chemical companies who use our bio-based chemical products.

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We have only limited experience in independently developing, manufacturing, marketing, selling and distributing commercial cellulase enzymes.

We currently have only limited resources and capability to develop, manufacture, market, sell or distribute CodeXyme cellulase enzymes on a commercial scale. We will determine how to best deploy these limited resources based on various criteria, including: investment required, estimated time to market, regulatory hurdles, infrastructure requirements and industry-specific expertise necessary for successful commercialization. At any time, we may modify our strategy and pursue collaborations for the development and commercialization of CodeXyme cellulase enzymes that we intended to pursue independently. We may pursue opportunities that ultimately require more resources than we anticipate or which may be technically unsuccessful. In order for us to commercialize CodeXyme cellulase enzymes directly, we would need to establish or obtain through outsourcing arrangements additional capability to develop, manufacture, market, sell and distribute CodeXyme cellulase enzymes. If we are unable to successfully commercialize CodeXyme cellulase enzymes resulting from our internal product development efforts, we will continue to incur losses. Even if we successfully develop and commercialize CodeXyme cellulase enzymes, we may not generate significant sales and achieve profitability in our business.

Our government grants are subject to uncertainty, which could harm our business and results of operations.

We have received various government grants to complement and enhance our own resources. We may seek to obtain government grants and subsidies in the future to offset all or a portion of the costs of building additional manufacturing facilities and research and development activities. We cannot be certain that we will be able to secure any such government grants or subsidies. Any of our existing grants or new grants that we may obtain may be terminated, modified or recovered by the granting governmental body under certain conditions.

We are subject to routine audits by government agencies or other third parties as part of our government grants contracts. The government auditor may review our performance, cost structures and compliance with applicable laws, regulations and standards. Funds available under grants must be applied by us toward the research and development programs specified by the granting agencies, rather than for all of our programs generally. If any of our costs are found to be allocated improperly, the costs may not be reimbursed and any costs already reimbursed may have to be refunded. Accordingly, an audit could result in an adjustment to our revenues and results of operations.

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, 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;

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economic or political instability in foreign countries;

difficulties associated with staffing and managing foreign operations; and

the need to comply with a variety of U.S. and foreign laws applicable to the conduct of international business, including import and export control laws and anti-corruption laws.

Many of our pharmaceutical intermediates are manufactured in India, which has stringent local regulations that make it difficult for money earned in India to be taken out of the country without being subject to Indian taxes. While our Indian subsidiary can make use of some of the funds we earn in India, these regulations may limit the amount of profits we can repatriate from operations in India. Additionally, we have recently begun doing business in Brazil and we will likely need to secure licenses, permits or other governmental approvals in order to use our technology there. The failure to obtain any applicable licenses, permits or other governmental approvals could delay or prevent the deployment of our technology in Brazil.

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 dirted 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 third parties that sell our pharmaceutical products that are manufactured using our biocatalysts to provide us with complete and accurate information

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regarding revenues, costs of revenues and payments owed to us on a timely basis. In addition, we rely on suppliers and certain contract manufacturers, including Arch, 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, 2011, we owned or controlled approximately 270 issued patents and approximately 280 pending patent applications in the United States and in various foreign jurisdictions. Some of our gene shuffling patents will expire as early as 2014. 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 and bioindustrials 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 U.S. Leahy-Smith America Invents Act, enacted in September 2011, brings significant changes to the U.S. 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 have yet to be determined, as the U.S. Patent and Trademark Office must still implement regulations relating to these changes and U.S. courts have yet to address the new provisions, but in any event, 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 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 make 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

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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.

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

The laws of some foreign countries, including India, where we manufacture pharmaceutical intermediates and APIs through contract manufacturers, and Brazil, where we have recently begun to 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., or DSM, DuPont, Novozymes, and Vercipia Biofuels, an affiliate of BP p.l.c., have alternative methods for obtaining and generating genetic diversity or use

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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.

We face intense competition in the pharmaceuticals market. There are a number of companies who compete with us throughout the various stages of a pharmaceutical product s lifecycle. Many large pharmaceutical companies have internal capabilities to develop and manufacture intermediates and APIs. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, Pfizer and Teva Pharmaceutical Industries Ltd. There are also many large, well-established fine chemical manufacturing companies, such as DSM, BASF Corporation and Lonza Group Ltd, that compete to supply pharmaceutical intermediates and APIs to our customers. We also face increasing competition from generic pharmaceutical manufacturers in low cost centers such as India and China.

In addition to competition from companies manufacturing APIs and intermediates, we face competition from companies that sell biocatalysts for use in the pharmaceutical market. There is competition from large industrial enzyme companies, such as Novozymes and Amano Enzyme Inc., whose industrial enzymes (for detergents, for example) are occasionally used in pharmaceutical processes. There is also competition in this area from several small companies with product offerings comprised primarily of naturally occurring biocatalysts or that offer biocatalyst optimization services.

We expect to enter the market for cellulases, which are used to produce sugar for the manufacture of biofuels and bio-based chemicals. Our significant competitors in this market include Novozymes and DuPont, which have both been active in this market for many years. Novozymes, has partnered with a number of companies and organizations on a regional basis to develop cellulases for the production of biofuels, including partnering with M&G in Italy to be the cellulase supplier to a commercial scale cellulosic ethanol plant being built by M&G, and DuPont is marketing a line of cellulases to convert cellulosic biomass into sugar. These competitors have greater resources than we do, own or otherwise control established intellectual rights portfolios, have existing relationships with customers that we hope to sell CodeXyme cellulases to, have long-term supply agreements already in place with customers for their bio-based products, and have the supply chain in place to sell their cellulases on a global platform. Our ability to compete in this market may be limited by our relatively late start.

There are also other companies developing competing cellulosic ethanol technologies. Significant competitors include companies such as: Novozymes, which is opening a biofuel demonstration plant with Inbicon A/S of Denmark; DuPont Danisco Cellulosic Ethanol, or DDCE, which is developing facilities to produce cellulosic ethanol; DSM, which recently acquired C5 Yeast Company B.V. enhancing DSM s position in the cellulosic biofuel sector; Mascoma Corporation, which entered into a definitive agreement with Valero Energy Corporation in December 2011 to build a commercial-scale cellulosic ethanol biorefinery; BP, which is developing a commercial scale cellulosic ethanol facility through its affiliate Vercipia Biofuels; and Coskata, Inc., which is developing a hybrid thermochemical-biocatalytic process to produce ethanol from a variety of feedstocks.

With our CodeXol detergent alcohols, we have recently entered the bio-based chemical market. Our significant competitors in this market include companies that have been active in this marketplace for many years, namely Sasol, Shell, BASF, Kao Corporation and Liaoning Huaxing. These companies have greater resources in this market than we do and have long-term supply arrangements already in place with consumer products companies. Our ability to compete in this market may be limited by our relatively late start.

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

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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.

In addition, various governments have recently announced a number of spending programs focused on the development of clean technology, including alternatives to petroleum-based fuels. Such spending programs could lead to increased funding for our competitors or the rapid increase in the number of competitors within those markets.

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 have a detailed disaster recovery plan. In addition, 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. Furthermore, Shell may terminate our collaborative research agreement if a force majeure event interrupts our collaboration activities for more than ninety days.

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

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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.

Compliance with stringent laws and regulations may be time consuming and costly, which could adversely affect the commercialization of our bioindustrial products.

Our bioindustrial products, including those used in the biofuels and bio-based chemicals markets, will need to meet a significant number of regulations and standards, including regulations imposed by the U.S. Department of Transportation, the U.S. Environmental Protection Agency, various state agencies and others. In addition, our bioindustrial products will be subject to foreign regulations if we attempt to produce or sell our products outside the United States. For example, we expect that our products and technologies will be subject to import and export controls when they are shipped internationally. Any failure to comply, or delays in compliance, with the various existing and evolving industry regulations and standards could prevent or delay the commercialization of any bioindustrial products developed using our technologies and subject us to fines and other penalties.

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 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 conform 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.

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.

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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 and/or Arch. 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 our contract manufacturer has 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.

If governmental incentives or other actions targeted at limiting carbon emissions are not adopted, a broad market for carbon management solutions may not develop.

Our strategy with respect to carbon management, although still in the research phase, would likely require an expansion of the market for the management of carbon dioxide emissions prior to us being able to recognize significant revenues from our research and continuing expenditures of resources. The development of a significant market will likely depend on the adoption of government subsidies or other government regulation requiring companies to limit their carbon emissions. In the United States, for example, there is no current market for carbon management. The establishment of a carbon management market in the United States could take years to develop, if ever. The United States Senate, for example, failed to pass carbon regulating legislation in 2011. In the absence of such additional government subsidies or regulation in major markets, this carbon management market may not develop and we would not be able to generate significant revenues from our carbon management operations. Even if a carbon management market is established, we will not be able to commercialize our potential carbon management solutions if the price of carbon is below the cost to deploy our solutions. In addition, the development of transportation and storage infrastructure for carbon dioxide will be necessary to deploy our carbon capture technology in certain markets.

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, or 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 on our balance sheet, 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

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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, 2011, our officers, directors and stockholders who hold at least 5% of our stock together beneficially own approximately 34% 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, 2011, Raízen, Biomedical Sciences Investment Fund Pte Ltd. and CMEA Ventures beneficially owned approximately 15.5%, 9.4% and 8.8% of our common stock, respectively.

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, strategic partnerships, joint ventures or capital commitments;

any changes in Shell s biofuels strategy or timelines, or in our relationship with Shell, including any decision by Shell to terminate our collaboration or reduce the number of FTEs funded by Shell under our collaborative research agreement;

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Shell s failure to extend our collaborative research agreement, which expires in November 2012;

any announcements or developments from Raízen;

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;

failure to find a permanent Chief Executive Officer and a permanent Chief Financial Officer;

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 patents, litigation matters and our ability to obtain patent protection for our technologies;

changes in existing laws, regulations and policies applicable to our business and products, including the National Renewable Fuel Standard program;

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.

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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

Our headquarters is located in Redwood City, California, where we occupy approximately 107,000 square feet of office and laboratory space. On March 16, 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.

We also lease space in 501 Chesapeake Drive, Redwood City, California (the 501 Chesapeake Space). The lease for the 501 Chesapeake Space was not extended with the Fifth Amendment and will expire as per the original agreement in January 2013, and we have an option for an additional term of up to two years.

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.

In Singapore, we occupy approximately 1,900 square meters of office and laboratory space within Singapore Science Park II. The term of the lease expires in July 2013. We believe that the facilities that we currently lease in Singapore 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.

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In Hungary, we occupy approximately 1,700 square meters of office and laboratory space. The term of the lease expires in September 2016. We have an option to extend the lease for an additional term of five years. We believe that the facilities that we currently lease 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.

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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, or 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 2011	High	Low
First Quarter	$ 11.99	$ 9.00
Second Quarter	12.24	8.54
Third Quarter	10.25	4.20
Fourth Quarter	6.26	3.91

Fiscal 2010	High	Low
First Quarter	$ n/a	$ n/a
Second Quarter	14.98	8.65
Third Quarter	10.22	6.88
Fourth Quarter	12.00	8.79

As of February 8, 2011, there were approximately 180 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.

Use of Proceeds from Public Offering of Common Stock

There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus filed with the SEC on April 22, 2010 pursuant to Rule 424(b). We invested the funds received in registered money market funds and other marketable securities.

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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, 2011. 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	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
Codexis	CDXS	100.00	102.71	77.98	66.06	67.50	61.16	72.40	77.22	71.04	79.94
Nasdaq Composite Index	IXIC	100.00	97.70	89.60	83.73	89.51	83.92	94.03	99.54	99.17	105.31
Nasdaq Biotechnology Index	NBI	100.00	101.30	90.19	86.13	90.01	87.44	96.40	99.88	97.72	103.81

$100 investment in stock or index	Ticker	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11
Codexis	CDXS	68.10	80.39	89.14	79.11	82.58	72.62	67.87	48.94	34.46	34.77	36.35	39.97
Nasdaq Composite Index	IXIC	104.89	105.90	112.07	120.29	122.24	119.34	116.35	107.69	104.40	109.89	114.47	116.79
Nasdaq Biotechnology Index	NBI	107.19	110.45	110.40	114.07	112.55	110.10	109.42	102.40	95.88	106.56	104.02	103.42

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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 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, 2011, 2010, and 2009 and the consolidated balance sheets data as of December 31, 2011 and 2010 from our audited consolidated financial statements appearing elsewhere in this filing. The consolidated statements of operations data for the fiscal years ended December 31, 2008 and 2007 and the consolidated balance sheets data as of December 31, 2009, 2008 and 2007 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,				
	2011	2010	2009	2008	2007
	(In Thousands, Except Per Share Amounts)				
Consolidated Statements of Operations Data:					
Revenues:					
Product	$ 49,021	$ 32,835	$ 18,554	$ 16,860	$ 11,418
Collaborative research and development	71,368	70,196	64,308	33,301	13,214
Government grants	3,476	4,073	46	317	701
Total revenues	123,865	107,104	82,908	50,478	25,333
Costs and operating expenses:					
Cost of product revenues	41,781	27,982	16,678	13,188	8,319
Research and development	61,049	52,405	54,725	45,554	35,644
Selling, general and administrative	36,942	33,841	29,871	35,709	19,713
Total costs and operating expenses	139,772	114,228	101,274	94,451	63,676
Loss from operations	(15,907)	(7,124)	(18,366)	(43,973)	(38,343)
Interest income	273	166	180	1,538	1,491
Interest expense and other, net	(675)	(1,199)	(2,037)	(2,365)	(2,533)
Loss before provision (benefit) for income taxes	(16,309)	(8,157)	(20,223)	(44,800)	(39,385)
Provision (benefit) for income taxes	241	384	66	327	(408)
Net loss	$ (16,550)	$ (8,541)	$ (20,289)	$ (45,127)	$ (38,977)
Net loss attributable to common stockholders per share of common stock, basic and diluted	$ (0.46)	$ (0.35)	$ (7.74)	$ (18.96)	$ (23.41)
Weighted average common shares used in computing net loss per share of common stock, basic and diluted	35,674	24,594	2,622	2,380	1,665

	December 31,				
	2011	2010	2009	2008	2007
	(In Thousands)				
Consolidated Balance Sheets Data:					

Cash, cash equivalents and marketable securities, current	$ 53,482	$ 72,396	$ 55,563	$ 37,130	$ 84,070
Working capital	50,940	64,708	16,397	5,933	60,732
Total assets	135,922	141,300	99,036	70,882	113,541
Current and long-term financing obligations			7,942	13,681	17,477
Redeemable convertible preferred stock			179,672	132,746	132,746
Total stockholders equity (deficit)	102,690	107,361	(144,845)	(129,124)	(87,468)

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ITEM 7. MANAGEMENT S DISCUSSION AND ANALYSIS OF

FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with our audited consolidated financial statements and the related notes that appear elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements are often identified by the use of words such as may, will, expect, believe, anticipate, intend, could, should, estimate, or continue, and similar expressions or variations. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled Risk Factors, set forth in Part I, Item 1A of this Annual Report on Form 10-K and elsewhere in this report. The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report on Form 10-K.

We are a producer of custom industrial enzymes. Our products enable novel, sustainable processes for the manufacture of biofuels, chemicals, and pharmaceutical ingredients.

We are developing our flagship CodeXyme cellulase enzymes to convert non-food plant material, which we call cellulosic biomass, into affordable sugars, which can then be converted into renewable fuels and chemicals. We have been developing these cellulase enzymes with Royal Dutch Shell plc, or Shell, since 2006 for applications in the biofuels markets. We intend to market CodeXyme cellulase enzymes to chemicals manufacturers worldwide. We are also developing our own novel processes to manufacture certain specialty and bio-based commodity chemicals, which we intend to commercialize with strategic partners. The first of these products is CodeXol detergent alcohols. Detergent alcohols are used to manufacture surfactants, which are key, active cleaning ingredients in consumer products such as shampoos, liquid soaps and laundry detergents.

We have commercialized our technology, products and services in the pharmaceuticals market. There are currently over 50 pharmaceutical firms using our technology, products and services in their manufacturing process development, including the production of some of the world s bestselling and fastest growing drugs.

We create our products by applying our CodeEvolver directed evolution technology platform which introduces genetic mutations into microorganisms, giving rise to changes in the enzymes which they produce. Once we identify potentially beneficial mutations, we test combinations of these mutations until we have created variant enzymes that exhibit marketable performance characteristics superior to competitive products. This process allows us to make continuous, efficient improvements to the performance of our enzymes.

To date, we have generated revenues primarily from collaborative research and development funding, pharmaceutical product sales and government grants. Our revenues have increased in each of the last three fiscal years, growing from $82.9 million in 2009, to $107.1 million in 2010 and $123.9 million in 2011.

Most of our revenues since inception have been derived from collaborative research and development arrangements, which accounted for 78%, 66%, and 58% of our revenues in, 2009, 2010 and 2011, respectively. Collaborative research and development received from Shell accounted for 76%, 62% and 51% of our revenues in 2009, 2010 and 2011, respectively.

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Our product sales accounted for 22%, 31% and 39% of our revenues in 2009, 2010 and 2011, respectively. Our product sales have increased in each of the last three fiscal years, from $18.6 million in 2009, to $32.8 million in 2010 and to $49.0 million in 2011.

Notwithstanding our revenue growth, we have continued to experience significant losses as we have invested heavily in research and development and administrative infrastructure in connection with the growth in our business. In light of the growth in market acceptance of our products and services to date, we intend to continue our investment in research and development. As of December 31, 2011, we had an accumulated deficit of $184.7 million. We incurred net losses of $20.3 million, $8.5 million and $16.6 million in the years ended December 31, 2009, 2010 and 2011, respectively.

We targeted the pharmaceutical industry as the first market for our products and services. In this market, we have historically entered into collaborations, which have involved complex service and intellectual property agreements 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, or FTEs, engaged in related research and development activities and licensing fees and royalties.

Our pharmaceutical products include enzymes, pharmaceutical intermediates, active pharmaceutical ingredients, or APIs, and Codex® Biocatalyst Panels and Kits. Our pharmaceutical customers incorporate our enzymes into the manufacturing processes used to produce their drugs. Our intermediates are complex chemical substances that have been manufactured by, or on behalf of, us using our enzymes. Drug manufacturers use intermediates to produce the APIs used in their drugs. We believe that major pharmaceutical manufacturers are increasingly willing to outsource portions of their own internal manufacturing and to purchase intermediates that are difficult or expensive to manufacture. Our Codex® Biocatalyst Panels are tools that provide genetically diverse variants of our proprietary biocatalysts, which allow our customers to screen our enzymes for desired activity that is applicable to a particular pharmaceutical manufacturing process. We view our Codex® Biocatalyst Panels, which we began selling in 2007, as a way to build early and broad awareness of the power and utility of our technology platform. We introduced our Codex® Biocatalyst Kits in 2010, which provide subsets of the Panel enzymes in individual vials for the same purpose. We plan to increase our efforts to expand use of our Codex® Biocatalyst Panels and Kits among our current and potential customers.

Our pharmaceutical services include screening and optimization services. We use our screening services to test our customers pharmaceutical materials against our existing libraries of enzymes to determine whether our existing enzymes produce any desired activities. We then use our optimization services to improve the performance of these enzymes to meet customer requirements. We also use our optimization services to improve enzymes identified by our customers through their use of our Codex® Biocatalyst Panels and Kits. The use of our panels, as well as these services, has led to sales of enzymes to our pharmaceutical customers.

We provide our enzymes, Codex® Biocatalyst Panels and Kits, screening and optimization services and intermediates to our innovator customers and provide intermediates to our generics customers. We have also launched several new intermediates and APIs for the generic equivalents of branded pharmaceutical products, including Lipitor®, in markets where these products are not subject to patent protection, and intend to sell these same intermediates and APIs for use in other markets when the patent protection for each product expires. We sell our products primarily to pharmaceutical manufacturers through our small direct sales and business development force in the United States and Europe.

In the biofuels market, we entered into a research agreement with Shell in 2006. The goal of this collaboration was to develop biocatalysts to break down renewable sources of non-food plant materials, known as cellulosic biomass, and convert them to fuels. In connection with this collaboration, we received up-front payments, research and development service payments and milestone payments.

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Based on the success of this initial collaboration, in 2007, we entered into a new, expanded multi-year research and development collaboration with Shell to develop cellulase enzymes to convert cellulosic biomass into fermentable sugars that are used in the production of fuels and related products and to convert these sugars into fuels and related products. We received an up-front fee and are currently receiving FTE payments under this collaboration. This up-front fee is refundable under certain conditions, such as a change in control in which we are acquired by a competitor of Shell. This refundability lapses ratably over a five-year period beginning on November 1, 2007, on a straight-line basis. In March 2009, we agreed to devote to the research collaboration 128 FTEs, which were required to be funded by Shell at an annual base rate per FTE of $441,000 for FTEs located in the United States, and $350,000 for FTEs located in Hungary. These annual base rates per FTE are subject to annual adjustments based on changes in the Consumer Price Index, or CPI, for the United States and Hungary for each subsequent year of the collaboration. As of December 2011, the annual base rate per FTE was $460,000 for FTEs located in the United States, and $399,000 for FTEs located in Hungary.

Shell has the right to terminate the collaborative research agreement upon nine months notice. Shell also has the right to reduce the number of funded FTEs, with any one reduction not to exceed 98 funded FTEs, following advance written notice. The required notice period ranges from 30 to 270 days. Following any such reduction, Shell is subject to a standstill period of between 90 and 360 days during which period Shell cannot provide notice of any further FTE reductions. The notice and standstill periods are dependent on the number of funded FTEs reduced, with the length of notice and standstill periods increasing commensurate with the number of FTEs reduced. Effective August 2011, Shell reduced the number of funded FTEs engaged in our research and development collaboration from 128 to 116 FTEs. This reduction was to FTEs located in the United States. We have not received any further notice of FTE reduction as of the date of this Annual Report on Form 10-K.

The term of the agreement ends in October 2012. We are in discussions with Shell for a continuation of the collaboration agreement. During the term of the agreement, we are required to act exclusively with Shell as it relates to the rights and research described in the arrangement and may not conduct research or contract to conduct research, for another party in the field of use. Under this agreement, we also have a right of first negotiation but not an obligation to manufacture any biocatalysts developed under the collaborative research agreement if Shell decides to out-source the manufacture of such biocatalysts.

We are also eligible for annual milestone payments of up to an aggregate of $30.0 million over the term of the agreement, contingent upon the achievement of certain technical goals beginning in 2009, and a milestone payment of $10.0 million upon achievement of certain commercial goals. In 2011, we met or exceeded four out of six technical goals under the collaborative research agreement by the applicable deadlines and earned milestone payments of $5.6 million. As of December 31, 2011, we remain eligible for $8.5 million in milestone payments related to the technical goals for 2012 and $10.0 million in milestone payments for the commercial goals. Shell will also be required to pay us a royalty per gallon with respect to certain products manufactured using our technology platform, including liquid fuels, fuel additives and lubricants, if Shell or any of its licensees manufactures such products. With respect to cellulosic biomass converted into sugars, Shell agreed to pay us a royalty per gallon of fuel product made from those sugars. With respect to sugars converted into fuel, Shell agreed to pay us a separate royalty per gallon of fuel product. We may be entitled to receive one or both of these royalties depending on whether Shell uses our technology to commercialize one or both of these steps.

Under our research and development collaboration with Shell, we retain ownership of all intellectual property we develop, other than patent rights related to certain fuel innovations, and Shell will have an exclusive license to such intellectual property we develop. We have agreed to work exclusively with Shell until November 2012 to convert cellulosic biomass into fermentable sugars that are used in the production of fuels and related products and to convert these sugars into fuels and related products. However, Shell is not required to work exclusively with us, and could develop or pursue alternative technologies that it decides to use for commercialization purposes instead of any technology developed under our collaborative research agreement. Even if Shell decides to commercialize products based on our technologies, they have no obligation to purchase their biocatalyst supply from us. If Shell chooses to commercialize any biofuels products developed through our

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collaboration, we believe that the combination of our technology platform with Shell s proven project development capabilities and resources could enable a biofuels solution that extends from the conversion of cellulosic biomass into biofuels to delivery and distribution of refined biofuels to consumers at the pump.

In connection with our collaboration with Shell, we entered into a multi-party collaborative research and license agreement with Iogen Energy Corporation, or Iogen, and Shell in July 2009, which is focused on the conversion of cellulosic biomass to ethanol for commercial scale production. Iogen has agreed to pay us a royalty per gallon with respect to certain fuel products, which include liquid fuels, fuel additives and lubricants, that are covered by inventions jointly made by us and Iogen, but that are solely owned by Iogen. We will be entitled to collect royalties from Shell or Iogen for any use of our biofuels technology by Shell or Iogen. Shell can choose to commercialize cellulosic ethanol manufactured using our technology independently, or in collaboration with Iogen.

In October 2010, we acquired Maxygen Inc s, or Maxygen, directed evolution technology patent portfolio for net consideration of $20.2 million consisting of $20.0 million paid to Maxygen, related transaction costs of $0.7 million and a royalty payable extinguishment of $0.5 million. In conjunction with this transaction, we terminated our existing license agreement with Maxygen including terminating our obligation to pay biofuels royalties to Maxygen.

During 2011, our carbon management program received $2.2 million in funding under a 2010 ARPA-E Recovery Act program grant from the U.S. Department of Energy for development of innovative technology to remove carbon dioxide from coal-fired power plant emissions. The grant supports development of biocatalysts for more efficient carbon capture from these plants and terminates in June 2012. We also had a collaboration in carbon management with Alstom Power, Inc. or Alstom which included funding for up to 12 FTEs. We recognized $3.8 million in revenue in 2011 from this collaboration. The collaboration terminated in October 2011.

We also received grant revenues in 2011 of $1.3 million from the Singapore Economic Development Board, or EDB, for our pharmaceuticals research and development center in Singapore.

Our strategy for collaborative arrangements is to retain substantial participation in the future economic value of our technology while receiving current cash payments to offset research and development costs and working capital needs. These agreements are complex and have multiple elements that cover a variety of present and future activities. In addition, certain elements of these agreements are intrinsically difficult to separate and treat as separate units for accounting purposes, especially exclusivity payments. Consequently, we expect to recognize these exclusivity payments over the term of the exclusivity period.

We have limited internal manufacturing capacity at our headquarters in Redwood City, California. 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 our Codex® Biocatalyst Panels and Kits and biocatalysts 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.

We actively seek contract manufacturers who are willing to invest in capital equipment to manufacture our products at commercial scale. As a result, we are heavily dependent on the availability of manufacturing capacity at, and the reliability of, our contract manufacturers. We also pursue collaborations with industry leaders that allow us to leverage our collaborators engineering, manufacturing and commercial expertise, their distribution infrastructure and their ability to fund commercial scale production facilities. If our collaborators choose to utilize our technology to commercialize new products, we expect our collaborators will finance, build and operate the larger, more expensive facilities for the intermediate or end products in our markets, which will allow us to expand into new markets without having to finance or operate large industrial facilities.

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We rely on one contract manufacturer, Lactosan GmbH & Co. KG, or Lactosan, located in Austria, to manufacture substantially all of the enzymes used in our pharmaceutical business. We have qualified other contract manufacturers for the manufacture of our enzymes, but we do not currently use them for any of our supply commitments. In addition, we contract with other suppliers for the manufacture of our pharmaceutical intermediates and APIs. Since 2006, Arch Pharmalabs Limited, or Arch, of Mumbai, India has manufactured all of our commercialized intermediates and APIs for sale to generic and innovator manufacturers. We are party to a number of agreements with Arch that govern the commercialization of various current and future products for supply into the generic and innovator marketplaces.

We intend to rely on contract manufacturers for the production of CodeXyme® cellulase enzymes for our biofuels and bio-based chemicals business.

Revenues and Operating Expenses

Revenues

Our revenues are comprised of collaborative research and development revenues, product revenues and government grants.

Collaborative research and development revenues include license, technology access and exclusivity fees, FTE payments, milestones, royalties, and optimization and screening fees.

Product revenues consist of sales of biocatalysts, intermediates, APIs and Codex® Biocatalyst Panels and Kits.

Government grants consist of payments from government entities. The terms of these grants 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 grants from Germany, Singapore and the United States. Our current grant in Singapore expires in 2013 and our grant in the United States expires in 2012.

Cost of Product Revenues

Cost of product revenues includes 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 product revenues.

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 license and royalty fees paid to Maxygen prior to our acquisition of the Maxygen IP, for consideration that we receive in connection with our biofuels collaboration, our direct and research-related overhead expenses, which include salaries and other personnel-related expenses, facility costs, supplies, depreciation of facilities, and laboratory equipment, as well as research consultants and the cost of funding research at universities and other research institutions, and are expensed as incurred. License and royalty fees paid to Maxygen fluctuated depending on the timing and type of consideration received from Shell in connection with our biofuels research and development collaboration. Costs to acquire technologies that are utilized in research and development and that have no alternative future use are expensed when incurred.

Our research and development efforts devoted to our product and process development projects changed from 62 projects in 2009 to 57 projects in 2010 and 38 in 2011 as we have focused our research and development resources on fewer projects. Our internal research and development projects are typically completed in 12 to 24 months, and generally the costs associated with any single internal project during these periods were not material.

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Selling, General and Administrative Expenses

Selling, general and administrative expenses consist of compensation expenses (including stock-based compensation), hiring and training costs, consulting and service provider expenses (including patent counsel related costs), marketing costs, occupancy-related costs, depreciation and amortization expenses, and travel and relocation expenses.

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

In October 2009, the Financial Accounting Standards Board (FASB) amended the accounting standards for multiple-element revenue arrangements (ASU 2009-13) to:

- provide updated guidance on whether multiple deliverables exist, how the elements in an arrangement should be separated, and how the consideration should be allocated;
- require an entity to allocate revenue in an arrangement using estimated selling prices (ESP) of each element if a vendor does not have vendor-specific objective evidence of selling price (VSOE) or third-party evidence of selling price (TPE); and
- eliminate the use of the residual method and require a vendor to allocate revenue using the relative selling price method.

In April 2010, the FASB amended the accounting standards for revenue recognition related to milestones (ASU 2010-17) to provide updated guidance on accounting for revenue using the milestone method, clarifying that the milestone method is a valid application of the proportional performance model when applied to research or development arrangements. We already applied a milestone method approach to our research or development arrangements.

We adopted the above accounting guidances on January 1, 2011, for applicable arrangements entered into or materially modified after January 1, 2011 (the beginning of our fiscal year). We have determined that adoption of this new guidance did not have a material impact on our results of operations, cash flows or financial position. The potential future impact of ASU 2009-13 and ASU 2010-17 will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future.

Revenues are recognized when the four basic revenue recognition criteria are met: (1) persuasive evidence of an arrangement exists; (2) products have been delivered, transfer of technology has been completed or services have been rendered; (3) the fee is fixed or determinable; and (4) collectibility is reasonably assured.

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Our primary sources of revenues consist of collaborative research and development agreements, product revenues and government grants. Collaborative research and development agreements typically provide us with multiple revenue streams, including up-front fees for licensing, exclusivity and technology access, fees for full-time employee equivalent (FTE) services and the potential to earn milestone payments upon achievement of contractual criteria and royalty fees based on future product sales or cost savings by our customers. Our collaborative research and development revenues consist of revenues from Shell and revenues from other customers with collaborative research and development agreements.

For each source of collaborative research and development revenues, product revenues and grant revenues, we apply the following revenue recognition criteria:

Up-front fees received in connection with collaborative research and development agreements, including license fees, technology access fees, and exclusivity fees, are deferred upon receipt, are not considered a separate unit of accounting and are recognized as revenues over the relevant performance periods.

Revenues related to FTE services are recognized as research services are performed over the related performance periods for each contract. We are required to perform research and development activities as specified in each respective agreement. The payments received are not refundable and are based on a contractual reimbursement rate per FTE working on the project. 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 and development 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. Research and development expenses related to FTE services under the collaborative research and development agreements approximate the research funding over the term of the respective agreements.

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 substantive uncertainty at the date the arrangement is entered into 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 value of the item delivered as a result of a specific outcome resulting from our performance; (ii) relates solely to past performance and (iii) is reasonable relative to all deliverable and payment terms in the arrangement.

Other payments received for which such payments are contingent solely upon the passage of time or the result of a collaborative partner s performance are recognized as revenue when earned in accordance with the contract terms and when such payments can be reasonably estimated and collectability is reasonably assured.

We recognize revenues from royalties based on licensees sales of 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.

Product revenues are recognized once passage of title and risk of loss has occurred and contractually specified acceptance criteria have been met, provided all other revenue recognition criteria have also been met. Product revenues consist of sales of biocatalysts, intermediates, active pharmaceutical ingredients and Codex® Biocatalyst Panels and Kits. Cost of product revenues includes 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 product revenues.

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We license mutually agreed upon third party technology for use in our research and development collaboration with Shell. We record the license payments to research and development expense and offset related reimbursements received from Shell. These payments made by Shell to us are direct reimbursements of our costs. We account for these direct reimbursable costs as a net amount, whereby no expense or revenue is recorded for the costs reimbursed by Shell. For any payments not reimbursed by Shell, we will recognize these as expenses in the statement of operations. We elected to present the reimbursement from Shell as a component of our research and development expense since presenting the receipt of payment from Shell as revenues does not reflect the substance of the arrangement.

We receive payments from government entities in the form of government grants. Government grants 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 grants are recognized in the period during which the related costs are incurred, provided that the conditions under which the government grants were provided have been met and we have only perfunctory obligations outstanding.

Shipping and handling costs charged to customers are recorded as revenues. Shipping costs are included in our cost of product revenues. Such charges were not significant in any of the periods presented.

Stock-Based Compensation

We recognize compensation expense related to share-based transactions, including the awarding of employee stock options and restricted stock units (RSU), based on the estimated fair value of the awards granted.

We estimate the fair value of our stock option grants using the Black-Scholes option-pricing model. We calculate the estimated volatility rate based on selected companies in similar markets, due to a lack of historical information regarding the volatility of our stock price. We will continue to analyze the historical stock price volatility assumption as more historical data for our common stock becomes available. Due to our limited history of option activity, we calculate the expected life of options granted to employees using the simplified method permitted by the United States Securities Exchange Commission, or SEC, as the average of the total contractual term of the option and its vesting period. The risk-free rate assumption was based on U.S. Treasury instruments whose terms were consistent with the terms of our stock options. The expected dividend assumption was based on our history and expectation of dividend payouts.

We account for stock options issued to non-employees based on their estimated fair value determined using the Black-Scholes option-pricing model. The fair value of the options granted to non-employees is remeasured as they vest, and the resulting increase in value, if any, is recognized as expense during the period the related services are rendered.

Impairment of Goodwill and Intangible Assets and Other Long-lived Assets

We assess impairment of long-lived assets, including goodwill, on at least an annual basis and test long-lived assets for recoverability when events or changes in circumstances indicate that their carrying amount may not be recoverable. Circumstances which could trigger a review include, but are not limited to: significant decreases in the market price of the asset; 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 asset; current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset; or current expectation that the asset will more likely than not be sold or disposed of significantly before the end of its estimated useful life.

Recoverability is assessed based on the sum of the undiscounted cash flows expected to result from the use and the eventual disposal of the asset. An impairment loss is recognized in the consolidated statements of operations when the carrying amount is not recoverable and exceeds fair value, which is determined on a discounted cash flow basis.

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We make estimates and judgments about future undiscounted cash flows and fair value. Although our cash flow forecasts are based on assumptions that are consistent with our plans, there is significant exercise of judgment involved in determining the cash flows attributable to a long-lived asset over its estimated remaining useful life. Our estimates of anticipated future cash flows could be reduced significantly in the future. As a result, the carrying amount of our long-lived assets could be reduced through impairment charges in the future. Changes in estimated future cash flows could also result in a shortening of estimated useful life of long-lived assets including intangibles for depreciation and amortization purposes.

Income Tax Provision

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 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.

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Results of Operations

Financial Operations Overview

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		
	2011	2010	2009	2011	2010	2009
Revenues:						
Product	$ 49,021	$ 32,835	$ 18,554	39%	30%	22%
Collaborative R&D	71,368	70,196	64,308	58%	66%	78%
Government grants	3,476	4,073	46	3%	4%	0%
Total Revenues	123,865	107,104	82,908	100%	100%	100%
Costs and operating expenses:						
Cost of product revenues	41,781	27,982	16,678	34%	26%	20%
Research and development	61,049	52,405	54,725	49%	49%	66%
Selling, general and administrative	36,942	33,841	29,871	30%	32%	36%
Total costs and operating expenses	139,772	114,228	101,274	113%	107%	122%
Loss from operations	(15,907)	(7,124)	(18,366)	nm	nm	nm
Interest income	273	166	180	0%	0%	0%
Interest expense and other, net	(675)	(1,199)	(2,037)	nm	nm	nm
Loss before provision for income taxes	(16,309)	(8,157)	(20,223)	nm	nm	nm
Provision for income taxes	241	384	66	0%	0%	0%
Net loss	$ (16,550)	$ (8,541)	$ (20,289)	nm	nm	nm

nm = not meaningful

Years Ended December 31, 2011 and 2010

Revenues

	Years Ended December 31,		Change	
(In Thousands)	2011	2010	$	%
Product	$ 49,021	$ 32,835	$ 16,186	49%
Collaborative R&D	71,368	70,196	1,172	2%
Government grants	3,476	4,073	(597)	(15%)
Total revenues	$ 123,865	$ 107,104	$ 16,761	16%

Revenues increased during the year ended December 31, 2011 compared to the year ended December 31, 2010, due to increases from product sales and collaborative research and development projects which was partially offset by a decline from government grants.

Product revenues increased $16.2 million or 49% in 2011 compared to 2010 primarily due to an increase in product sales to both generic and innovator pharmaceutical customers.

Collaborative research and development revenues increased $1.2 million in 2011 compared to 2010 primarily due to $3.9 million increase in our revenues from collaborations with Alstom in carbon management partially offset by a $2.9 million decrease in our collaboration revenues related to Shell. Our pharmaceutical collaboration projects increased $0.3 million in 2011.

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Collaborative research and development revenues derived from Shell decreased $2.9 million to $63.2 million in 2011 compared to $66.1 million in 2010. This includes milestone payments of $5.6 million and $7.4 million earned during 2011 and 2010, respectively. We achieved four of six milestone targets in 2011 and seven of eight milestone targets in 2010. Effective August 2011, Shell reduced the number of funded FTEs engaged in our research and development collaboration with them from 128 to 116 FTEs. This reduction was to FTEs located in the United States. We had an average of 124 and 128 FTEs in this collaboration during the years ended December 31, 2011 and 2010, respectively. The decrease in the number of Shell funded FTEs in our collaborative research and development revenues during the year ended December 31, 2011 was partially offset by contractual increases in the billing rates for those FTEs.

Government grant revenues decreased $0.6 million in 2011 due to the recognition of a grant from the EDB for $1.3 million in 2011 compared to $3.2 million in 2010. This decrease was partially offset by an increased grant from the U.S. Department of Energy of $2.2 million in 2011, compared to $0.9 million in 2010.

Our top five customers accounted for 77% and 85% of our total revenues in 2011 and 2010, respectively. Shell accounted for 51% and 62% of our total revenues in 2011 and 2010, respectively.

Cost of Product Revenues

	Years Ended December 31,		Change	
(In Thousands)	**2011**	**2010**	**$**	**%**
Cost of revenues:				
Product	$ 41,781	$ 27,982	$ 13,799	49%
Gross profit:				
Product	$ 7,240	$ 4,853	$ 2,387	49%
Product gross margin %	15%	15%		

Cost of product revenues increased $13.8 million in 2011 compared to 2010 primarily due to an increase in product sales. Gross margins in 2011 were flat at 15% for 2011 and 2010.

Operating Expenses

	Years Ended December 31,		Change	
(In Thousands)	**2011**	**2010**	**$**	**%**
Research and development	$ 61,049	$ 52,405	$ 8,644	16%
Selling, general and administrative	36,942	33,841	3,101	9%
Total operating expenses	$ 97,991	$ 86,246	$ 11,745	14%

Research and Development. Research and development expenses increased $8.6 million in 2011 compared to 2010 primarily due to a $2.8 million increase in amortization related to our October 2010 acquisition of the Maxygen IP. Our royalty fees paid to Maxygen were zero in 2011 compared to $1.2 million in 2010. The decrease is a result of our acquisition of the Maxygen IP and therefore we are no longer obliged to pay royalties to Maxygen. Additionally, compensation expenses (including stock-based compensation) increased $2.2 million due to increases in headcount. We increased costs approximately $1.0 million for additional product development batches for our research and development efforts. Outside services increased $1.0 million in connection with development cost for our contract manufacturers and lab space expansions. Lab supplies increased $0.9 million to support our increased headcount and ongoing development work. Our facility costs increased $0.8 million primarily as a result of costs to expand our space in Redwood City, California. Costs of information technology equipment and services increased $0.7 million in support of the additional headcount and expanded capabilities.

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Our travel costs increased $0.5 million primarily related to increased international travel. Research and development expenses include stock-based compensation expense of $3.3 million and $3.4 million during 2011 and 2010, respectively.

Selling, General and Administrative. Selling, general and administrative expenses increased $3.1 million in 2011 compared to 2010 primarily due to a $1.4 million increase in compensation expenses (including stock-based compensation) as we increased headcount. Outside services increased $0.7 million related to increased consulting costs. Recruiting and relocation costs increased $0.6 million in support our increased headcount. Our travel costs increased $0.5 million due to increased international travel. Selling, general and administrative expenses included stock-based compensation expense of $6.1 million and $5.4 million during 2011 and 2010, respectively. The stock-based compensation expense increase is attributable to additional options granted and outstanding during 2011 compared to 2010.

Other Income (Expense), net

	Years Ended December 31,		Change	
(In Thousands)	**2011**	**2010**	**$**	**%**
Interest income	$ 273	$ 166	$ 107	64%
Interest expense and other, net	(675)	(1,199)	524	(44%)
Total other income (expense), net	$ (402)	$ (1,033)	$ 631	(61%)

Interest Income. Interest income increased $0.1 million due to higher average interest rates received on our cash, cash equivalents and marketable securities balances during 2011 compared to 2010.

Interest Expense and Other, Net. Interest expense and other, net, decreased $0.5 million during 2011 compared to 2010 due to $0.7 million expense from the fair value adjustment related to our preferred stock warrants in 2010 that did not reoccur in 2011 and a decrease in interest expense of $0.5 million due to the payoff of our debt obligation on the GE Capital Loan also in 2010. These were offset by an increase of $0.4 million in unrealized foreign exchange losses primarily related to our operations in Hungary and $0.4 million of other income derived in 2010 from contractual arrangements with Arch that did not reoccur in 2011.

Provision for Income Taxes. The tax provision for 2011 and 2010 primarily consisted of income taxes attributable to foreign operations and expenses related to uncertain tax positions.

Years Ended December 31, 2010 and 2009

Revenues

	Years Ended December 31,		Change	
(In Thousands)	**2010**	**2009**	**$**	**%**
Product	$ 32,835	$ 18,554	$ 14,281	77%
Collaborative R&D	70,196	64,308	5,888	9%
Government grants	4,073	46	4,027	nm
Total revenues	$ 107,104	$ 82,908	$ 24,196	29%

Revenues increased during the year ended December 31, 2010 compared to the year ended December 31, 2009 due to increases from product sales, collaborative research and development projects and government grants.

Product revenues increased $14.3 million in 2010 compared to 2009 primarily due to increased sales to Merck, and increased product sales to our generics customers.

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Collaborative research and development revenues increased $5.9 million in 2010 compared to 2009 primarily due to a $3.5 million increase in revenues from our Shell collaboration and a $2.4 million increases in revenues from our collaborative arrangements in pharmaceuticals.

Collaborative research and development revenues related to Shell increased $3.5 million in 2010 primarily due to additional milestone achievements which generated $2.8 million in revenues, and an increase in the number of FTEs engaged in our research and development collaboration with Shell and the contractual increases in the billing rates for FTEs. The expansion of this collaboration resulted in an increase in the number of contractual FTEs from an average of 126 in 2009 to an average of 128 in 2010.

Other collaborative research and development revenues increased in 2010 compared to 2009 primarily due to pharmaceutical research services performed under the December 2009 research agreement with Teva Pharmaceutical Industries, Ltd.

Government grant revenues increased in 2010 due to the recognition of a grant from the EDB for $3.2 million and a grant from the U.S. Department of Energy of $0.9 million.

Our top five customers accounted for 85% and 90% of our total revenues in 2010 and 2009, respectively. Shell accounted for 62% and 76% of our total revenues in 2010 and 2009, respectively.

Cost of Product Revenues

(In Thousands)	Years Ended December 31, 2010	2009	Change $	%
Cost of revenues:				
Product	$ 27,982	$ 16,678	$ 11,304	68%
Gross profit:				
Product	$ 4,853	$ 1,876	$ 2,977	159%
Product gross margin %	15%	10%		

Cost of product revenues increased $11.3 million in 2010 compared to 2009 primarily due to an increase in product sales. Gross margins in 2010 increased to 15% from 10% in 2009, due to certain higher margin products sales during 2010 and a decrease in inventory write downs of approximately $0.6 million in 2010 compared to 2009 due to the closure of our Julich, Germany facility in 2009.

Operating Expenses

(In Thousands)	Years Ended December 31, 2010	2009	Change $	%
Research and development	$ 52,405	$ 54,725	$ (2,320)	(4%)
Selling, general and administrative	33,841	29,871	3,970	13%
Total operating expenses	$ 86,246	$ 84,596	$ 1,650	2%

Research and Development. Research and development expenses decreased $2.3 million in 2010 compared to 2009 primarily due to a $4.3 million reduction in royalty fees owed to Maxygen. As a result of our acquisition of the Maxygen IP in October 2010, we are no longer obliged to pay royalties to Maxygen. Through October 2010, we incurred $1.2 million of royalties owed Maxygen. In 2009, we paid $3.2 million to Maxygen as a royalty related to Shell s increased equity investment in our company and $2.3 million related to revenues generated under our biofuels program with Shell. Additionally, outside service costs in 2010 declined by $1.3 million, primarily related to our 2009

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investment and joint development agreement with CO_2 Solutions. The decreases in research and development expenses were partially offset by increase in depreciation expense of $1.8 million due to leasehold improvements for lab space expansion and capital equipment acquisitions. Research and development expenses included stock-based compensation expense of $3.4 million and $2.3 million during 2010 and 2009, respectively. The stock-based compensation expense increase is attributable to additional options granted and outstanding during 2010 compared to 2009.

Selling, General and Administrative. Selling, general and administrative expenses increased $4.0 million in 2010 compared to 2009 primarily due to a $4.6 million increase in compensation expenses (including stock-based compensation) as we increased headcount due to our public company readiness efforts. Additionally, we had increased spending on outside accounting and auditing services by $0.9 million due to efforts associated with being a public company. This was partially offset by decreases in cost for consultants, contractors and outside legal services of $2.3 million as we decreased our dependence on outside service providers. Selling, general and administrative expenses included stock-based compensation expense of $5.4 million and $2.5 million during 2010 and 2009, respectively. The stock-based compensation expense increase is attributable to additional options granted and outstanding during 2010 compared to 2009.

Other Income (Expense), net

(In Thousands)	Years Ended December 31, 2010	2009	Change $	Change %
Interest income	$ 166	$ 180	$ (14)	(8%)
Interest expense and other, net	(1,199)	(2,037)	838	(41%)
Total other income (expense), net	$ (1,033)	$ (1,857)	$ 824	(44%)

Interest Income. Interest income decreased due to lower average interest rates received on our cash, cash equivalents and marketable securities balances during 2010 compared to 2009.

Interest Expense and Other, Net. Interest expense and other, net, decreased $0.8 million during 2010 compared to 2009 due to $0.4 million of other income derived in 2010 from contractual arrangements with Arch and a decrease in interest expense of $0.9 million due to the payoff of our debt obligation on the GE Capital Loan. These were offset by an increase of $0.4 million in unrealized foreign exchange losses primarily related to our operations in Hungary.

Provision for Income Taxes. The tax provision for 2010 and 2009 primarily consisted of income taxes attributable to foreign operations and expenses related to uncertain tax positions.

Liquidity and Capital Resources

(In Thousands)	December 31, 2011	2010
Cash and cash equivalents	$ 25,762	$ 72,396
Marketable securities	27,720	
Accounts receivable, net	18,917	15,333
Accounts payable, accrued compensation and accrued liabilities	24,503	22,945
Working capital (1)	50,940	64,708

(1) Working capital consists of total current assets less total current liabilities.

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(In Thousands)	Years Ended December 31, 2011	2010	2009
Net cash used in operating activities	$ (490)	$ (16,383)	$ (8,786)
Net cash used in investing activities	(48,808)	(5,166)	(20,958)
Net cash provided by financing activities	2,579	62,239	39,997
Effect of foreign exchange rates on cash and cash equivalents	85	(79)	(371)
Net increase (decrease) in cash and cash equivalents	$ (46,634)	$ 40,611	$ 9,882

Cash Flows from Operating Activities

We have historically experienced negative cash flow from operations as we continue to invest in our infrastructure, our technology platform, and expand our business. Our cash flows from operations will continue to be affected principally by the extent to which we increase our headcount, primarily in research and development, in order to grow our business. The timing of hiring of skilled research and development personnel affects cash flows in particular as there is a lag between the hiring of research and development personnel and the generation of collaboration or product revenues and cash flows from those personnel. Our primary source of cash flows from operating activities is cash receipts from our customers. Our largest uses of cash from operating activities are for employee related expenditures, rent payments, inventory purchases to support our revenue growth and non-payroll research and development costs, which historically included payments made to Maxygen in connection with our biofuels research and development collaboration with Shell. As a result of our purchase of the Maxygen IP in October 2010, these payments to Maxygen terminated. In light of the growth in market acceptance of our products and services to date, we currently intend to continue our investment in research and development.

Our operating activities in 2011 used cash of $0.5 million, primarily due to our net loss of $16.6 million in 2011, and increases in accounts receivable of $3.6 million due to increased product revenues and the timing of payments from Shell and a decrease in deferred revenues of $4.3 million primarily as a result of billings to Shell recognized to revenue during 2011. We also had net non-cash charges of $21.6 million, comprised primarily of non-cash share-based compensation expense of $9.4 million, $7.8 million in depreciation and amortization of property and equipment and $3.7 million in amortization of intangible assets.

Our operating activities in 2010 used cash of $16.4 million, primarily due to our net loss of $8.5 million in 2010, and increases in accounts receivable of $8.1 million due to increased product revenues and the timing of payments from Shell and a decrease in deferred revenues of $15.1 million primarily as a result of 2009 billings to Shell recognized to revenue during 2010. We also had net non-cash charges of $19.0 million, comprised primarily of non-cash share-based compensation expense of $8.7 million, $7.2 million in depreciation and amortization of property and equipment and $1.1 million in amortization of intangible assets.

Our operating activities in 2009 used cash of $8.8 million, primarily as a result of our net loss of $20.3 million and increases in accounts receivable of $1.1 million, offset by decreases in deferred revenues of $0.5 million primarily as a result of continuing recognition of up-front exclusivity fees we received from Shell in 2007. We also had net non-cash charges of $12.5 million, comprised primarily of $5.2 million in depreciation and amortization of property and equipment, $4.8 million in stock-based compensation expense, $1.0 million in amortization of intangible assets and $0.6 million related to the increase in the fair value of the redeemable convertible preferred stock warrants during the period.

Cash Flows from Investing Activities

In 2011, cash used in investing activities totaled $48.8 million and primarily consisted of a net increase in marketable securities of $38.0 million and capital expenditures of $10.7 million primarily related to improvements for our facility expansion and purchase of development and lab equipment.

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In 2010, cash used in investing activities totaled $5.2 million and primarily consisted of a net decrease in marketable securities of $23.2 million and capital expenditures of $7.0 million primarily related to leasehold improvements for lab space expansion and purchase of manufacturing and lab equipment and $20.7 million for the acquisition of the Maxygen IP.

In 2009, our investing activities used cash of $21.0 million, primarily for the net purchases of $9.1 million of marketable securities, and $10.7 million of capital expenditures. These capital expenditures consisted primarily of laboratory equipment purchases and leasehold improvements in our laboratories.

We expect our capital expenditures to be approximately $6.0 million for 2012. In the future, we will continue to make laboratory equipment purchases to support our increasing research and development efforts and growth strategy.

Cash Flows from Financing Activities

In 2011, our financing activities provided $2.6 million of cash from exercises of stock options.

In 2010, our financing activities provided $62.2 million including gross proceeds received related to our IPO of $72.5 million and $1.6 million from exercises of stock options offset by payments in preparation for our IPO of $3.9 million and the payoff of our financing obligations of $8.0 million.

In 2009, our financing activities provided $40.0 million in cash, primarily from the issuance and sale of 3.7 million shares of Series F preferred stock for $46.9 million, partially offset by $6.1 million in principal payments on our financing obligations.

Contractual Obligations and Commitments

The following summarizes the future commitments arising from our contractual obligations at December 31, 2011 (in thousands):

	Total	2012	2013	2014	2015	2016	2017 and beyond
Operating leases	$ 22,975	$ 3,268	$ 2,909	$ 2,731	$ 2,808	$ 2,812	$ 8,447
Total	$ 22,975	$ 3,268	$ 2,909	$ 2,731	$ 2,808	$ 2,812	$ 8,447

We have excluded from the above table $1.5 million in contractual obligations related to uncertain tax positions as we cannot make a reasonably reliable estimate of the period of cash settlement.

Off-Balance Sheet Arrangements

As of December 31, 2011, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K as promulgated by the SEC.

Accounting Guidance Update

Recently Adopted Accounting Guidance

In June 2011, the FASB issued ASU 2011-05, Comprehensive Income (Topic 220) - Presentation of Comprehensive Income that eliminates the option to present items of other comprehensive income (OCI) as part of the statement of changes in stockholders equity, and instead requires either, OCI presentation and net income in a single continuous statement in the statement of operations, or as a separate statement of comprehensive income. This new guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2011, with early adoption permitted. The Company adopted this update in the fourth quarter of 2011. The adoption of this accounting guidance did not have a material impact on our financial statements.

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In April 2010, the FASB issued ASU 2010-17, Revenue Recognition Milestone Method (Topic 605): Milestone Method of Revenue Recognition on defining a milestone and determining when it may be appropriate to apply the milestone method of revenue recognition for research or development transactions. Research or development arrangements frequently include payment provisions whereby a portion or all of the consideration is contingent upon the achievement of milestone events. An entity may only recognize consideration that is contingent upon the achievement of a milestone in its entirety in the period the milestone is achieved only if the milestone meets certain criteria. We adopted this guidance effective January 1, 2011 and it did not materially impact our financial statements. The potential future impact of this guidance will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future. Refer to Note 2 in the Notes to Consolidated Financial Statements for information related to our evaluation of revenue arrangements with milestones.

In January 2010, the FASB issued ASU 2010-06, Fair Value Measurements and Disclosures (Topic 820): Improving Disclosures about Fair Value Measurements that requires new disclosures for fair value measurements and provides clarification for existing disclosure requirements. This amended guidance requires disclosures about inputs and valuation techniques used to measure fair value as well as disclosures about significant transfers in and out of Levels 1 and Levels 2 fair value measurements and disclosures about the purchase, sale, issuance and settlement activity of Level 3 fair value measurements. This guidance is effective for interim and annual reporting periods beginning after December 15, 2009, except for disclosures about the purchase, sale, issuance and settlement activity of Level 3 fair value measurements, which is effective for fiscal years beginning after December 15, 2010. The adoption of the accounting guidance had no material impact to our financials or disclosures.

In October 2009, the FASB issued ASU 2009-13, Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements updating accounting standards for revenue recognition for multiple-deliverable arrangements. The stated objective of the update was to address the accounting for multiple-deliverable arrangements to enable vendors to account for products or services separately rather than as a combined unit. The guidance provides amended methodologies for separating consideration in multiple-deliverable arrangements and expands disclosure requirements. We adopted this guidance for revenue arrangements entered into or materially modified after January 1, 2011 and it did not have a material impact on our financial statements or disclosures to date. The potential future impact of this guidance will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future. Refer to Note 2 in the Notes to Consolidated Financial Statements for information related to our evaluation of revenue arrangements with multiple-deliverables.

Recent Accounting Guidance Not Yet Effective

In September 2011, the FASB issued ASU 2011-08, Intangibles Goodwill and Other (Topic 350): Testing Goodwill for Impairment that simplifies goodwill impairment tests. The new guidance states that a qualitative assessment may be performed to determine whether further impairment testing is necessary. We will adopt this accounting standard upon its effective date for periods beginning after December 15, 2011, and do not anticipate that this adoption will have a significant impact on our financial position or results of operations.

In May 2011, the FASB issued ASU 2011-04, Fair Value Measurement (Topic 820): Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs that clarifies and changes some fair value measurement principles and disclosure requirements. Among them is the clarification that the concepts of highest and best use and valuation premise in a fair value measurement, should only be applied when measuring the fair value of nonfinancial assets. Additionally, the new guidance requires quantitative information about unobservable inputs, and disclosure of the valuation processes used and narrative descriptions with regard to fair value measurements within the Level 3 categorization of the fair value hierarchy. The new guidance is effective for interim and annual reporting periods beginning after December 15, 2011, with early adoption prohibited. The adoption of this new guidance is not expected to have a material impact on our financial statements or 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 $25.8 million at December 31, 2011. These amounts were invested primarily in money market funds and are held for working capital purposes. We had current and non-current marketable securities holdings of $27.7 million and $10.3 million, respectively. These amounts were invested primarily in corporate bonds, commercial paper, and U.S. government obligations and U.S. Government-sponsored enterprise securities 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 2011, our interest income would have declined by approximately $28,000, assuming consistent investment levels.

Foreign Currency Risk

Our operations include manufacturing and sales activities in the United States, Austria, France, Germany, Italy, Japan and India, as well as research activities in countries outside the United States, including Singapore and Hungary. As we expand internationally, our results of operations and cash flows will become increasingly subject to fluctuations due to changes in foreign currency exchange rates. For example, we purchase materials for, and pay employees at, our research facility in Singapore in Singapore dollars. In addition, we purchase products for resale in the United States from foreign companies and have agreed to pay them in currencies other than the U.S. 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 U.S. dollar declines in value as compared to the foreign currencies in which we incur expenses, our foreign-currency based expenses increase when translated into U.S. 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 U.S. dollars, future fluctuations in the value of the U.S. 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, 2011 would have been a $0.6 million foreign exchange loss recognized as a component of interest expense and other, net in our consolidated statement of operations. We may consider hedging our foreign currency as we continue to expand internationally.

Equity Price Risk

As described further in Note 4 to the consolidated financial statements, we have an investment in common shares of CO_2 Solution s Inc., a company based in Quebec City, Canada, or CO_2 Solutions, whose shares are publicly traded in Canada on the TSX Venture Exchange. This investment is exposed to fluctuations in both the market price of CO_2 Solutions s common shares and changes in the exchange rates between the U.S. dollar and the Canadian dollar. The effect of a 10% adverse change in the market price of CO_2 Solutions s common shares as of December 31, 2011 would have been an unrealized loss of approximately $116,000, recognized as a component of unrealized loss on the consolidated statements of comprehensive income (loss). The effect of a 10% adverse change in the exchange rates between the U.S. dollar and the Canadian dollar as of December 31, 2011 would have been an unrealized loss of approximately $116,000 recognized as a component of interest expense and other, net on the consolidated statements of operations.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Codexis, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders

Codexis, Inc.

We have audited the accompanying consolidated balance sheets of Codexis, Inc. (the Company) as of December 31, 2011 and 2010, and the related consolidated statements of operations, comprehensive income, redeemable convertible preferred stock and stockholders equity (deficit), and cash flows for each of the three years in the period ended December 31, 2011. 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. 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 audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Codexis, Inc. at December 31, 2011 and 2010, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2011, in conformity with U.S. generally accepted accounting principles.

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, 2011, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 5, 2012 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California

March 5, 2012

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders

Codexis, Inc.

We have audited Codexis, Inc. s internal control over financial reporting as of December 31, 2011, based on criteria established in *Internal Control Integrated Framework* 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 the accompanying 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, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and 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, 2011, 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, 2011 and 2010, and the related consolidated statements of operations, comprehensive income, redeemable convertible preferred stock and stockholders equity (deficit), and cash flows for each of the three years in the period ended December 31, 2011 of Codexis, Inc. and our report dated March 5, 2012 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California

March 5, 2012

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Codexis, Inc.

Consolidated Balance Sheets

(In Thousands except Per Share Amounts)

	December 31, 2011	2010
Assets		
Current assets:		
Cash and cash equivalents	$ 25,762	$ 72,396
Marketable securities	27,720	
Accounts receivable, net of allowances of $17 and $58 at December 31, 2011 and 2010, respectively	18,917	15,333
Inventories	4,488	2,817
Prepaid expenses and other current assets	2,345	1,646
Total current assets	79,232	92,192
Restricted cash	1,511	1,466
Non-current marketable securities	10,348	1,650
Property and equipment, net	24,176	21,452
Intangible assets, net	16,442	20,158
Goodwill	3,241	3,241
Other non-current assets	972	1,141
Total assets	$ 135,922	$ 141,300
Liabilities and Stockholders Equity		
Current liabilities:		
Accounts payable	$ 10,364	$ 9,208
Accrued compensation	6,785	8,107
Other accrued liabilities	7,354	5,630
Deferred revenues	3,789	4,539
Total current liabilities	28,292	27,484
Deferred revenues, net of current portion	1,485	5,074
Other long-term liabilities	3,455	1,381
Commitments and contingencies		
Stockholders equity:		
Preferred stock, $0.0001 par value per share; 5,000 and 5,000 shares authorized at December 31, 2011 and 2010, respectively; None issued and outstanding at December 31, 2011 and 2010, respectively;		
Common stock, $0.0001 par value per share; 100,000 shares authorized at December 31, 2011 and 2010, respectively; 35,996 and 34,829 shares issued and outstanding at December 31, 2011 and 2010, respectively;	4	4
Additional paid-in capital	287,792	275,540
Accumulated other comprehensive loss	(407)	(34)
Accumulated deficit	(184,699)	(168,149)
Total stockholders equity	102,690	107,361
Total liabilities and stockholders equity	$ 135,922	$ 141,300

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Codexis, Inc.

Consolidated Statements of Operations

(In Thousands, Except Per Share Amounts)

	Years Ended December 31,		
	2011	**2010**	**2009**
Revenues:			
Product	$ 49,021	$ 32,835	$ 18,554
Collaborative research and development	71,368	70,196	64,308
Government grants	3,476	4,073	46
Total revenues	123,865	107,104	82,908
Costs and operating expenses:			
Cost of product revenues	41,781	27,982	16,678
Research and development	61,049	52,405	54,725
Selling, general and administrative	36,942	33,841	29,871
Total costs and operating expenses	139,772	114,228	101,274
Loss from operations	(15,907)	(7,124)	(18,366)
Interest income	273	166	180
Interest expense and other, net	(675)	(1,199)	(2,037)
Loss before provision for income taxes	(16,309)	(8,157)	(20,223)
Provision for income taxes	241	384	66
Net loss	$ (16,550)	$ (8,541)	$ (20,289)
Net loss per share of common stock, basic and diluted	$ (0.46)	$ (0.35)	$ (7.74)
Weighted average common shares used in computing net loss per share of common stock, basic and diluted	35,674	24,594	2,622

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Codexis, Inc.

Consolidated Statements of Comprehensive Income

(In Thousands)

	Years Ended December 31,		
	2011	2010	2009
Net loss	$ (16,550)	$ (8,541)	$ (20,289)
Other comprehensive income, net of tax			
Foreign currency translation adjustments	(3)	(37)	(253)
Unrealized gain (loss) on marketable securities	(370)	255	(138)
Other comprehensive loss	(373)	218	(391)
Total comprehensive loss	$ (16,923)	$ (8,323)	$ (20,680)

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Codexis, Inc.

Consolidated Statements of Redeemable Convertible Preferred Stock and Stockholders Equity (Deficit)

(In Thousands)

	Redeemable Convertible Preferred Stock		Common Stock					
	Shares	Amount	Shares	Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders Equity (Deficit)
December 31, 2008	**21,513**	**132,746**	**2,604**		**10,056**	**139**	**(139,319)**	**(129,124)**
Exercise of stock options			66		117			117
Vesting of shares exercised early					20			20
Employee stock-based compensation					4,671			4,671
Non-employee stock-based compensation					151			151
Issuance of Series F redeemable convertible preferred stock, net of issuance costs of $74	3,686	46,926						
Total comprehensive loss						(391)	(20,289)	(20,680)
December 31, 2009	**25,199**	**179,672**	**2,670**		**15,015**	**(252)**	**(159,608)**	**(144,845)**
Exercise of common warrants			42					
Exercise of stock options			810		1,594			1,594
Vesting of shares exercised early					13			13
Employee stock-based compensation					8,468			8,468
Non-employee stock-based compensation					386			386
Conversion of preferred stock to common stock at initial public offering	(25,199)	(179,672)	25,307	3	179,669			179,672
Shares issued for initial public offering, net of issuance costs			6,000	1	67,710			67,711
Conversion of preferred stock warrants					2,686			2,686
Cash paid in lieu of partial shares					(1)			(1)
Total comprehensive loss						218	(8,541)	(8,323)
December 31, 2010			**34,829**	**4**	**275,540**	**(34)**	**(168,149)**	**107,361**
Exercise of stock options			1,167		2,579			2,579
Employee stock-based compensation					9,286			9,286
Non-employee stock-based compensation					387			387
Total comprehensive loss						(373)	(16,550)	(16,923)
December 31, 2011		**$**	**35,996**	**$ 4**	**$ 287,792**	**$ (407)**	**$ (184,699)**	**$ 102,690**

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Codexis, Inc.

Consolidated Statements of Cash Flows

(In Thousands)

	Years Ended December 31,		
	2011	2010	2009
Operating activities:			
Net loss	$ (16,550)	$ (8,541)	$ (20,289)
Adjustments to reconcile net loss to net cash used in operating activities:			
Amortization of intangible assets	3,716	1,063	957
Depreciation and amortization of property and equipment	7,755	7,246	5,172
Revaluation of redeemable convertible preferred stock warrant liability		677	627
Loss (gain) on disposal of property and equipment	49	148	(50)
Extinguishment of royalty payable		461	
Gain from extinguishment of asset retirement obligation	(124)		
Stock-based compensation	9,431	8,737	4,822
Accretion of asset retirement obligation	39	146	43
Amortization of debt discount		26	311
Accretion of premium/discount on marketable securities	771	511	594
Changes in operating assets and liabilities:			
Accounts receivable	(3,583)	(8,087)	(1,054)
Inventories	(1,671)	98	58
Prepaid expenses and other current assets	(682)	13	11
Other assets	513	2,814	(228)
Accounts payable	1,156	(2,105)	1,068
Accrued compensation	(1,322)	1,589	2,434
Other accrued liabilities	4,351	(6,048)	(3,792)
Deferred revenues	(4,339)	(15,131)	530
Net cash used in operating activities	(490)	(16,383)	(8,786)
Investing activities:			
(Increase) decrease in restricted cash	(45)	(735)	193
Purchase of property and equipment	(10,736)	(6,990)	(10,697)
Purchase of marketable securities	(52,564)	(49,051)	(37,118)
Purchase of Maxygen patent portfolio		(20,705)	
Proceeds from sale of marketable securities	6,037	1,605	
Proceeds from maturities of marketable securities	8,500	70,695	27,980
Proceeds from disposal of property and equipment		15	
Purchase of shares of CO_2 Solutions common shares			(1,316)
Net cash used in investing activities	(48,808)	(5,166)	(20,958)
Financing activities:			
Principal payments on financing obligations		(8,026)	(6,087)
Payments in preparation for initial public offering		(3,870)	(959)
Proceeds from issuance of preferred stock, net of issuance costs			46,926
Proceeds from issuance of common stock on IPO, net of underwriting discounts		72,541	
Proceeds from exercises of stock options	2,579	1,594	117
Net cash provided by financing activities	2,579	62,239	39,997

Effect of exchange rate changes on cash and cash equivalents	85	(79)	(371)
Net increase (decrease) in cash and cash equivalents	(46,634)	40,611	9,882
Cash and cash equivalents at the beginning of the period	72,396	31,785	21,903
Cash and cash equivalents at the end of the period	$ 25,762	$ 72,396	$ 31,785
Supplemental disclosures of cash flow information:			
Cash paid for interest	$	$ 350	$ 1,066
Cash paid for income taxes	$ 89	$ 336	$ 364
Supplemental schedule of noncash investing and financing activities:			
Reclassification of preferred stock warrant from liability to additional paid-in capital	$	$ 2,686	$
Conversion of preferred stock to common stock and additional paid-in capital	$	$ 179,672	$

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Codexis, Inc.

Notes to Consolidated Financial Statements

1. Description of Business

We are a producer of custom industrial enzymes. Our products enable novel, sustainable processes for the manufacture of biofuels, chemicals, and pharmaceutical ingredients.

We are developing our flagship CodeXyme cellulase enzymes to convert non-food plant material, which we call cellulosic biomass, into affordable sugars, which can then be converted into renewable fuels and chemicals. We have been developing these cellulase enzymes with Royal Dutch Shell plc, or Shell, since 2006 for applications in the biofuels markets. We intend to market CodeXyme cellulase enzymes to chemicals manufacturers worldwide. We are also developing our own novel processes to manufacture certain specialty and commodity bio-based chemicals, which we intend to commercialize with strategic partners. The first of these products is CodeXol detergent alcohols. Detergent alcohols are used to manufacture surfactants, which are key, active cleaning ingredients in consumer products such as shampoos, liquid soaps and laundry detergents.

We have commercialized our technology, products and services in the pharmaceuticals market. There are currently over 50 pharmaceutical firms using our technology, products and services in their manufacturing process development, including the production of some of the world s bestselling and fastest growing drugs.

We create our products by applying our CodeEvolver directed evolution technology platform which introduces genetic mutations into microorganisms, giving rise to changes in the enzymes which they produce. Once we identify potentially beneficial mutations, we test combinations of these mutations until we have created variant enzymes that exhibit marketable performance characteristics superior to competitive products. This process allows us to make continuous, efficient improvements to the performance of our enzymes.

2. Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States and include the accounts of Codexis and our wholly-owned subsidiaries. We have subsidiaries in United States, Brazil, Hungary, India, Mauritius, The Netherlands and Singapore. All significant intercompany balances and transactions have been eliminated in consolidation.

Significant Risks and Uncertainties

We incurred net losses of $16.6 million, $8.5 million and $20.3 million for the years ended December 31, 2011, 2010 and 2009, respectively. We used $0.5 million, $16.4 million and $8.8 million of cash in operating activities for the years ended December 31, 2011, 2010 and 2009, respectively. At December 31, 2011, we had an accumulated deficit of $184.7 million and unrestricted cash and cash equivalents of $25.8 million. We may be required to seek additional funds through collaborations or public or private debt or equity financings, and may also seek to reduce expenses related to our operations. There can be no assurance that any financing will be available or at terms acceptable to us.

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles 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 revenues and expenses during the reporting period. Our management regularly assesses these estimates which primarily affect revenue recognition, the valuation of marketable securities and accounts receivable, intangible assets and goodwill arising out of business acquisitions, inventories, accrued liabilities, common stock, and stock options 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.

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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 U.S. dollars at the exchange rates in effect at the balance sheet date, with resulting foreign currency translation adjustments recorded in accumulated other comprehensive income (loss) in the consolidated statements of stockholders equity (deficit). Revenues and expense amounts are translated at average rates during the period. Accumulated other comprehensive income (loss) included cumulative translation adjustment losses of $165,000 and $162,000 at December 31, 2011 and 2010, respectively.

Where the U.S. dollar is the functional currency, nonmonetary assets and liabilities originally acquired or assumed in other currencies are recorded in U.S. 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 U.S. dollars at the exchange rates in effect at the balance sheet date. Revenues and expense amounts are generally translated at the average rates during the period. Translation adjustments are recorded in interest expense and other, net 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 interest expense and other, net in the accompanying consolidated statements of operations.

Concentrations of Credit Risk

Financial instruments that potentially subject us to significant concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities, accounts receivable and restricted cash. Cash and cash equivalents, marketable securities and restricted cash are invested through banks and other financial institutions in the United States, as well as in other foreign countries. Such deposits may be in excess of insured limits.

Credit risk with respect to accounts receivable exists to the full extent of amounts presented in the consolidated financial statements. We periodically require collateral to support credit sales. 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.

Customers with accounts receivables balance of 10% or more of our total receivables balance consist of the following (in thousands):

	Percentage of accounts receivable as of December 31,	
	2011	2010
Customers		
Pharmaceutical Customer A	17%	*
Shell	15%	31%
Pharmaceutical Customer B	11%	14%
Pharmaceutical Customer C	10%	13%
Pharmaceutical Customer D	10%	*

* Represents less than 10% of total accounts receivable

We do not believe the accounts receivable from these customers represent a significant credit risk based on past collection experiences and the general creditworthiness of these customers.

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Fair Value of Financial Instruments

The carrying amounts of certain of our financial instruments, including cash and cash equivalents, marketable securities, restricted cash, accounts receivable and accounts payable, approximate fair value due to their short maturities.

Fair value is considered to be the price at which an asset could be exchanged or a liability transferred (an exit price) in an orderly transaction between knowledgeable, willing parties in the principal or most advantageous market for the asset or liability. Where available, fair value is based on or derived from observable market prices or other observable inputs. Where observable prices or inputs are not available, valuation models are applied. These valuation techniques involve some level of management estimation and judgment, the degree of which is dependent on the price transparency for the instruments or market and the instruments complexity.

Cash, Cash Equivalents and Marketable Securities

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 are maintained with major financial institutions in North America. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits. Marketable securities included in current assets are comprised of corporate bonds, commercial paper, government-sponsored enterprise securities and U.S. Treasury obligations. Marketable securities included in non-current assets are comprised of corporate bonds and government-sponsored enterprise securities that have a maturity date greater than 1 year. Our investment in common shares of CO_2 Solutions Inc. (CO_2Solutions) is included in non-current marketable securities.

We perform separate evaluations of impaired debt and equity securities to determine if the unrealized losses as of the balance sheet date are other-than-temporary.

For our investments in equity securities, our evaluation considers a number of factors including, but not limited to, the length of time and extent to which the fair value has been less than cost, the financial condition and near term prospects of the issuer, and our management s ability and intent to hold the securities until fair value recovers. The assessment of the ability and intent to hold these securities to recovery focuses on our current and forecasted liquidity requirements, our capital requirements and securities portfolio objectives. Based on our evaluation, we concluded that as of December 31, 2011, the unrealized losses related to equity securities are temporary.

For our investments in debt securities, our management determines whether we intend to sell or if it is more-likely-than-not that we will be required to sell impaired securities. This determination considers our current and forecasted liquidity requirements, our capital requirements and securities portfolio objectives. For all impaired debt securities for which there was no intent or expected requirement to sell, the evaluation considers all available evidence to assess whether it is likely the amortized cost value will be recovered. We conduct a regular assessment of our debt securities with unrealized losses to determine whether the securities have other-than-temporary impairment considering, among other factors, the nature of the securities, credit rating or financial condition of the issuer, the extent and duration of the unrealized loss, expected cash flows of underlying collateral and market conditions. Based on our evaluation, we concluded that as of December 31, 2011, the unrealized losses related to debt securities are temporary.

Our investments in debt and equity securities are classified as available-for-sale and are carried at estimated fair value. Unrealized gains and losses are reported on the Statement of Comprehensive Income. Amortization of purchase premiums and accretion of purchase discounts, realized gains and losses of debt securities and declines in value deemed to be other than temporary, if any, are included in interest income or interest expense and other, net. The cost of securities sold is based on the specific-identification method. There were no significant realized gains or losses from sales of marketable securities during the years ended December 31, 2011, 2010, and 2009.

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Accounts Receivable

Accounts receivable represent amounts owed to us under our collaborative research and development agreements, product revenues and government grants. Our allowance for doubtful accounts was $17,000 and $58,000 as of December 31, 2011 and 2010, respectively. Specific accounts written off against the established reserve were $12,000, $0, and $0 during the years ended December 31, 2011, 2010 and 2009, respectively.

Inventories

Inventories consist of biocatalysts, which are enzymes or microbes that facilitate chemical reactions, and pharmaceutical intermediates. Internally produced biocatalysts only qualify as commercial inventory after they have achieved specifications that are required for selling the materials. Inventories held at our contract manufacturers are accepted as finished goods after achieving specifications stated in our purchase orders. Inventories are carried at the lower of cost or market. Cost is determined using the first-in first-out method or the specific identification method depending on location. Inventories, based on demand and age, are written down as excess and obsolete materials, if necessary.

Property and Equipment

Property and equipment, including the cost of purchased software, are stated at cost, less accumulated depreciation and amortization. Property and equipment also includes equipment that has been received but not yet placed in service. Depreciation is calculated using the straight-line method over the following estimated ranges of useful lives:

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

Goodwill

Goodwill represents the excess of the purchase price over the fair value of assets acquired and liabilities assumed. Goodwill is presumed to have an indefinite life and is not subject to annual amortization. We review goodwill for impairment at the company level, which is the sole reporting unit, 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. The annual test for goodwill impairment is a two-step process. The first step is a comparison of the fair value of the reporting unit with its carrying amount, including goodwill. If this step indicates an impairment, then the loss is measured as the excess of recorded goodwill over its implied fair value. Implied fair value is the excess of the fair value of the reporting unit over the fair value of all identified assets and liabilities. No impairment charges were recorded during the years ended December 31, 2011, 2010, and 2009.

Intangible Assets and Impairment of Long-Lived Assets

Intangible assets consist of customer relationships, developed core technology and trade names, arising out of the Maxygen IP purchase in 2010, the Jülich Fine Chemicals (JFC) acquisition in 2005 and our acquisition of BioCatalytics, Inc. in 2007. Intangible assets are recorded at their fair values at the date of the acquisition and, for those assets having finite useful lives, are amortized using the straight-line method over their estimated useful lives, which range from one to seven years.

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We periodically review our intangible and other long-lived assets for possible impairment, whenever events or changes in circumstances indicate that such assets are impaired or the estimated useful lives are no longer appropriate. If indicators of impairment exist and the undiscounted projected cash flows associated with such assets are less than the carrying amounts of the assets, an impairment loss is recorded to write the assets down to their estimated fair values. No impairment charges were recorded during the years ended December 31, 2011, 2010, and 2009.

Restricted Cash

Restricted cash was invested in money market accounts primarily for purposes of securing a standby letter of credit as collateral for our Redwood City, California facility lease agreement and for securing a working capital line of credit. During the year ended December 31, 2011, restricted cash increased by $45,000 due to changes in our facility lease agreement and our working capital line of credit. During the year ended December 31, 2010, restricted cash increased by $0.7 million due to a working capital line of credit.

Revenue Recognition

In October 2009, the Financial Accounting Standards Board (FASB) amended the accounting standards for multiple-element revenue arrangements (ASU 2009-13) to:

- provide updated guidance on whether multiple deliverables exist, how the elements in an arrangement should be separated, and how the consideration should be allocated;
- require an entity to allocate revenue in an arrangement using estimated selling prices (ESP) of each element if a vendor does not have vendor-specific objective evidence of selling price (VSOE) or third-party evidence of selling price (TPE); and
- eliminate the use of the residual method and require a vendor to allocate revenue using the relative selling price method.

In April 2010, the FASB amended the accounting standards for revenue recognition related to milestones (ASU 2010-17) to provide updated guidance on accounting for revenue using the milestone method, clarifying that the milestone method is a valid application of the proportional performance model when applied to research or development arrangements. We already applied a milestone method approach to our research or development arrangements.

We adopted the above accounting guidances on January 1, 2011, for applicable arrangements entered into or materially modified after January 1, 2011 (the beginning of our fiscal year). We have determined that adoption of this new guidance did not have a material impact on our results of operations, cash flows or financial position. The potential future impact of ASU 2009-13 and ASU 2010-17 guidance will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future.

Revenues are recognized when the four basic revenue recognition criteria are met: (1) persuasive evidence of an arrangement exists; (2) products have been delivered, transfer of technology has been completed or services have been rendered; (3) the fee is fixed or determinable; and (4) collectability is reasonably assured.

Our primary sources of revenues consist of collaborative research and development agreements, product revenues and government grants. Collaborative research and development agreements typically provide us with multiple revenue streams, including up-front fees for licensing, exclusivity and technology access, fees for full-time employee equivalent (FTE) services and the potential to earn milestone payments upon achievement of contractual criteria and royalty fees based on future product sales or cost savings by our customers. Our collaborative research and development revenues consist of revenues from Shell and revenues from other collaborative research and development agreements.

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Collaborative research and development revenues related to the arrangements with Shell consisted of the following (in thousands):

	Years Ended December 31,		
	2011	2010	2009
License, technology access and exclusivity fees	$ 4,084	$ 4,084	$ 4,521
Services	53,541	54,664	53,535
Milestones	5,554	7,400	4,600
Shell collaborative research and development revenues	$ 63,179	$ 66,148	$ 62,656

Other collaborative research and development revenues consisted of the following (in thousands):

	Years Ended December 31,		
	2011	2010	2009
License, technology access and exclusivity fees	$ 686	$ 186	$ 186
Services	5,804	2,695	897
Milestones		420	
Royalties	1,699	747	569
Other collaborative research and development revenues	$ 8,189	$ 4,048	$ 1,652

For each source of collaborative research and development revenues, product revenues and grant revenues, we apply the following revenue recognition criteria:

Up-front fees received in connection with collaborative research and development agreements, including license fees, technology access fees, and exclusivity fees, are deferred upon receipt, are not considered a separate unit of accounting and are recognized as revenues over the relevant performance periods.

Revenues related to FTE services are recognized as research services are performed over the related performance periods for each contract. We are required to perform research and development activities as specified in each respective agreement. The payments received are not refundable and are based on a contractual reimbursement rate per FTE working on the project. 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 and development 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. Research and development expenses related to FTE services under the collaborative research and development agreements approximate the research funding over the term of the respective agreements.

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 substantive uncertainty at the date the arrangement is entered into 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 value of the item delivered as a result of a specific outcome resulting from our performance; (ii) relates solely to past performance and (iii) is reasonable relative to all deliverable and payment terms in the arrangement.

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Other payments received for which such payments are contingent solely upon the passage of time or the result of a collaborative partner s performance are recognized as revenue when earned in accordance with the contract terms and when such payments can be reasonably estimated and collectability is reasonably assured.

We recognize revenues from royalties based on licensees sales of 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.

Product revenues are recognized once passage of title and risk of loss has occurred and contractually specified acceptance criteria have been met, provided all other revenue recognition criteria have also been met. Product revenues consist of sales of biocatalysts, intermediates, active pharmaceutical ingredients and Codex Biocatalyst Panels and Kits. Cost of product revenues includes 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 product revenues.

We license mutually agreed upon third party technology for use in our research and development collaboration with Shell. We record the license payments to research and development expense and offset related reimbursements received from Shell. These payments made by Shell to us are direct reimbursements of our costs. We account for these direct reimbursable costs as a net amount, whereby no expense or revenue is recorded for the costs reimbursed by Shell. For any payments not reimbursed by Shell, we will recognize these as expenses in the statement of operations. We elected to present the reimbursement from Shell as a component of our research and development expense since presenting the receipt of payment from Shell as revenues does not reflect the substance of the arrangement.

We receive payments from government entities in the form of government grants. Government grants 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 grants are recognized in the period during which the related costs are incurred, provided that the conditions under which the government grants were provided have been met and we have only perfunctory obligations outstanding.

Shipping and handling costs charged to customers are recorded as revenues. Shipping costs are included in our cost of product revenues. Such charges were not significant in any of the periods presented.

Customer Concentration

Customers with revenues of 10% or more of our total revenues consist of the following:

	Percentage of Total Revenues For The Years Ended December 31,		
	2011	**2010**	**2009**
Customers			
Shell	51%	62%	76%
Merck	10%	10%	*

* Represents less than 10% of total revenues

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 a portion of the manufacturing of our products to contract manufacturers with facilities in Austria, India and Italy.

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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 direct and research-related overhead expenses, which include salaries, stock-based compensation and other personnel-related expenses, facility costs, supplies, depreciation of facilities and laboratory equipment, as well as research consultants and the cost of funding research at universities and other research institutions, and are expensed as incurred. Costs to acquire technologies that are utilized in research and development 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 $113,000, $55,000, and $167,000 for the years ended December 31, 2011, 2010, and 2009, respectively.

Income Taxes

We use the liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets are recognized for deductible temporary differences, along with net operating loss (NOL) carryforwards, if it is more likely than not that the tax benefits will be realized. To the extent a deferred tax asset cannot be recognized under the preceding criterion, a valuation allowance is established. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. We recognize the financial statement effects of an uncertain tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination.

Stock-Based Compensation

Effective January 1, 2006, we began recognizing compensation expense related to share-based transactions, including the awarding of employee stock options, based on the estimated fair value of the awards granted. All awards granted, modified or settled after January 1, 2006 have been accounted for based on the fair value of the awards granted. We are using the straight-line method to allocate stock-based compensation expense to the appropriate reporting periods.

We account for stock options issued to non-employees based on their estimated fair value determined using the Black-Scholes option-pricing model. The fair value of the options granted to non-employees is remeasured as they vest, and the resulting change in value, if any, is recognized as an increase or decrease in stock compensation expense during the period the related services are rendered.

Net Loss per Share of Common Stock

Basic net loss per share of common stock is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding during the period, less the weighted-average unvested common stock subject to repurchase. Diluted net loss per share of common stock is computed by giving effect to all potential common shares, consisting of stock options, warrants and redeemable convertible preferred stock, to the extent dilutive. Basic and diluted net loss per share of common stock was the same for each period presented as the inclusion of all potential common shares outstanding was anti-dilutive.

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The following table presents the calculation of basic and diluted net loss per share of common stock (in thousands, except per share amounts):

	Years Ended December 31,		
	2011	2010	2009
Numerator:			
Net loss	$ (16,550)	$ (8,541)	$ (20,289)
Denominator:			
Weighted-average shares of common stock outstanding	35,674	24,597	2,633
Weighted-average shares of common stock subject to repurchase		(3)	(11)
Weighted-average shares of common stock used in computing net loss per share of common stock, basic and diluted	35,674	24,594	2,622
Net loss per share of common stock, basic and diluted	$ (0.46)	$ (0.35)	$ (7.74)

The following redeemable convertible preferred stock, common stock subject to repurchase, options to purchase common stock, restricted stock units, warrants to purchase redeemable convertible preferred stock and warrants to purchase common stock were excluded from the computation of diluted net loss per share of common stock for the periods presented because including them would have had an anti-dilutive effect (in thousands):

	Years Ended December 31,		
	2011	2010	2009
Redeemable convertible preferred stock			25,240
Common stock subject to repurchase			5
Options to purchase common stock	7,904	7,796	7,887
Restricted stock units	546		
Warrants to purchase redeemable convertible preferred stock			288
Warrants to purchase common stock	266	266	39
Total	8,716	8,062	33,459

Reclassifications

Certain amounts in prior period financial statements related to Shell including related party collaboration revenue (see Notes 3 and 7), related party receivable, related party deferred revenue, have been reclassified to the corresponding non-related party account. Our investment in CO_2 Solutions (See Note 4), has been reclassified from non-current other assets to non-current marketable securities and the composition of our deferred tax assets have been reclassified to conform to the current period presentation.

Accounting Guidance Update

Recently Adopted Accounting Guidance

In June 2011, the FASB issued ASU 2011-05 that eliminates the option to present items of other comprehensive income (OCI) as part of the statement of changes in stockholders equity, and instead requires either, OCI presentation and net income in a single continuous statement in the statement of operations, or as a separate statement of comprehensive income. This new guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2011, with early adoption permitted. The Company adopted this update in the fourth quarter of 2011. The adoption of this accounting guidance did not have a material impact on our financial statements.

In April 2010, the FASB issued ASU 2010-17 on defining a milestone and determining when it may be appropriate to apply the milestone method of revenue recognition for research or development transactions.

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Research or development arrangements frequently include payment provisions whereby a portion or all of the consideration is contingent upon the achievement of milestone events. An entity may only recognize consideration that is contingent upon the achievement of a milestone in its entirety in the period the milestone is achieved only if the milestone meets certain criteria. We adopted this guidance effective January 1, 2011 and it did not materially impact our financial statements. The potential future impact of this guidance will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future. Refer to Note 2 in the Notes to Consolidated Financial Statements for information related to our evaluation of revenue arrangements with milestones.

In January 2010, the FASB issued ASU 2010-06 that requires new disclosures for fair value measurements and provides clarification for existing disclosure requirements. This amended guidance requires disclosures about inputs and valuation techniques used to measure fair value as well as disclosures about significant transfers in and out of Levels 1 and Levels 2 fair value measurements and disclosures about the purchase, sale, issuance and settlement activity of Level 3 fair value measurements. This guidance is effective for interim and annual reporting periods beginning after December 15, 2009, except for disclosures about the purchase, sale, issuance and settlement activity of Level 3 fair value measurements, which is effective for fiscal years beginning after December 15, 2010. The adoption of the accounting guidance had no material impact to our financials or disclosures.

In October 2009, the FASB issued ASU 2009-13 updating accounting standards for revenue recognition for multiple-deliverable arrangements. The stated objective of the update was to address the accounting for multiple-deliverable arrangements to enable vendors to account for products or services separately rather than as a combined unit. The guidance provides amended methodologies for separating consideration in multiple-deliverable arrangements and expands disclosure requirements. We adopted this guidance for revenue arrangements entered into or materially modified after January 1, 2011 and it did not have a material impact on our financial statements or disclosures to date. The potential future impact of this guidance will depend on the nature of any new arrangements or material modifications of existing arrangements that are entered into in the future. Refer to Note 2 in the Notes to Consolidated Financial Statements for information related to our evaluation of revenue arrangements with multiple-deliverables.

Recent Accounting Guidance Not Yet Effective

In September 2011, the FASB issued ASU 2011-08 that simplifies goodwill impairment tests. The new guidance states that a qualitative assessment may be performed to determine whether further impairment testing is necessary. We will adopt this accounting standard upon its effective date for periods beginning after December 15, 2011, and do not anticipate that this adoption will have a significant impact on our financial position or results of operations.

In May 2011, the FASB issued ASU 2011-04 that clarifies and changes some fair value measurement principles and disclosure requirements. Among them is the clarification that the concepts of highest and best use and valuation premise in a fair value measurement, should only be applied when measuring the fair value of nonfinancial assets. Additionally, the new guidance requires quantitative information about unobservable inputs, and disclosure of the valuation processes used and narrative descriptions with regard to fair value measurements within the Level 3 categorization of the fair value hierarchy. The new guidance is effective for interim and annual reporting periods beginning after December 15, 2011, with early adoption prohibited. The adoption of this new guidance is not expected to have a material impact on our financial statements or disclosures.

3. Collaborative Research and Development Agreements

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.

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In November 2007, we entered into a new and expanded five-year collaborative research agreement and a license agreement with Shell. In connection with the expanded collaborative research agreement and license agreement, Shell agreed to pay us (1) research funding at specified rates per FTE working on the project during the research term, (2) milestone payments upon the achievement of milestones and (3) royalties on future product sales. The agreement also specifies certain minimum levels of FTE services that we must allocate to the collaboration efforts that increase over the term of the agreement.

Shell has the right to terminate the collaborative research agreement upon nine months notice. The term of the agreement ends in October 2012, unless extended further by the parties. During the term of the agreement, we are required to act exclusively with Shell as it relates to the rights and research described in the arrangement and may not conduct research or contract to conduct research, for another party in the field of use. Under this agreement, we also have a right of first negotiation but not an obligation to manufacture any biocatalysts developed under the collaborative research agreement if Shell decides to out-source the manufacture of such biocatalysts.

In March 2009, we amended our collaborative research agreement and license agreement with Shell to further expand the scope of the collaboration and allow for additional purchases of the Company s preferred stock by Shell. In connection with the amended collaborative research agreement and license agreement, Shell agreed to pay us (1) additional research funding at specified rates per FTE working on the project during the research term and (2) additional milestone payments upon the achievement of milestones. Shell has the right to reduce the number of funded FTEs, subject to certain limitations, with a required advance notice period ranging from 30 to 270 days and a subsequent period ranging from 90 to 360 days during which notices of further FTE reductions cannot be made by Shell. The length of these periods varies dependent on the number of funded FTEs reduced. Effective August 2011, Shell reduced the number of funded FTEs engaged in our research and development collaboration from 128 to 116 FTEs.

In accordance with our revenue recognition policy, the $20.0 million up-front exclusivity fee and the research funding fees to be received for FTE services are recognized in proportion to the actual research efforts incurred relative to the amount of total expected effort to be incurred by us over the five-year research period commencing November 2007. Milestones payments to be earned under this agreement have been determined to be at risk at the inception of the arrangement and substantive and are expected to be recognized upon achievement of the applicable milestone and when collectability of such payment is reasonably assured. We recorded milestone revenues of $5.6 million, $7.4 million and $4.6 million during the years ended December 31, 2011, 2010 and 2009, respectively. Under the agreements with Shell, we have the right to license technology from third parties that will assist us in meeting objectives under the collaboration. If third-party technology to be licensed is identified and mutually agreed upon by both parties, Shell is obligated to reimburse us for the licensing of the technology. Payments made by us to the third-party providers were recorded as research and development expenses related to our collaborative research agreement with Shell. We evaluate the acquired technology licenses to determine if they are expected to be used in products that will be sold within the next year and the phase of technological feasibility of the project. Shell reimbursed us for licensing costs of $199,000, $1.4 million, and $7.5 million for the years ended December 31, 2011, 2010 and 2009, respectively. We record these reimbursements against the costs incurred.

In June 2011, Shell completed the transfer of all of its equity interests in us, together with the associated right to appoint one member to our board of directors, to Raízen Energia Participações S.A. (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 our collaborative research agreement to Raízen and we continue to collaborate with Shell. Additionally in September 2011, we entered into a joint development agreement directly with Raízen. Under the agreement, we will deploy our CodeEvolver directed evolution technology platform to develop an improved process for producing first generation ethanol made from sugar.

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Manufacturing Collaboration

In February 2010, we consolidated certain of the contractual terms in our then-existing agreements with Arch Pharmalabs, Ltd. (Arch) by simultaneously terminating all of our existing agreements with Arch, other than the Master Services Agreement with Arch entered into as of August 1, 2006, and entering into new agreements with Arch. The new agreements, among other things, provide for biocatalyst supply from us to Arch and intermediate supply from Arch to us. We sell the biocatalysts to Arch at an agreed upon price, and Arch manufactures the intermediates on our behalf. Arch sells the intermediates to us at a formula-based or agreed upon price. We then directly market and sell the intermediates to a specified group of customers in the generic pharmaceutical industry. Under the new agreements, Arch may also sell intermediates directly to other customers, and a license royalty is owed by Arch to us based on the volume of product they sell to us and their other customers. Royalties earned from Arch under this arrangement were $752,000 and $430,000 for the years ended December 31, 2011 and 2010, respectively.

4. Joint Development Agreement with CO_2 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. Under the agreement, we obtained a research license to CO_2 Solutions s intellectual property and agreed to conduct research and development activities jointly with CO_2 Solutions with the goal of advancing the development of carbon capture 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. In February 2010, Alan Shaw, our former Chief Executive Officer and an advisor to our board of directors, was appointed to the board of directors of CO_2 Solutions.

In January 2011, we extended our joint development agreement with CO_2 Solutions on essentially the same terms as the original agreement. The extended agreement will now expire on the later of June 30, 2012, or six months after the expiry of any third party collaborations.

We concluded that through December 31, 2011, we did not have the ability to exercise significant influence over CO_2 Solutions s operating and financial policies. We consider our investment in CO_2 Solutions s common shares as an investment in a marketable security that is available for sale, and carry it at fair value in non-current marketable securities, with changes in fair value recognized in the Statement of Comprehensive Income (loss). We have estimated the fair value of common shares as of December 31, 2011, as determined by trading on TSX Venture Exchange. Accordingly, we have classified our investment in CO_2 Solutions as a level 1 investment as discussed in Note 6.

5. Balance Sheets and Statements of Operations Details

Cash Equivalents, Marketable Securities and Other Investments

At December 31, 2011, cash equivalents, marketable securities and other investments consisted of the following (in thousands):

	December 31, 2011				
	Cost or Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Average Contractual Maturities (in days)
Money market funds	$ 18,866	$	$	$ 18,866	n/a
Commercial paper	1,999			1,999	55
Corporate bonds	30,908	29	(45)	30,892	270
U.S. Treasury obligations	998	4		1,002	274
Government-sponsored enterprise securities	3,003	12		3,015	373
Common shares of CO_2 Solution	1,316		(155)	1,161	n/a
Total	$ 57,090	$ 45	$ (200)	$ 56,935	

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The total cash and cash equivalents balance of $25.8 million as of December 31, 2011 was comprised of money market funds of $18.9 million and $6.9 million held as cash with major financial institutions worldwide. All marketable securities with an unrealized loss at December 31, 2011, have been in a loss position for less than 12 months.

At December 31, 2010, cash equivalents, marketable securities and other investments consisted of the following (in thousands):

	December 31, 2010				
	Cost or Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Average Contractual Maturities (in days)
Money market funds	$ 64,956	$	$	$ 64,956	n/a
Common shares of CO_2 Solutions	1,316	334		1,650	n/a
Total	$ 66,272	$ 334	$	$ 66,606	

The total cash and cash equivalents balance of $72.4 million as of December 31, 2010 was comprised of money market funds of $65.0 million and $7.4 million held as cash with major financial institutions worldwide.

Inventories

Inventories, net consisted of the following (in thousands):

	December 31,	
	2011	2010
Raw materials	$ 2,779	$ 1,963
Work in process	54	38
Finished goods	1,655	816
Total inventories	$ 4,488	$ 2,817

Property and Equipment, net

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

	December 31,	
	2011	2010
Laboratory equipment	$ 34,903	$ 29,931
Leasehold improvements	13,058	10,961
Computer equipment and software	4,671	3,050
Office equipment and furniture	1,319	865
Construction in progress (1)	1,972	838
	55,923	45,645
Less: accumulated depreciation and amortization	(31,747)	(24,193)
Property and equipment, net	$ 24,176	$ 21,452

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

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Due to the extension of the lease period for certain currently occupied facilities, we re-evaluated the depreciable lives of existing leasehold improvements, totaling $2.3 million in net book value at the time of reassessment in February 2011. Since leasehold improvements are typically depreciated over the lesser of the assets useful life or the remaining lease period, the extension of contracted facilities leases through 2020 necessitated a change in our estimate of depreciable lives on leasehold improvements. While some lives have been shortened under this reassessment with the vacating of a portion of our facilities, the majority of depreciable lives have been extended up to as much as 5 years from the assets in service date, in accordance with our leasehold improvements standard useful lives. The net effect of this reassessment is lower monthly depreciation being recognized on leasehold improvements over a longer period of time. These changes net effect on depreciation expense recognized is not expected to be material on a quarterly or annual basis.

Intangible Assets

Intangible assets consisted of the following (in thousands):

	December 31, 2011			December 31, 2010			
	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	$ (3,040)	$ 58	$ 3,098	$ (2,943)	$ 155	5
Developed and core technology	1,534	(1,457)	77	1,534	(1,212)	322	5
Maxygen intellectual property	20,244	(3,937)	16,307	20,244	(563)	19,681	6
Total	$ 24,876	$ (8,434)	$ 16,442	$ 24,876	$ (4,718)	$ 20,158	6

The estimated amortization expense through the year ending December 31, 2016 is as follows at December 31, 2011 (in thousands):

Year ending December 31:	Cost of Product Revenues	Research and Development	Selling, General and Administrative	Total
2012	$ 77	$ 3,374	$ 57	$ 3,508
2013		3,374		3,374
2014		3,374		3,374
2015		3,374		3,374
2016		2,812		2,812
	$ 77	$ 16,308	$ 57	$ 16,442

Goodwill

There were no changes in the carrying value of goodwill during 2011, 2010 and 2009.

Interest Expense and Other, Net

Interest expense and other, net consisted of the following (in thousands):

	Years Ended December 31,		
	2011	2010	2009
Interest expense	$	$ 529	$ 1,413
Foreign exchange losses (gains)	706	314	(59)

Remeasurement of redeemable convertible preferred stock warrant liabilities		677	627
Other	(31)	(321)	56
Interest expense and other, net	$ 675	$ 1,199	$ 2,037

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6. Fair Value

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.

The following table presents our financial instruments that were measured at fair value on a recurring basis at December 31, 2011 by level within the fair value hierarchy (in thousands):

	December 31, 2011			
	Level 1	Level 2	Level 3	Total
Financial Assets				
Money market funds	$ 18,866	$	$	$ 18,866
Commercial paper		1,999		1,999
Corporate bonds		30,892		30,892
U.S. Treasury obligations		1,002		1,002
Government-sponsored enterprise securities		3,015		3,015
Common shares of CO_2 Solutions	1,161			1,161
Total	$ 20,027	$ 36,908	$	$ 56,935

The following table presents our financial instruments that were measured at fair value on a recurring basis at December 31, 2010 by level within the fair value hierarchy (in thousands):

	December 31, 2010			
	Level 1	Level 2	Level 3	Total
Financial Assets				
Money market funds	$ 64,956	$	$	$ 64,956
Common shares of CO_2 Solutions	1,650			1,650
Total	$ 66,606	$	$	$ 66,606

Our investment in 10,000,000 common shares of CO_2 Solution in a private placement was subjected to a four-month statutory resale restriction. At December 31, 2009, we estimated the fair value of restricted common shares using the fair value of unrestricted common shares as determined by trading on TSX Venture Exchange, discounted for lack of marketability of the shares and we estimated the value of the discount for lack of marketability using the Black-Scholes option pricing model. This restriction expired on April 15, 2010. Subsequently at December 31, 2010, we have estimated the fair value of common shares using the fair value as determined by trading on TSX Venture Exchange. Accordingly, we have reclassified our investment in CO_2 Solution, with a fair value of $1.8 million at the date of the transfer, from a level 3 to a level 1 investment.

At December 31, 2011, the estimated fair value of our investment in CO_2 Solutions common stock was $1.2 million and the unrealized loss of $155,000. At December 31, 2010, the estimated fair value of our investment in CO_2 Solutions common stock was $1.7 million and the unrealized gain was $334,000. The unrealized loss and

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gain for the years ended December 31, 2011 and 2010, respectively are reflected on the Statement of Comprehensive Income, net of related tax expense of $149,000 recorded in 2010. No tax expense was recorded in 2011 as a result of the unrealized loss.

7. Related Party Transactions

Maxygen, Inc.

Maxygen, Inc. (Maxygen) was one of our stockholders until it distributed its holdings to its stockholders in December 2010, and so transactions between us and Maxygen prior to that time were considered related party transactions. In October of 2010, we acquired Maxygen s directed evolution technology patent portfolio for net consideration of $20.2 million including $20.0 million paid to Maxygen, transaction costs of $0.7 million and a royalty payable extinguishment of $0.5 million. We recorded an intangible asset for $20.2 million (see Note 5). In conjunction with this transaction, we terminated our existing license agreement with Maxygen including terminating our obligation to pay biofuels royalties to Maxygen.

During the years ended December 31, 2010 and 2009 Maxygen provided to Codexis certain legal and administrative services, with total fees owed to Maxygen of $170,000 and $101,000, respectively. At December 31, 2011, we owed Maxygen $0 in connection with such services.

In August 2006, we had entered into an amendment to the license agreement with Maxygen. Under the amendment, we were required to pay Maxygen a fee based on a percentage of all consideration we receive from third parties related to the use of certain intellectual property owned or controlled by Maxygen in the specified field of biofuels.

We expensed all payments owed to Maxygen as they became due as collaborative research and development expenses, which we reported as research and development expenses in our consolidated statements of operations. We were also obligated to reimburse up to 20% of the costs incurred by Maxygen related to the prosecution and maintenance of the patents licensed from Maxygen relating to our core technology. We paid Maxygen a fee based on our collaborative research and development agreement with Shell (see Note 3). We expensed $1.2 million and $5.5 million during the years ended December 31, 2010 and 2009, respectively. No amounts were payable to Maxygen at December 31, 2010 or 2011, respectively.

Shell and Raízen

Prior to June 2011 Shell was considered a related party due to the size of its ownership interest. As discussed in Note 3, Collaborative Research and Development Agreements , Shell transferred full ownership of our common stock to Raízen, Shell s joint venture with Cosan in Brazil. Based on our analysis and effective, as of July 1, 2011, Shell was no longer considered a related party. Before June 30, 2011, related party receivables, related party deferred revenue, and related party collaboration research and development revenue were primarily comprised of transactions under our five-year collaborative research agreement (currently set to expire in October 2012, unless extended by the parties) and a license agreement with Shell. The revenues earned from Shell are included in the collaborative research and development line on our consolidated statement of operations. Collaborative research and development revenue received from Shell accounted for 51%, 62% and 76% of our revenues for the years ended December 31, 2011, 2010 and 2009, respectively.

At the time of the transfer, Raízen owned 5.6 million shares of our common stock and has the right to appoint a member to our board of directors. In September 2011, we entered into a joint development agreement with Raízen to develop an improved first generation ethanol process with enhanced economics. There has been no material financial activity with Raízen through December 31, 2011.

Exela PharmaSci, Inc.

We signed a license agreement with Exela PharmaSci, Inc. (Exela) in 2007. A member of our board of directors is also on the board of directors of Exela. Under the terms of the agreement, Exela would pay us a royalty based on their achievement of certain commercial goals.

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During the year ended December 31, 2011, we recognized $450,000 of revenue related to this arrangement, shown in our consolidated statement of operations as collaborative research and development revenue. We did not recognize any revenue from Exela prior to 2011. As of December 31, 2011, we had no amounts owed from Exela.

8. Commitments and Contingencies

Operating Leases

Our headquarters are located in Redwood City, California where we occupy approximately 107,000 square feet of office and laboratory space in four buildings. On March 16, 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. The Fifth Amendment provides a number of incentives to us including forgiveness of rent payments for the initial two months of the lease term, a tenant improvement allowance (TIA) of $2.4 million and an additional $0.8 million special allowances for certain HVAC costs. We intend to apply TIA funds toward capital improvements to the expanded facility as well as upgrades and reconfiguration of existing lab and office space. A portion of the TIA may be utilized by us to pay costs for furniture, furnishings and equipment. As of December 31, 2011 we have incurred $2.9 million of capital improvement costs related to the facilities. During the fourth quarter of 2011 we requested and received $1.8 million of reimbursements from the landlord out of the TIA for the completed construction. We expect to request reimbursement for the remaining TIA when construction is completed in the second quarter of 2012. The TIA is recognized when cash is received and on a straight-line basis over the term of the lease as a reduction in rent expense. Additionally, the Fifth Amendment waived our existing asset retirement obligations for the impacted buildings, resulting in a $0.3 million decrease of our obligation which in turn resulted in $0.1 million gain on extinguishment of asset retirement obligations recorded in our consolidated statement of operation as sales, general and administrative expenses.

We also lease space in the 501 Chesapeake Drive, Redwood City, California (the 501 Chesapeake Space). The lease for the 501 Chesapeake Space was not extended with the Fifth Amendment and will expire as per the original agreement in January 2013, with an option for an additional term of up to two years.

Rent expense is recognized on a straight-line basis over the term of the lease. In accordance with the terms of the lease agreement, we exercised our right to deliver a letter of credit in lieu of a security deposit. The letters of credit in the amounts of $707,000 and $562,000 as of December 31, 2011 and 2010, respectively, are collateralized by a deposit balances held by the bank. These deposits are recorded as restricted cash on the consolidated balance sheets.

We also rent facilities in Singapore and Hungary. Rent expense is being recognized on a straight-line basis over the respective terms of these leases.

As of December 31, 2011 and 2010 we had asset retirement obligations of $579,000 and $881,000, respectively from operating leases, whereby we must restore the facilities that we are renting to their original form. We incurred $39,000 and $146,000 of accretion expense related to our asset retirement obligations in 2011 and 2010, respectively. Additionally, we incurred $290,000 of additional asset retirement obligation during 2010. We are expensing the asset retirement obligation over the terms of the respective leases. We review the estimated obligation each period and we make adjustments if our estimates change.

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Future minimum payments under noncancellable operating leases are as follows at December 31, 2011 (in thousands):

	Lease Payments
Years ending December 31,	
2012	$ 3,268
2013	2,909
2014	2,731
2015	2,808
2016	2,812
2017 and beyond	8,447
Total	$ 22,975

Litigation

We have 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 our consolidated financial position, results of operations or cash flows.

Indemnifications

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

Other contingencies

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

9. Warrants

Our outstanding warrants are exercisable for common stock at any time during their respective terms. During the year ended December 31, 2010, 61,600 warrants were exercised in a net share transaction to acquire 42,217 shares of our common stock. No warrants were exercised during 2011.

At December 31, 2011, the following warrants were issued and outstanding:

Issue Date	Shares Subject to warrants	Exercise Price per Share	Expiration
October 25, 2005	6,066	$ 1.05	October 25, 2012
May 25, 2006	184,895	5.96	May 25, 2013
July 17, 2007	2,384	12.45	February 9, 2016
September 28, 2007	72,727	$ 8.25	September 28, 2017

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10. Stockholders Equity

In 2002, we adopted the 2002 Stock Plan (the 2002 Plan), pursuant to which our board of directors issued incentive stock options, non-statutory stock options (options that do not qualify as incentive stock options) and restricted stock to our employees, officers, directors or consultants. In March, 2010, our board of directors and stockholders approved the 2010 Equity Incentive Award Plan (the 2010 Plan), which became effective upon the completion of our IPO in April 2010. A total of 1,100,000 shares of common stock were initially reserved for future issuance under the 2010 Plan and any shares of common stock reserved for future grant or issuance under our 2002 Plan that remained unissued at the time of completion of the IPO became available for future grant or issuance under the 2010 Plan. In addition, the shares reserved for issuance pursuant to the exercise of any outstanding awards under the 2002 Plan that expire unexercised will also become available for future issuance under the 2010 Plan. The 2010 Plan also provides for automatic annual increases in the number of shares reserved for future issuance, and during the year ended December 31, 2011 an additional 1,393,142 shares were reserved under the 2010 plan as a result of this provision. As of December 31, 2011, we had a total of 9,957,140 shares of common stock reserved for issuance under our Plans and no shares available for issuance under the 2002 Plan.

Options granted under the 2002 Plan and 2010 Plan expire no later than 10 years from the date of grant. For incentive stock options and nonstatutory stock options, the option price shall be at least 100% and 85%, respectively, of the fair value of the common stock on the date of grant, as determined by the board of directors. If, at the time of a grant, the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all of our outstanding capital stock, the exercise price for these options must be at least 110% of the fair value of the underlying common stock. Options typically vest over a four-year period at a rate of no less than 25% per year but may be granted with different vesting terms.

A summary of stock option activity is as follows:

		Options Outstanding	
	Shares Available for Grant	Number of Options	Weighted Average Exercise Price per Share
December 31, 2009	1,553,873	7,886,532	$ 5.25
Authorized	1,100,000		
Grants	(1,210,698)	1,210,698	10.74
Exercises		(809,700)	1.97
Early exercised options repurchased	418		1.63
Forfeited/Cancelled	491,831	(491,837)	7.93
December 31, 2010	1,935,424	7,795,693	6.27
Authorized	1,393,142		
Granted options	(1,751,506)	1,751,506	9.33
Granted RSUs	(578,267)		
Exercises		(1,167,119)	2.21
Forfeited/Cancelled options	476,458	(476,458)	9.51
Forfeited/Cancelled RSUs	32,048		
December 31, 2011	1,507,299	7,903,622	$ 7.35

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The following table summarizes information about stock options outstanding and exercisable at December 31, 2011:

	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
$0.60 - $5.20	2,012,975	4.50	$ 2.04	1,858,875	$ 1.78
$5.37 - $8.63	2,052,069	6.71	7.29	1,391,629	7.07
$8.69 - $10.50	1,985,817	7.97	9.52	857,705	9.72
$10.51 - $11.87	1,852,761	8.00	10.88	780,931	11.09
	7,903,622	6.77	$ 7.35	4,889,140	$ 6.16

The following table summarizes information about stock options that are vested and are expected to vest as of December 31, 2011:

	Number of Options	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (In Thousands)
Vested	4,853,723	$ 6.14	5.60	$ 6,551
Expected to vest	2,925,559	9.29	8.60	19
Total vested and expected to vest	7,779,282	$ 7.32	6.73	$ 6,570

We granted 578,267 restricted stock units (RSU) during the year ended December 31, 2011. The RSUs vest over four years with 25% of the RSUs vesting annually. The fair value of the RSUs was calculated based on the NASDAQ quoted stock price on the date of the grant with the expense recognized over the vesting period. For the year ended December 31, 2011, we recorded $1.1 million of stock compensation expense related to the RSUs. During the year, 32,048 RSUs were cancelled. At December 31, 2011, there were 546,219 outstanding RSUs with an average remaining life of 3.1 years, a weighted average grant price of $9.54 and an unamortized expense of $4.1 million.

The weighted-average grant date fair value of options granted during the years ended December 31, 2011, 2010 and 2009 was $5.19, $7.06, and $5.39, respectively.

At December 31, 2011, exercisable options had a weighted average exercise price of $6.16 per share and an intrinsic value of $6.6 million. The aggregate intrinsic value of exercised stock options was $9.0 million, $6.6 million, and $418,000 during the years ended December 31, 2011, 2010, and 2009, respectively. The intrinsic value of stock options outstanding, exercised, exercisable and expected-to-vest is calculated based on the difference between the exercise price and the fair value of our common stock.

Stock-based compensation costs capitalized during the years ended December 31, 2011, 2010, and 2009 were insignificant. There were no stock-based compensation tax benefits during the years ended December 31, 2011, 2010, and 2009.

At December 31, 2011, there was $16.3 million of unrecognized stock-based compensation cost which is expected to be recognized over an average period of 1.8 years.

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Stock-Based Compensation Expense

We estimate the fair value of stock-based awards granted to employees and directors using the Black- Scholes option-pricing model. The Black-Scholes option-pricing model requires the use of highly subjective and complex assumptions to determine the fair value of stock-based awards, including the expected life of the option and expected volatility of the underlying stock over the expected life of the related grants. As a newly traded public entity, sufficient company specific historical volatility data is not available. As a result, we estimate the expected volatility based on the historical volatility of a group of unrelated public companies within our industry. We will continue to consistently apply this process until a sufficient amount of historical information regarding the volatility of our own share price becomes available. Due to our limited history of grant activity, the expected life of options granted to employees is calculated using the simplified method permitted by the SEC as the average of the total contractual term of the option and its vesting period. The risk-free rate assumption was based on U.S. Treasury instruments whose terms were consistent with the terms of our stock options. The expected dividend assumption was based on our history and expectation of dividend payouts.

The following assumptions were used to estimate the fair value of our employee option grants:

	Years Ended December 31,		
	2011	2010	2009
Weighted-average expected life (years)	6.1	6.5	6.3
Weighted-average expected volatility	58%	73%	74%
Weighted-average risk free interest rate	2.2%	2.6%	2.6%
Expected dividend yield	0.0%	0.0%	0.0%

During the year ended December 31, 2011, we did not grant any options to purchase shares of common stock to non-employees. During the years ended December 31, 2010 and 2009 we granted options to purchase 20,000 and 86,666 shares of common stock, respectively, to non-employees. The 20,000 options granted in 2010 were cancelled in 2010 prior to any vesting of the option grant. For options granted to non-employees, the Black-Scholes option-pricing model was applied using the following assumptions during the years ended December 31, 2011, 2010, and 2009:

	Years Ended December 31,		
	2011	2010	2009
Remaining contractual option life (years)	8.4	0.3 - 10	6 - 10
Volatility	60%	49% - 87%	73% - 89%
Risk-free interest rate	2.5%	0.1% - 3.9%	2.3% - 3.9%
Expected dividend yield	0.0%	0.0%	0.0%

The following table presents stock-based compensation expense included in the consolidated statements of operations (in thousands):

	Years Ended December 31,		
	2011	2010	2009
Research and development	$ 3,311	$ 3,352	$ 2,318
Sales, general and administrative	6,120	5,385	2,504
	$ 9,431	$ 8,737	$ 4,822

Stock-based compensation expense attributable to cost of goods sold was immaterial.

Redeemable Convertible Preferred Stock

On April 27, 2010, we completed our initial public offering of common stock (IPO) selling 6,000,000 shares at an offering price of $13.00 per share, resulting in net proceeds of approximately $67.7 million, after deducting underwriting discounts, commissions and other related transaction costs.

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Upon the closing of the IPO, our then outstanding shares of redeemable convertible preferred stock were automatically converted into 25,307,446 shares of common stock and the related redeemable convertible preferred stock was reclassified to common stock and additional paid-in capital, our outstanding preferred stock warrants were automatically converted into common warrants to purchase a total of 288,438 shares of common stock and the related redeemable convertible preferred stock warrant liability was reclassified to additional paid-in capital.

Shares Reserved

The following table presents common stock reserved for issuance for the following equity instruments (in thousands):

	December 31,	
	2011	2010
Warrants to purchase common stock	266	266
Restricted stock units	546	
Stock options:		
Outstanding	7,904	7,796
Reserved for future grants	1,507	1,935
Total common stock reserved for future issuance	10,223	9,997

11. Income Taxes

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

	Years Ended December 31,		
	2011	2010	2009
United States	$ (17,474)	$ (7,837)	$ (18,940)
Foreign	1,165	(320)	(1,283)
Loss before provision for income taxes	$ (16,309)	$ (8,157)	$ (20,223)

The tax provision for the years ended December 31, 2011, 2010 and 2009 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,		
	2011	2010	2009
Current provision (benefit):			
Federal	$ 3	$ 289	$ 70
State	7	2	5
Foreign	82	(17)	489
Total current provision (benefit)	$ 92	$ 274	$ 564
Deferred provision (benefit):			
Federal	$	$ (122)	$
State		(26)	
Foreign	149	258	(498)
Total deferred provision (benefit)	$ 149	$ 110	$ (498)

Total provision for income taxes	$ 241	$ 384	$ 66

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

	Years Ended December 31,		
	2011	2010	2009
Tax benefit at federal statutory rate	$ (5,708)	$ (2,858)	$ (7,078)
State taxes	(1,421)	(245)	(526)
Research and development credits	(83)	56	(269)
Foreign operations taxed at different rates	(252)	117	1,347
Stock-based compensation	1,241	1,020	823
Other nondeductible items	650	630	835
Change in valuation allowance	5,814	1,664	4,934
Provision for income taxes	$ 241	$ 384	$ 66

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,	
	2011	2010
Deferred tax assets:		
Federal, state and foreign net operating loss carryforwards	$ 45,595	$ 40,517
Federal and state credits	2,711	2,598
Deferred contract revenues	2,066	3,784
Stock compensation	5,327	4,094
Accrued compensation	2,251	2,402
Acquired intangible assets	3,101	2,448
Other	2,256	1,807
Total deferred tax assets:	63,307	57,650
Deferred tax liabilities:		
Other	(5)	(1)
Total deferred tax liabilities:	(5)	(1)
Valuation allowance	(63,128)	(57,315)
Net deferred tax assets	$ 174	$ 334

ASC Topic 740 requires that the tax benefit of NOL, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is more likely than not. Realization of the future tax benefits is dependent on our ability to generate sufficient taxable income within the carryforward period. Because of our history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not more likely than not to be realized and, accordingly, has provided a valuation allowance. Accordingly, the net deferred tax assets in the United States, and Hungary have been fully reserved by a valuation allowance. The net valuation allowance increased by $5.8 million, $1.6 million and $4.9 million during the years ended December 31, 2011, 2010 and 2009, 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.

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The following table sets forth our federal, state and foreign NOL carryforwards and federal research and development tax credits as of December 31, 2011 (in thousands):

	December 31, 2011	
	Amount	Expiration Years
Net operating losses, federal	$ 125,784	2022-2031
Net operating losses, state	106,221	2015-2031
Tax credits, federal	3,402	2022-2031
Tax credits, state	3,653	Do not expire
Net operating losses, foreign	6,247	Various
Tax credits, foreign	$ 12	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, our ability to utilize NOLs and tax credit carryforwards may be limited as a result of such ownership changes. Such a limitation could result in the expiration of carryforwards before they are utilized.

The Company has not provided for U.S. federal and state income taxes on all of the non-U.S. subsidiaries undistributed earnings as of December 31, 2011, because such earnings are intended to be indefinitely reinvested. As of December 31, 2011, 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 $0.8 million. The residual U.S. tax liability, if such amounts were remitted, would be nominal.

We adopted ASC 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,		
	2011	2010	2009
Balance at beginning of year	$ 6,492	$ 5,899	$ 5,123
Additions based on tax positions related to current year	470	593	1,143
Additions to tax provision of prior years	4		
Reductions to tax provision of prior years	(262)		
Lapse of the applicable statute of limitations	(93)		(367)
Balance at end of year	$ 6,611	$ 6,492	$ 5,899

We recognize interest and penalties in income tax expense. Total interest and penalties recognized in the consolidated statement of operations was $39,000, $75,000 and $76,000 respectively in 2011, 2010 and 2009. Total penalties and interest recognized in the balance sheet was $239,000 and $202,000 respectively in 2011 and 2010. The total unrecognized tax benefits that, if recognized currently, would impact our effective tax rate were $1.4 million and $1.7 million as of December 31, 2011 and 2010, respectively. We expect $200,000 of unrecognized tax benefits to be recognized within the next 12 months. We are not subject to examination by U.S. federal or state tax authorities for years prior to 2002 and foreign tax authorities for years prior to 2006.

12. 401(k) Plan

In January 2005, we implemented a 401(k) Plan covering certain employees. Currently, all of our U.S. 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. In the years ended December 31, 2011, 2010 and 2009, we did not make any contributions to the 401(k) Plan on behalf of eligible employees.

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13. Segment Reporting

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or decision making group, in deciding how to allocate resources and in assessing performance. Our chief operating decision maker is our Chief Executive Officer and our board of directors. The Chief Executive Officer and our board of directors review financial information presented on a consolidated basis, accompanied by information about revenues by geographic region, for purposes of allocating resources and evaluating financial performance. We have one business activity and there are no segment managers who are held accountable for operations, operating results beyond revenue goals or plans for levels or components below the consolidated unit level. Accordingly, we have a single reporting segment. Operations outside of the United States consist principally of research and development and sales activities.

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

	Years Ended December 31,		
	2011	2010	2009
Revenues			
Americas (1)	$ 72,355	$ 72,920	$ 65,713
Europe	34,759	9,867	7,028
Asia	16,751	24,317	10,167
	$ 123,865	$ 107,104	$ 82,908

(1) Primarily United States

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,		
	2011	2010	2009
Long-lived assets			
Americas (1)	$ 34,817	$ 37,023	$ 19,439
Europe	4,395	3,980	3,911
Asia	2,380	3,398	4,332
	$ 41,592	$ 44,401	$ 27,682

(1) Primarily United States

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14. Selected Quarterly Financial Data (Unaudited)

The following table provides the selected quarterly financial data for 2011 and 2010 (in thousands):

Codexis, Inc.

Condensed Consolidated Statements of Operations

(Unaudited)

(In Thousands, Except Per Share Amounts)

	Quarter Ended							
	December 31, 2011	September 30, 2011	June 30, 2011	March 31, 2011	December 31, 2010	September 30, 2010	June 30, 2010	March 31, 2010
Revenues:								
Product	$ 15,493	$ 12,199	$ 8,397	$ 12,932	$ 8,586	$ 9,491	$ 8,484	$ 6,275
Collaborative R&D	17,296	19,201	17,385	17,486	20,746	17,243	15,504	16,703
Government grants	705	1,882	273	616	479	379	492	2,722
Total revenues	33,494	33,282	26,055	31,034	29,811	27,113	24,480	25,700
Costs and operating expenses:								
Cost of product revenues	13,067	9,958	7,106	11,650	8,126	8,563	6,075	5,218
Research and development	15,548	16,786	14,965	13,750	13,349	13,070	13,004	12,982
Selling, general and administrative	9,782	8,871	9,276	9,013	8,649	7,940	8,652	8,600
Total costs and operating expenses	38,397	35,615	31,347	34,413	30,124	29,573	27,731	26,800
Loss before provision (benefit) for income taxes	(5,123)	(2,668)	(5,205)	(3,313)	(434)	(2,434)	(3,859)	(1,430)
Net loss	$ (5,297)	$ (2,742)	$ (5,040)	$ (3,471)	$ (494)	$ (2,732)	$ (3,946)	$ (1,369)
Net loss per share of common stock, basic and diluted	$ (0.15)	$ (0.08)	$ (0.14)	$ (0.10)	$ (0.01)	$ (0.08)	$ (0.15)	$ (0.50)
Weighted average common shares used in computing net loss per share of common stock, basic and diluted (1)	35,965	35,919	35,685	35,116	34,452	34,200	26,557	2,714

(1) 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, including our disclosure committee, Interim Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2011. 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 Interim Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Interim Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2011 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). Under the supervision and with the participation of our management, including our Interim 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, 2011 based on the guidelines established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Our internal control over financial reporting includes policies and procedures that provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles.

Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2011. We reviewed the results of management s assessment with our Audit Committee.

The effectiveness of our internal control over financial reporting as of December 31, 2011 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report which is included in Part IV, Item 15 of this Annual Report.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Exchange Act Rules 13a-15 or 15d-15 that occurred during our last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Interim Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide

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reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost effective control system, misstatements due to error or fraud may occur and not be detected.

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 2012 (the 2012 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 2012 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 2012 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 2012 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 2012 Proxy Statement under the heading Ratification of Independent Registered Public Accounting Firm Principal Accounting Fees and Services.

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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.

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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, 2012

By: /s/ Peter M. Strumph
Peter M. Strumph

Interim President and Chief Executive Officer

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Peter M. Strumph 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/ Peter M. Strumph Peter M. Strumph	Interim President and Chief Executive Officer (Principal Executive Officer)	Date: March 5, 2012
/s/ Robert J. Lawson Robert J. Lawson	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	Date: March 5, 2012
/s/ Thomas R. Baruch Thomas R. Baruch	Chairman of the Board of Directors	Date: March 5, 2012
/s/ Byron L. Dorgan Byron L. Dorgan	Director	Date: March 5, 2012
/s/ Alexander A. Karsner Alexander A. Karsner	Director	Date: March 5, 2012
/s/ Bernard J. Kelley Bernard J. Kelley	Director	Date: March 5, 2012

/s/ Pedro I. Mizutani	Director	Date: March 5, 2012
Pedro I. Mizutani		
/s/ Dennis P. Wolf	Director	Date: March 5, 2012
Dennis P. Wolf		

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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	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.
4.2*	Fourth Amended and Restated Investor Rights Agreement dated November 13, 2007.
4.4*	Warrant to purchase shares of Common Stock issued to Oxford Finance Corporation dated October 25, 2005.
4.5*	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.
4.6*	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.
4.7*	Warrant to purchase shares of Common Stock issued to Alexandria Equities, LLC.
4.8*	Registration Rights Agreement among the Company, Jülich Fine Chemicals GmbH and the other parties named therein, dated February 11, 2005.
4.9*	Fifth Amended and Restated Voting Agreement dated March 4, 2009.
4.10*	Amendment to Fifth Amended and Restated Voting Agreement dated February 25, 2010.
10.2A *	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.
10.2B *	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.
10.2C *	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.
10.3A *	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.
10.3B*	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.
10.4 *	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.
10.5 *	License Agreement by and among the Company, Dyadic International (USA), Inc. and Dyadic International, Inc. effective as of November 14, 2008.
10.6A *	Product Supply Agreement by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited, effective as of February 16, 2010.

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Exhibit No.	Description
10.6B *	Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.6C *	Memorandum of Understanding for Transfer Pricing and Royalty Calculation by and between the Company and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.6D *	Memorandum of Understanding for Transfer Pricing by and between Codexis Laboratories India Private Limited and Arch Pharmalabs Limited, effective as of February 16, 2010.
10.6E	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).
10.6F	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).
10.6G	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).
10.6H	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).
10.6I	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).
10.6J	Amendment No.1 to Enzyme and Product Supply Agreement by and between the Company and Arch Pharmalabs Limited dated as of January 4, 2012.
10.7A*	Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of February 1, 2004.
10.7B*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of June 1, 2004.
10.7C*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 9, 2007.
10.7D*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 31, 2008.
10.7E	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).
10.7F	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).

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Exhibit No.	Description
10.9+*	Codexis, Inc. 2002 Stock Plan, as amended, and Form of Stock Option Agreement.
10.10+*	Codexis, Inc. 2010 Equity Incentive Award Plan and Form of Stock Option Agreement.
10.11A+*	Offer Letter Agreement by and between the Company and Alan Shaw dated as of July 29, 2003.
10.11B+	Transition and Separation Agreement by and between the Company and Alan Shaw dated as of February 17, 2012.
10.12A+*	Separation Agreement by and between the Company and Robert S. Breuil dated as of June 30, 2009.
10.12B+*	Amendment to Separation Agreement by and between the Company and Robert S. Breuil effective as of September 25, 2009.
10.13+*	Offer Letter Agreement by and between the Company and Douglas T. Sheehy dated as of February 26, 2007.
10.14+*	Offer Letter Agreement by and between Company and David L. Anton dated as of February 15, 2008.
10.15+*	Employment Contract by and between the Company and Peter Seufer-Wasserthal dated as of March 6, 2006.
10.16+*	Consulting Agreement by and between the Company and Alexander A. Karsner dated as of December 14, 2009.
10.17*	Form of Indemnification Agreement between the Company and each of its directors, as currently in effect.
10.18*	Form of Indemnification Agreement between the Company and each of its directors, officers and certain employees.
10.19+*	Offer Letter Agreement by and between the Company and Robert J. Lawson dated as of October 16, 2009.
10.20+*	Form of Change of Control Severance Agreement between the Company and certain of its officers.
10.21A *	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.
10.21B	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).
10.22+*	Offer Letter Agreement by and between the Company and Joseph J. Sarret, M.D. dated as of January 24, 2007.
10.23	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).
10.24	Manufacture and Supply Agreement, dated May 16, 2011, by and between the Company and Lactosan GmbH & Co. KG (incorporated by reference to Exhibit 10.1 to the Company s Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, filed on August 3, 2011).
10.25+	Offer Letter Agreement by and between the Company and Peter Strumph dated as of June 2, 2010.

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Exhibit No.	Description
21.1	List of Subsidiaries.
23.1	Consent of independent registered public accounting firm
24.1	Power of Attorney (see signature page to the 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.
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, 2011, formatted in Extensible Business Reporting Language (XBRL) includes: (i) Consolidated Balance Sheets at December 31, 2011 and December 31, 2010, (ii) Consolidated Statements of Income for the years ended December 31, 2011, December 31, 2010 and December 31, 2009, (iii) Consolidated Statements of Comprehensive income for the years ended December 31, 2011, December 31, 2010 and December 31, 2009, (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2011, December 31, 2010 and December 31, 2009, (v) Consolidated Statements of Stockholders Deficit for the years ended December 31, 2011, December 31, 2010 and December 31, 2009 and (vi) Notes to Condensed Consolidated Financial Statements.

+ Indicates a management contract or compensatory plan or arrangement.
Certain portions have been omitted pursuant to a confidential treatment request. Omitted information has been 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.

** XBRL information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Exchange Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and otherwise is not subject to liability under these sections.