

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM 10-K**

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

For the fiscal year ended December 31, 2011;

or

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

Commission File Number 001-33133

**METABOLIX, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**

(State or other jurisdiction of  
incorporation or organization)

**04-3158289**

(I.R.S. Employer  
Identification No.)

**21 Erie Street Cambridge, MA**

(Address of principal executive  
offices)

**02139**

(Zip Code)

(Registrant's telephone number, including area code): **(617) 583-1700**

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

<u>Title of each class</u>	<u>Name of exchange on which registered</u>
Common Stock, par value \$.01 per share	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: **None**

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (Section 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold on the NASDAQ Global Market on March 7, 2012 was \$58,575,840.

The number of shares outstanding of the registrant's common stock as of March 7, 2012 was 34,138,574.

#### **DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the Registrant's definitive Proxy Statement to be filed with the Securities and Exchange Commission (the "Commission") pursuant to Regulation 14A in connection with the 2012 Annual Meeting of Stockholders to be held on May 31, 2012 are incorporated herein by reference into Part III of this report.

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**METABOLIX, INC.**  
**ANNUAL REPORT ON FORM 10-K**  
**For the Year Ended December 31, 2011**

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## **Forward Looking Statements**

This annual report on Form 10-K contains "forward-looking statements" within the meaning of 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. In particular, statements contained in the Form 10-K, including but not limited to, statements regarding our future results of operations and financial position, business strategy and plan prospects, projected revenue or costs and objectives of management for future research, development or operations, are forward-looking statements. These statements relate to our future plans, objectives, expectations and intentions and may be identified by words such as "may," "will," "should," "expects," "plans," "anticipate," "intends," "target," "projects," "contemplates," "believe," "estimates," "predicts," "potential," and "continue," or similar words.

Although we believe that our expectations are based on reasonable assumptions within the limits of our knowledge of our business and operations, the forward-looking statements contained in this document are neither promises nor guarantees. Our business is subject to significant risk and uncertainties and there can be no assurance that our actual results will not differ materially from our expectations. These forward looking statements include, but are not limited to, statements concerning: future financial performance and position and management's strategy, plans and objectives for research and development, product development, and commercialization of current and future products, including the commercialization of our biopolymer products. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated including, without limitation, risks related to our dependence on establishing collaborations or partnerships for the commercialization of our products, risks related to the development and commercialization of new and uncertain technologies, risks associated with our protection and enforcement of our intellectual property rights, as well as other risks and uncertainties set forth below under the caption "Risk Factors" in Part I, Item 1A, of this report.

The forward-looking statements and risk factors presented in this document are made only as of the date hereof and we do not intend to update any of these risk factors or to publicly announce the results of any revisions to any of our forward-looking statements other than as required under the federal securities laws.

## **PART I**

### **ITEM 1. BUSINESS**

#### **Overview**

Metabolix is an innovation-driven bioscience company focused on bringing environmentally friendly solutions to the plastics, chemicals and energy industries. We have core capabilities in microbial genetics, fermentation process engineering, chemical engineering, polymer science, plant genetics and botanical science, and we have assembled these capabilities in a way that has allowed us to integrate our biotechnology research with real world chemical engineering and industrial practice. In addition, we have created an extensive intellectual property portfolio to protect our innovations and, together with our technology, to serve as a valuable foundation for future industry collaborations.

The markets for petroleum-based plastics, chemicals and fuels are among the largest in the global economy. Issues associated with the prolonged use of petroleum-based products include plastic waste management and pollution, limited fossil fuel availability and price volatility, and global warming and climate change. We believe that a substantial global market opportunity exists to develop and commercialize our technology to produce sustainable, renewable alternatives to petroleum-based products including advanced biopolymers, biobased industrial chemicals and bioenergy.

Metabolix was formed to leverage the ability of natural systems to produce complex biopolymers from renewable resources. Metabolix has focused on a family of biopolymers found in nature called

polyhydroxyalkanoates, or ("PHAs"), which occur naturally in living organisms and are chemically similar to polyesters. Metabolix has demonstrated the production of PHAs at the industrial scale to produce PHA biopolymers and biobased industrial chemicals, as well as production of PHB, a subclass of PHA biopolymer, in agriculturally significant crop plants.

### **PHA Biopolymers Platform.**

Driven by consumer demand for more sustainable materials, improved performance of bioplastic resins and the availability of commodity plastics produced from biobased sources, the Fredonia Group predicts that global demand for biobased, biodegradable plastics will more than triple, surpassing 1.1 million tons per year by 2015. With our differentiated PHA bioplastic resins, we believe we are a leader in the development of bioplastic materials.

In 2006, we entered into a commercial alliance with ADM Polymer Corporation ("ADM Polymer"), a wholly-owned subsidiary of Archer Daniels Midland Company ("ADM"), one of the largest agricultural processors in the world. Under the commercial alliance, ADM was responsible for resin manufacturing, and Metabolix was primarily responsible for product development, compounding, marketing and sales. Through this alliance, the companies established a joint venture company, Telles, LLC ("Telles"), to commercialize PHA biopolymer products. In 2009, ADM completed construction of the initial phase of its commercial manufacturing facility located in Clinton, Iowa ("the Commercial Manufacturing Facility"). In 2010, the plant commenced operations and began production. In 2010 and 2011, Telles conducted significant product and commercial development activities with potential customers, marketed and sold product to customers under the tradenames Mirel™ and Mvera™, and developed a network of business partners and distributors.

In January 2012, ADM notified us that they were terminating the alliance effective February 8, 2012. ADM indicated that it had undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of the Telles joint venture. Upon termination, ADM retained the Commercial Manufacturing Facility.

We retained significant rights and assets associated with the PHA biopolymers business consistent with our intent to launch the business using a new commercial model, continuing business operations, marketing biopolymer products, and identifying alternate manufacturing capability. We hold exclusive rights to the Metabolix technology and intellectual property used in the joint venture. We have acquired all of Telles's product inventory and compounding raw materials, all product certifications and all product trademarks including Mirel™ and Mvera™, and we retained all co-funded pilot plant equipment in locations outside of the Commercial Manufacturing Facility in Clinton, Iowa. Metabolix has no obligations under the ledger account totaling \$433 million which was funded by ADM to construct the Commercial Manufacturing Facility and to provide working capital to Telles.

After termination of the ADM commercial alliance in the first quarter of 2012, we restructured the biopolymers business, retaining a core team in our biopolymers group to provide continuity with technology, manufacturing process, and markets. We have continued to work closely with customers during this transition to understand their product needs and to match them to available inventory. In addition, we have opened constructive discussions with alternative manufacturing and commercialization partners for biopolymers. Through Telles, we learned extremely valuable information about how customers and brand owners are envisioning the use of PHA biopolymers in their products. Based on these interactions, we remain confident that Metabolix biopolymers provide an important solution to those wishing to reduce dependence on petroleum, reduce plastic waste in the environment, and utilize new solutions to meet sustainable packaging goals.

We have demonstrated that our biopolymers, marketed under the Mirel and Mvera brands, share the physical properties of petroleum-based resins for performance and durability and can be processed on existing equipment and post-processing techniques. The difference is that Metabolix biopolymers

display unique biodegradability properties. Mirel is certified to biodegrade in soil and water environments, as well as home composting and industrial composting facilities (in areas where such facilities are available). Mvera is a certified compostable film grade biopolymer intended for industrial composting.

Through extensive work with customers over several years, we have shown that Metabolix biopolymers are a distinctive solution as a high-performance bioplastic alternative. Our customers have demonstrated use of our biopolymers in agriculture/horticulture, compost and organic waste diversion, marine/aquatic, sustainable packaging and consumer goods applications.

In 2012, our objective is to advance business discussions with third parties with the goal of establishing a new commercial model for our PHA biopolymers, to work closely with our core customers to provide product from existing inventory during the transition phase and ensure ongoing development of PHA biopolymer products, to narrow our market development focus to high value market segments as the foundation to successfully build the business, and to establish a new manufacturing and supply chain properly sized to our business.

#### **Biobased Industrial Chemicals Platform.**

The combined global market for conventional four-carbon ("C4") and three-carbon ("C3") industrial chemicals is estimated at more than \$10 billion annually. C4 chemicals are used in applications ranging from high-performance engineering plastics to spandex. C3 chemicals have applications in paints, coatings, diapers and adhesives.

Metabolix is developing C4 and C3 chemicals from biobased sources, not the fossil feedstocks that are currently used to produce most industrial chemicals today. We believe that, by using renewable feedstocks in a patented microbial fermentation process, the Company's technology platform will enable cost-effective production of biobased chemicals as "drop in" replacements for petroleum-based products.

Our process for creating biobased industrial C4 and C3 chemicals involves engineering metabolic pathways into microbes that, in a fermentation process, produce specific PHA structures that serve as precursors for the chemicals. Through our PHA technology, we are able to control the microbe biology to achieve high concentrations of specific, naturally-occurring PHA that accumulate inside cells as they metabolize sugars. This intracellular accumulation of the biopolymers inside the microbes is a unique and differentiating aspect of our technology. When the fermentation is completed, we use a novel internally developed recovery process known as "FAST" (fast-acting, selective thermolysis) that converts the biopolymer to the target chemical using heat.

During 2009 we completed all work under our U.S. Department of Commerce National Institute of Standards and Technology grant, a \$2 million grant aimed at producing C4 chemicals from renewable sources. We were able to achieve all of the technical milestones outlined in this grant. In 2010, we continued to scale up our C4 chemicals technology and continued efforts on chemical recovery and purification. We made progress toward production of biobased gamma-butyrolactone ("GBL") samples for shipment to potential customers and we expanded exploratory partnership discussions.

In 2011, Metabolix and CJ CheilJedang ("CJ") announced a joint development agreement to continue to advance and refine our production technology and assess investment options for the commercialization of biobased C4 chemicals via fermentation. The two companies are collaborating closely to develop a detailed market and economic analysis examining all aspects of an investment to commercialize biobased C4 chemicals. In addition to this collaboration, in the C4 program we produced GBL at industrial scale and demonstrated a chemical profile consistent with existing industrial specifications.

In 2012, we expect to be prepared to complete the preliminary design for a commercial scale plant to enable production of biobased GBL and, through an established conversion process, butanediol ("BDO"). This plan, to be implemented under a potential future collaboration, will include specifications for all of the components of our fermentation and recovery process. In conjunction with our technical progress, we expect to continue discussions with CJ and other industry leaders with the goal of forming the industry alliances necessary to successfully bring our biobased C4 industrial chemicals, including GBL and BDO, into commercial production.

The Company believes that developing and commercializing biobased C3 chemicals could represent another attractive market for our technology. In 2011, Metabolix undertook a market analysis of the global market for acrylic acid, a C3 chemical, to assess the market participants, renewable technology competition, economics, intellectual property status, and end markets.

In 2012, Metabolix plans to continue scale up of fermentation and to optimize microbial strains to produce biobased C3 chemicals. We also plan to continue development and optimization of our FAST recovery technology to produce renewable acrylic acid or acrylate esters to match the chemical specifications of conventional chemical counterparts. In addition, we also expect to continue exploratory partnership discussions.

### **Crops Platform.**

Our third technology platform, crop-based businesses, which is at an early stage, is an innovative biorefinery system which uses plant crops to co-produce PHAs that can subsequently be recovered as bioplastics or converted to biobased chemicals while also generating bioenergy or biofuels in an integrated biorefinery. For this system, we intend to extract polymer from the engineered plant crop, so that the remaining plant material can be used as a biomass feedstock for the production of bioenergy products including electricity and biofuel. In 2010, we expanded our recovery technology to enable the production of industrial chemicals from this platform.

Our crop research has included tobacco, as well as oilseed, specifically camelina, sugarcane and switchgrass. More specifically:

- Camelina—We are conducting research to develop an advanced, genetically modified, camelina for co-production of bioplastics along with vegetable oil, biodiesel fuel, and oleochemicals. In 2010, we established a research company in Saskatchewan, Canada to further pursue our research with industrial oilseed crops.
- Sugarcane—We are collaborating with the Australian Research Council to further pursue our research to maximize bioplastic production in the leaf tissue of sugarcane. Sugarcane is an established energy crop that is well suited for tropical regions of the world.
- Switchgrass—We are engineering switchgrass to produce bioplastics in the leaf and stem of the plant. Switchgrass is a commercially and ecologically attractive, non-food energy crop that is indigenous to North America and is generally considered to be a leading candidate for cellulose-derived production of ethanol and other biofuels.

In 2011, Metabolix was awarded a \$6 million grant by the U.S. Department of Energy ("DOE") to engineer switchgrass producing 10 percent PHB, by weight, in the whole plant and to develop methods to thermally convert the PHB-containing biomass to crotonic acid and a higher density residual biomass fraction for production of bioenergy. Crotonic acid is a platform chemical that can be readily converted through simple, known chemical conversion steps to a range of commodity chemical intermediates including propylene, butanol and maleic anhydride.

In 2012, we expect to continue to advance research focused on increasing PHB production in switchgrass and developing a thermal conversion process for crotonic acid. We may also seek to establish alliances with partners to commercially exploit this platform. We have scaled back our efforts

for our oilseed crop, camelina. We are in the process of capturing intellectual property gained in our work in camelina and will be evaluating the possibilities of monetizing that intellectual property.

We believe that using these crops to co-produce bioplastics or chemicals with co-generation of bioenergy or production of biofuels in an integrated biorefinery can offer superior economic value and productivity as compared to single product systems that produce them individually.

## **Market Opportunity**

Our targeted markets of plastics, chemicals and energy offer substantial opportunity for innovation and value creation. These are all very large markets facing substantial pressures to reduce energy consumption, greenhouse gas emissions and the overall impact on the environment. The limited long-term availability of fossil fuels and rising oil prices, which were up nearly 23 percent per barrel in 2011 when compared to the previous year, are driving the demand for more sustainable alternatives in plastics manufacturing, chemicals and energy.

### ***The Plastics Market***

The world's annual consumption of plastic materials has increased from around 5 million tons in the 1950's to nearly 240 million metric tons today and is estimated to be \$0.5 trillion in size. Durability and lightweight properties, as well as a number of applications from packaging to engineering-grade automotive materials, continue to drive this exponential growth in the plastics market. However, a majority of plastics are made from fossil feedstocks, including crude oil and natural gas. This reliance on fossil fuels ensures that plastic pricing is impacted by fluctuations in the cost of natural resources. A more concerning issue is that these fossil feedstock-based plastics do not biodegrade and congest landfills. According to the U.S. Environmental Protection Agency, an estimated 31 million tons of plastic entered the U.S. municipal solid waste stream in 2010. It is estimated that 20-25 percent of landfill weight is plastics. In addition, every year approximately 45,000 tons of plastic waste ends up in the world's oceans.

While recycling estimates for certain products such as PET plastic water bottles fluctuates around 29 percent, only eight percent of the total plastic waste generated in 2010 was recovered for recycling. This puts a tremendous strain on overflowing landfills and introduces environmental concerns that were not present 50 years ago. These issues are driving increased consumer and business demand for biodegradable plastic alternatives. In addition, many plastic items, particularly single use items such as bottles and caps, cups, lids and straws, and grocery bags, become litter in the environment where they can become a significant problem. Plastic waste can create a significant monetary burden on state and local governments.

According to The Fredonia Group, global demand for biobased and biodegradable plastics will more than triple to over 1.1 million tons by 2015. The Fredonia Group cites consumer preferences for more sustainable materials, improved performance of bioplastic resins and commodity plastics produced from biobased sources as the key factors driving this growth. According to the consulting firm, Industry Experts, the global bioplastics market was estimated at 264 thousand metric tons in 2007 and is expected to reach 1.9 million metric tons by 2017, growing by a compound annual growth rate ("CAGR") of 22 percent during that ten-year period.

Market research institute Ceresana predicts that the global bioplastics market will reach revenues of more than \$2.8 billion in 2018, reflecting average annual growth rates of 17.8 percent. According to Ceresana, Europe was responsible for about 48 percent of the market in 2010, followed by North America and Asia-Pacific, with strong growth also predicted for South America in coming years. In 2010, starch-based bioplastics accounted for the majority of bioplastic demand, followed by polylactic acid ("PLA"). Other biobased plastics, such as PHA/PHB, cellulose, polybutylene succinate ("PBS") and fossil fuel-based biodegradable plastics represented approximately 17 percent of global demand.

Ceresana expects non-biodegradable plastics made from renewable feedstocks to increase their market share from the eight percent seen in 2010 to more than 48 percent by 2018.

The growth in plastic use has generally exceeded overall economic growth as plastics have entered new markets with new product applications based on their functionality and ability to meet user requirements. The market will continue to investigate and adopt more sustainable resin alternatives to produce plastic products from blow-molding, thermoforming, and film-grade and other manufacturing processes.

### ***The Chemicals Market***

There are a large number of chemicals products which enable the manufacture of most industrial and consumer goods ranging from automobiles to food packaging. Major chemicals products include building block chemicals, such as ethylene and propylene, and specialty chemicals such as lubricating oil enhancers and pharmaceutical intermediates. The vast majority of chemicals produced today use non-renewable resources such as oil, natural gas or coal as their basic raw material.

Under the umbrella of the global chemicals market are conventional C4 and C3 industrial chemicals, with an estimated market of more than \$10 billion annually.

The C4 chemical market is estimated at approximately \$3 billion, growing at approximately four percent annually. C4 chemical products are used in a wide range of applications including engineering plastics, fabrics and fibers, personal care products and in semiconductor manufacturing. Conventional C4 chemicals are produced almost entirely from fossil-based hydrocarbons such as natural gas, oil or coal. Today, there are no material quantities of biobased C4 chemicals on the market.

Global demand for C3 chemicals is estimated at greater than \$8 billion per year based on sales of nine billion pounds annually, and the global market is projected to grow at a rate approximately five percent driven by increasing demand in Asia, including China and India. Conventional C3 chemicals, including crude acrylic acid, glacial acrylic acid and acrylates, are used in products such as superabsorbent polymers ("SAP"), water treatment chemicals, coatings (decorative, automotive, and paper) and adhesives.

Due to the volatility of fossil feedstocks and demand for renewable solutions from brand owners and consumers, the market is currently experiencing an increased demand for biobased chemicals. In fact the global biobased chemicals market is predicted to grow to more than \$76 billion in 2015 from \$36.9 billion in 2009, with a CAGR of 12.67 percent from 2010 to 2015.

Escalating prices for both acrylic acid and its main feedstock propylene affect the economics of producing C3 chemicals, driving increased interest in new, renewable alternatives. These new processes aim to reduce or contain costs and to uncouple production from the volatility of petroleum markets.

Regulatory and government mandates are driving market adoption of biobased C4 and C3 chemicals into the industrial chemical supply chain. Growing awareness among both manufacturers and consumers for products containing renewable content may also become an increasingly important factor in driving conversion to biobased chemicals over the long run.

### ***Fuels and Bioenergy Markets***

According to the U.S. Department of Energy's Report on International Energy Outlook dated January 2012, total U.S. consumption of liquid fuels, including both fossil fuels and biofuels, will grow from 19.2 million barrels per day in 2010 to 20.1 million barrels per day in 2035. The issues surrounding petroleum previously discussed have given rise to increasing demand for fuels produced from renewable sources. Certain states are considering legislation to capitalize on the environmental and energy security benefits of renewable fuels by requiring their use.

In December 2007, President Bush signed into law H.R. 6, the "Energy Independence and Security Act," which includes a historic Renewable Fuels Standard ("RFS") calling for at least 36 billion gallons of ethanol to be used nationwide by 2022; an increase from the nine billion gallons of ethanol used in 2008. This long-term growth plan for ethanol is intended to spur its commercialization from cellulosic feedstocks such as switchgrass, crop residues, forestry waste, and many other materials from all regions of the country. Beginning in 2016, an increasing portion of renewable fuels must be advanced biofuels, starting at three billion gallons in 2016 and increasing to 21 billion gallons in 2022. The National Commission on Energy Policy estimates that the new RFS and the increased fuel efficiency standards in the bill will reduce domestic oil use by more than four million barrels per day by 2030.

While ethanol is typically produced from starch contained in grains such as corn and grain sorghum, it can also be produced from cellulose. Cellulose is the main component of plant cell walls and is the most common organic compound on earth. The production of ethanol from corn is a mature technology that is not likely to see significant reductions in production cost. The ability to produce ethanol from low-cost biomass will be an important factor in making it competitive as a gasoline additive.

According to Pike Research, the global production and consumption of biofuels will more than double in the next decade, from \$82.7 billion in 2011 to \$185.3 billion in 2021. With the increasing worldwide demand for fuels from renewable sources and the emerging demand for renewable plastics, chemicals and chemical intermediates, there is a long term opportunity to create an alternative to the petroleum model based on the co-production of renewable energy and chemicals from crops. The commercialization of renewable fuel and chemicals co-produced in proprietary crops could create renewable plastics, chemicals and biofuel with favorable economics.

## **Formation of Metabolix**

Metabolix was formed in 1992 to leverage the ability of natural systems to produce complex polymers from renewable resources as a means to serve the growing needs of society for plastic materials and chemicals without dependence on finite fossil resources.

Polymers are found in nature in a wide range of organisms including microbes, plants and animals. Polyhydroxyalkanoates ("PHAs") also naturally occur within certain organisms, including microbes. These microbes use PHA to store energy and consume it for food when needed. It is this characteristic that gives our PHA biopolymers their biodegradability.

Though PHA polymers are found in nature, their production in wild-type bacterial strains is inefficient and costly for commercial purposes. In 1981, Imperial Chemical Industries ("ICI") developed a controlled fermentation process using a wild-type bacterial strain to produce a PHA copolymer that they introduced under the trade name Biopol. While a handful of applications were developed for Biopol, the cost to produce the polymer using the naturally occurring bacterial strains that were available at the time was prohibitively high and its performance properties were limited. Commercialization was not possible, but the Biopol assets remained largely intact and were eventually sold to Monsanto, Inc.

By the late 1980s, tools for genetic engineering had advanced significantly, and microbes were already being genetically designed to produce various products, such as protein drugs. At the Massachusetts Institute of Technology, Dr. Oliver Peoples, our Chief Scientific Officer, working in the lab of Dr. Anthony Sinskey, a member of our Board of Directors, identified the key genes required for the biosynthesis of our PHA biopolymers and invented and patented the first transgenic systems for their production. The use of genetically engineered production organisms, instead of wild-type strains, broadly expanded the number of compositions that could be made and enabled the tight level of control and high efficiency and productivity that are required for cost-effective industrial manufacturing.

Metabolix was formed in 1992 to exploit these discoveries. In order to fully capture the opportunity, we acquired Monsanto's patent estate related to biobased plastics, which included the Biopol assets, in 2001. We have since fully developed an integrated manufacturing process using transgenic strains for fermentation and a proprietary recovery process. This integrated manufacturing process is available for use in commercial manufacturing going forward. We have also developed proprietary plastic formulation technology, and we are also developing our platform technology for co-producing plastics, chemicals and energy in crops such as switchgrass, oilseeds and sugarcane. In addition, we are applying our proprietary technologies to our industrial biobased chemicals platform.

## **Our Technology and Core Capabilities**

We believe we have one of the most advanced capabilities to perform metabolic pathway engineering in the world and that we are skilled in our ability to integrate the biotechnology we develop into large scale industrial production processes. We believe that we have unprecedented capabilities with respect to harnessing the metabolic pathways involved in the production of a wide range of bioplastic monomers and the ability to polymerize, accumulate and harvest these bioplastics from living cells.

We have demonstrated that our technology and core capabilities enable us to:

- design and engineer living organisms to perform a series of chemical reactions that convert a feedstock to an end product in a highly efficient and reliable manner;
- integrate that organism into a reliable, large scale industrial fermentation process;
- develop highly efficient recovery technology for the product;
- tailor our end product from that process to suit our customers' needs; and
- develop new applications and commercial opportunities for these products.

## **Product Development Process**

### *Biology and Genetic Engineering*

While most biotechnology products today involve identifying a single gene to produce one protein, we have identified and chromosomally inserted a series of genes to produce several proteins and have done so in such a way that they are expressed to execute the right reactions at the right times. This work is at the forefront of a scientific discipline referred to as "Synthetic Biology" which has become the focus of intense research and design activities. There have been many new entrants, both academic and venture-backed start-up companies, in this general field primarily targeting biofuels, either advanced cellulosic ethanol or next generation technologies. We believe that we have advanced capabilities based on nearly 20 years of development taking early stage gene/pathway discovery through the entire value delivery chain to a commercially viable technology and business. In addition, we have developed core competencies in plant science, plant transformation and the development of advanced multigene expression technologies for introducing novel, multiple trait synthetic pathways into biomass plant crops.

### *Industrial Fermentation Process Engineering*

We have tightly integrated our fermentation scale-up research capabilities with our genetic engineering capabilities to create a feedback loop where data from fermentation experiments can readily influence microbial design and where microbial engineering approaches can guide the fermentation group to structure the optimal protocols (recipes) for running fermentations. Based on this technology we have demonstrated the ability to produce a range of different biopolymers on a common fermentation platform.

## *Chemical Process Engineering*

Another element of our product development process involves process chemistry and chemical engineering to separate the biopolymer from the biological cell material once fermentation is complete. We have a dedicated team that has developed a proprietary process for recovery of PHA biopolymer at the industrial scale. We have invented a recovery process that produces PHA biopolymer at a high level of purity without damaging the structure of the polymer and has operated effectively at a commercial scale in the manufacture of Mirel. We have successfully demonstrated our ability to efficiently isolate the range of polymers necessary to meet and expand our range of target applications. These polymers can be routinely produced free from cell debris and processed into resin pellets.

Our capabilities in fermentation and recovery for producing PHA biopolymer, including Mirel, have been successfully translated to the development of biobased industrial chemicals. We have recently demonstrated fermentation at pilot and industrial scale and recovered GBL using a proprietary thermolysis process. For chemicals, we are tailoring products and purity levels to meet customer and market needs.

## *Polymer Science and Product Development*

In the area of PHA biopolymers (Mirel and Mvera) our product development process involves tailoring the polymer to provide the product properties and meet the processing requirements for specific customer applications and then compounding that material for delivery to customers. Our product development team has considerable expertise in polymer science and to date has developed advanced formulation and processing technology for injection molding, blown and cast film, sheet, and thermoforming. We have also moved blow molding, non-wovens and foam applications beyond the proof of concept stage. We will continue to work with customers to optimize formulations to conform to their commercial specifications as commercialization of our PHA biopolymers expands.

In sum, we have successfully integrated capabilities in biology, genetics, fermentation process engineering, chemical engineering and polymer science. We believe this integrated set of capabilities will be a source of competitive advantage. These same capabilities are being applied to our plant crop programs, where we intend to develop an industrial system to co-produce bioplastics or chemicals with cost advantaged biomass for bioenergy, and to our integrated bio-engineered chemicals program. We believe our capabilities can also be applied successfully to other biobased plastics, chemicals and energy projects.

## **Business Strategy**

Our goal is to be the leader in discovering, developing and commercializing economically attractive, environmentally sustainable alternatives to petroleum-based plastics, chemicals and energy. To achieve this goal, we are building a portfolio of programs that we believe will not only provide an attractive slate of commercial opportunities and create value for our business, but will also generate leading and competitive intellectual property positions in the field. Key elements of our strategy include:

***Defining a New Commercial Model for our PHA Biopolymers Business***—Following the recent termination of our alliance with ADM, we retained all intellectual property rights to the technology and have engaged in productive discussions with other industry players. In addition, we have retained a core team in our biopolymers group to provide continuity with the technology and markets as we define a new commercial model for our business.

***Establishing a New Manufacturing Supply Chain for our PHA Biopolymers Business*** —Following the recent termination of our alliance with ADM, the Commercial Manufacturing Facility in Clinton, Iowa, owned by ADM, is no longer producing Mirel biopolymers. We expect to evaluate a number of

manufacturing and supply options and to secure an initial source of supply that would enable us to build capacity in conjunction with growing customer demand.

**Continuing Microbial Research and Process Development**—We have identified opportunities to improve our production strains and our fermentation and recovery processes. We believe that significant reductions in the operating and capital cost to manufacture Mirel biopolymers can occur as we successfully exploit these opportunities. We also believe that our technology is robust and we expect to be able to successfully transfer our technology to a new manufacturing facility secured through a new collaboration.

**Managing Existing Inventory**—We expect to work closely with core customers to provide them with access to existing inventory until the new manufacturing and supply chain is established. We will also use some inventory to continue certain product development activities representing high value applications for our product.

**Market Positioning and Technical Support**—We have retained a technical and business development team to support existing customers and to educate and develop the prospective customer base for Mirel and Mvera. This team is focused on positioning Mirel as a premium priced, specialty material that is an environmentally attractive alternative to petroleum-based plastics and lower performance bioplastics. Consistent with this positioning, we are marketing our biobased and biodegradable biopolymer under the brand name Mirel. The focus of this effort is to build a pipeline of customers across a range of applications. It is our goal to establish customer relationships that will lead to a committed stream of demand for our biopolymers as we establish a new manufacturing supply chain.

**Developing Applications for Mirel**—Through several years of interaction with customers, we have developed formulations of our polymer suitable for injection molding, blown and cast film, sheet and thermoforming. There is the potential to refine these grades further and to tailor them for specific customer performance requirements and applications. In addition, our technology may allow us to develop new formulations and processing protocols to extend the use of Mirel into blow molding, non-woven, foam and latex applications.

**Extending Our Technology to Sustainable Production of Biobased Chemicals and Intermediates** —We believe that our technical capabilities can be applied to produce important biobased commercial chemicals and chemical intermediates through biological conversion of sustainable feedstocks such as sugars. Through our integrated bio-engineered chemicals program, we are conducting research into the development of sustainable solutions for chemicals and intermediates, including widely used C4 and C3 industrial chemicals. As appropriate, we may seek to establish strategic partnerships or other collaborations to advance these programs.

**Advancing Plant Crop Research**—We believe that we are pioneering the technical process of introducing multigene traits into plant crops for the production of plastics directly in the plant. Our plant crop platform is currently in the research phase. We have scaled back our efforts for our oilseed crop, camelina. We are in the process of capturing intellectual property gained in our work in camelina and will be evaluating the possibilities of monetizing that intellectual property, while we continue work in switchgrass under our DOE grant.

**Partnering our Bioplastics in Plant Crops Programs**—As appropriate, we may seek to leverage our technology and establish strategic partnerships with one or more industry leading companies that can provide access to resources and infrastructure valuable for commercializing these platforms. These partnerships may take the form of large-scale strategic collaborations, or more limited collaborations with partners having complementary strengths, for example in biorefinery operations or marketing. We may also seek funding through government grants or other government programs aimed at promoting development of biobased plastics and fuels.

**Furthering our Leading and Competitive Intellectual Property Position**—We have built a patent estate around our platform technologies and a variety of inventions relevant to the commercialization of PHA biopolymers including Mirel and Mvera. We continue to extend this patent estate within our core business as well as within other commercial opportunities in the area of biobased plastics, chemicals and energy. We have licensed our technology, and where appropriate, we will continue to license our intellectual property to others in fields outside our areas of interest. Some of the areas in which we may seek to establish leading and competitive intellectual property include:

- intermediates and chemicals produced by microbial fermentation;
- plant varieties to co-produce plastics and energy (e.g., ethanol and biodiesel); and
- plant strains that optimize crop yields and processing traits for conversion to energy.

**Building Governmental Awareness of Our Approach**—Policy makers are seeking opportunities to reduce dependence on imported fossil fuel, decrease carbon dioxide emission, and address landfill and pollution issues. In recent years, we worked closely with several groups and individuals in the United States and Europe to address these issues. We intend to continue to pursue our governmental affairs initiatives to raise awareness of our solutions and enable legislation that can facilitate and accelerate the adoption of our products.

## **PHA Biopolymers Platform**

### **Overview**

Following the recent termination of our commercial alliance with ADM in the first quarter 2012, we restructured the biopolymers business and retained a core team in our biopolymers group to provide continuity with technology, manufacturing process, and markets. We have continued to work closely with customers during this transition to understand their product needs and to match them to available inventory. In addition, we have opened constructive discussions with alternative manufacturing and commercialization partners for PHA biopolymers. Establishing a new manufacturing and supply chain for our PHA biopolymers business is a key focus in 2012.

### **Former Alliance with Archer Daniels Midland Company**

In 2006, we entered into a commercial alliance with ADM Polymer, a wholly-owned subsidiary of ADM, one of the largest agricultural processors in the world. On January 9, 2012, ADM notified us that they were terminating the commercial alliance, effective as of February 8, 2012. ADM had recently undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of Telles. As the basis for the decision, ADM indicated to us in January that the projected financial returns from the alliance were too uncertain.

The Commercial Alliance Agreement between Metabolix and ADM Polymer specified the terms and structure of the alliance. The primary function of this agreement was to establish the activities and obligations of ADM and us to commercialize PHA biopolymers. These activities included: the establishment of a joint venture company, Telles, to market and sell PHA biopolymers, the construction of a manufacturing facility capable of producing 110 million pounds of material annually (the "Commercial Manufacturing Facility"), the licensing of technology to Telles and to ADM, and the conducting of various research, development, manufacturing, sales and marketing, compounding and administrative services by the parties.

Telles is a limited liability company, formed and equally owned by ADM and us. It was intended to: (i) serve as the commercial entity to establish and develop the commercial market for PHA biopolymers, and conduct the marketing and sales in accordance with the goals of the commercial alliance, (ii) assist in the coordination and integration of the manufacturing, compounding and

marketing activities, and (iii) administer and account for financial matters on behalf of the parties. Metabolix and ADM each had 50% ownership and voting interest in Telles. Pursuant to the terms of the Commercial Alliance Agreement, the termination of the Commercial Alliance Agreement triggers the dissolution, winding up and liquidation of Telles.

A summary of the key activities under the Commercial Alliance Agreement is as follows: (i) ADM agreed to arrange for, finance the construction of, and own, a facility in which it would manufacture biopolymer resins under contract to Telles, (ii) we agreed to either arrange for and finance the acquisition or construction of a facility in which we would compound bioplastics or we would arrange for third parties to compound bioplastics, and (iii) Metabolix, acting on behalf of Telles, agreed to establish the initial market for biopolymers. We also agreed to continue our research and development efforts to further advance the technology and expand and enhance the commercial potential of PHA biopolymers. Subject to certain limitations, ADM agreed to finance the working capital requirements of Telles.

The Commercial Alliance Agreement called for Telles to pay us quarterly support payments of approximately \$1.6 million each. The last of fourteen quarterly support payments was received as of June 30, 2009.

During the "Construction Phase" of the agreement all pre-commercial material production expenses incurred by ADM and the Company were to be shared equally. The Construction Phase of the commercial alliance was scheduled to end, and the Commercial Phase was scheduled to begin, upon the achievement of a milestone referred to in the Commercial Alliance Agreement as "First Commercial Sale." Achievement of this milestone required the sale by Telles to third parties of at least one million pounds of PHA biopolymer resin manufactured at the Commercial Manufacturing Facility. Qualifying sales were required to meet certain criteria, including a minimum order size, product acceptance by the customers in accordance with the terms of their contracts, and receipt of payment, in order for such sales to contribute towards First Commercial Sale. The First Commercial Sale milestone had not been achieved when the alliance was terminated.

ADM operated the Commercial Manufacturing Facility under a manufacturing agreement with Telles. Telles paid manufacturing fees to ADM for production of PHA biopolymer resins and paid compounding fees to us for certain compounding services. During the Commercial Phase of the Commercial Alliance Agreement, Telles agreed to pay us royalties on sales of Mirel. In addition, if Telles were to engage us to perform certain services during the Commercial Phase, and we accepted the service arrangement, Telles agreed to reimburse us for the cost of the services provided pursuant to the Commercial Alliance Agreement.

While Telles was a fifty-fifty joint venture, ADM advanced a disproportionate share of the financial capital needed to construct the Commercial Manufacturing Facility and to fund the joint venture's activities. Therefore, the Commercial Alliance Agreement provided that all profits, after payment of all royalties, reimbursements and fees, from Telles would first be distributed to ADM until ADM's cost of constructing the Commercial Manufacturing Facility and any negative net cash flow of Telles funded by ADM had been returned. Once ADM had recovered such amounts, the profits of Telles were to be distributed in equal amounts to the parties. In order to track the disproportionate investments ADM made, a Ledger Account was established to record the respective investments made by the parties. Metabolix has no obligation to ADM with respect to the Ledger Account after termination of the alliance.

Our agreements with ADM limited the rights of both ADM and us to work with other parties or alone in developing or commercializing certain PHAs produced through fermentation. These exclusivity obligations ended upon termination of the alliance. Also, upon termination of the alliance, Metabolix intellectual property licenses to ADM Polymer and Telles ended, with Metabolix retaining all rights to its intellectual property.

Under the Commercial Alliance Agreement ADM was permitted, under limited circumstances, to terminate the alliance if a change in circumstances that was not reasonably within the control of ADM made the anticipated financial return from the project inadequate or too uncertain. The agreement provided that, on a termination by ADM due to a change in circumstances, we would be permitted to continue to produce and sell Mirel, and ADM would be required to perform fermentation services for us for a period of time following the termination (subject to certain payment obligations to ADM). In January 2012, ADM notified us that they were terminating the alliance effective February 8, 2012. ADM indicated that it had undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of the Telles joint venture. Upon termination, ADM retained the Commercial Manufacturing Facility.

During the first quarter of 2012, in connection with the wind-up of the Telles joint venture, Metabolix agreed to waive its right to such ADM fermentation services and made a payment of approximately \$3 million to ADM. In return, ADM and Telles agreed to transfer to Metabolix all of Telles's inventory, including raw materials and finished goods, the trademarks owned by Telles, including Mirel and Mvera, and all product registrations, certifications and approvals for Telles's PHA biopolymers. Metabolix retains ownership of the pilot plant equipment used for development of PHA biopolymers and will assume certain Telles contract rights and obligations.

### **Current Capabilities and Scope of our Operating Business in PHA Biopolymers**

In the first quarter of 2012, we restructured the biopolymers business and retained a core team in our biopolymers group to provide continuity with the technology, manufacturing process and markets. This team has expertise in all of the areas required to maintain and in time grow an operating business. We have continued to work closely with customers during this transition to understand their product needs and to match them to available inventory. After the completion of the Telles wind-down arrangements, we have more than 5 million pounds of inventory. Our current estimates indicate that we have adequate inventory to supply the needs of strategic customers until a new manufacturing supply chain is available.

We have opened constructive discussions with alternative manufacturing and commercialization partners for PHA biopolymers. To date, we have been in contact with potential business partners who have expressed interest including raw material suppliers, manufacturers, industry players and customers. In 2012, we expect to engage in numerous partnering discussions as we evaluate options for structuring and launching the business under a new commercial model. The specific scope and attributes of the new model going forward will depend primarily on the capabilities and strengths of the parties we ultimately engage.

Under the ADM alliance, Metabolix did not have exclusive control over manufacturing and, because of the significant upfront investment and structure of the alliance, we were anticipating a significant timeline to achieve meaningful revenue generation and profitability for Metabolix from the venture. Following the termination of the joint venture, we believe we are well positioned to launch the

PHA biopolymers business under a new commercial model based on several key factors with the objective of creating a high margin, high growth business opportunity.

<b>PHA Biopolymers Business</b>	<b>Previously under Telles JV</b>	<b>Metabolix 2012 and Beyond</b>
<b>Customers and Markets</b>	Broad-based approach in several market segments	Focus on strategic customers and high margin segments as foundation for business
<b>Initial Manufacturing Scale</b>	Design capacity of 50 kilotonnes annually at industrial scale	Targeting 10 kilotonnes annually, then expand capital investment and capacity according to demand
<b>Business Partners</b>	Exclusive to ADM globally	Ability to engage multiple partners
<b>Technology Base</b>	2006 research technology used in Commercial Manufacturing Facility	Opportunity to deploy 2012 technology with improved yield and recovery processes
<b>Value Chain</b>	Manufacturing component separate from commercial entity	Potential to create integrated chain controlled by Metabolix

Mirel biopolymers were produced successfully at industrial scale for two years. The product was produced at very high quality and in a targeted range of grades suited to different customer uses. Going forward, we see the potential to deploy our latest technology into industrial production at an initial scale that is well matched to customer demand, and to develop plans to grow capacity in tandem with the growth outlook for our markets. In addition, we marketed Mirel biopolymers for more than two years on behalf of Telles and demonstrated market acceptance and the brand value proposition with over 50 customers. We have a highly differentiated technology resulting in a premium product with the proven ability to price at over \$2.25 per pound and higher, depending on the application and market. Going forward, we anticipate our marketing and product development activities initially focusing on performance applications to provide high value material to customers in key markets.

### **Marketing and Product Development**

Metabolix has established a core team in its biopolymers group to provide continuity with our PHA biopolymers technology and markets as we focus on launching the business under a new manufacturing and revenue model. We retain rights to all product certifications and trademarks as well as more than 5 million pounds of inventory. We plan to manage the existing inventory strategically to supply the customers that are core to our business as well as to drive continued, focused product development activities. We believe that the current supply of existing inventory will enable us to supply strategic customers, those committed to the product and who can support our efforts to establish a new model for manufacturing and supply. We also plan to use some inventory to continue product development activities on behalf of customers and to develop product for high value uses. We believe our existing inventory will be adequate to supply core customer needs until we establish alternative, new manufacturing model and supply chain.

### **The Value Proposition of Mirel Biopolymers**

We believe Mirel biopolymers offer the broadest range of properties and processing options compared to today's existing bioplastics. We believe Mirel's unique combination of being both biobased and biodegradable while having comparable functional properties to petroleum-based polymers stands alone in the bioplastics marketplace. We are positioning Mirel biopolymers as a specialty material that

can serve conventional plastic functional needs (which petroleum-based polymers may satisfy), deliver new functionality that can be leveraged to reduce system costs (e.g. new end-of-life solutions based on broad biodegradability) in addition to satisfying consumer preference for environmental responsibility (which petroleum-based polymers cannot address). Consequently, we expect to price Mirel at a premium as a specialty product as compared to the price of large volume commodity polymers, but comparable to a number of specialty polymers. Our strategy is to enter the market with premium priced products that address specialized segments that can be served competitively by the distinctive properties of Mirel biopolymers. Mirel biopolymers can be produced in pellet form (for further processing and re-sale as finished goods or components by customers), in densified form and as a blend with other biodegradable materials, and we may also provide Mirel biopolymers in other forms as may be determined by our customers.

We believe that the principal advantages of Mirel biopolymers will be the ability to use renewable feedstocks and the biodegradability properties of the materials combined with their performance when compared to alternative products. We believe Mirel biopolymers are unique compared with other biodegradable (both petroleum and renewable resource based) plastics when evaluated based on the following factors:

**Biodegradability**—Mirel biopolymers will biodegrade due to the action of microbial agents in a wide variety of conditions, including home and industrial compost systems, soil, anaerobic environments such as those found in anaerobic digesters and septic systems, and marine and fresh water environments. The rate and extent of Mirel's biodegradability will depend on the size and shape of the articles made from it as well as the specific end-of-life environment. However, like all bioplastics and organic matter, Mirel biopolymers are not designed to biodegrade in conventional, non-active landfills. Many plastics considered to be biodegradable only degrade in a controlled municipal industrial compost facility.

**Biobased Feedstocks**—Because fossil feedstocks are the primary raw material for the plastics industry, prices of conventional polymers can be adversely affected by fossil fuel supply disruptions and price volatility. Mirel biopolymers are produced using a biobased feedstock, which may lead to a more predictable cost structure when compared to petroleum-based plastic. Biobased feedstocks recycle carbon through photosynthesis, which removes carbon dioxide from the atmosphere. Conversely, the use of fossil feedstock results in release of carbon that has been sequestered underground for millions of years increasing atmospheric carbon dioxide that acts as a greenhouse gas ("GHG"). Producing Mirel biopolymers based on renewable resources therefore contributes to reduction of GHG emissions in addition to reducing reliance on finite petroleum resources.

**Property Range**—Similar to petroleum-based plastic, Mirel biopolymers possesses a particularly broad range of functional properties, varying from hard and stiff to soft and flexible.

**Processability**—Mirel biopolymers can be processed in many types of existing conventional polymer conversion equipment that is currently being used for petroleum-based plastic.

**Upper Service Temperature**—Mirel biopolymers will withstand temperatures in excess of 100° C, i.e., the boiling point of water, an important threshold. Some formulations of Mirel biopolymers can withstand temperatures up to 130° C.

**Resistance to Hydrolysis**—While Mirel biopolymers will biodegrade in marine and fresh water environments, they are resistant to reacting with cold or hot water over the intended life span of the product.

## **Biobased and Biodegradable**

Mirel biopolymers have the advantage in the marketplace of being both biobased and biodegradable while having comparable functional properties to petroleum-based polymers. However, in today's marketplace there is sometimes confusion about the use of the terms "biobased" and "biodegradable." Metabolix has committed to following industry guidelines when making these claims. Mirel biopolymers have received the Vinçotte certifications of "OK Biodegradability Soil" for natural soil biodegradability, "OK Biodegradability Water" for fresh water biodegradability, "OK Compost" for compostability in an industrial composting unit, and "OK Compost Home" for compostability in home composting systems. Vinçotte is the recognized European authority on materials inspection, certification, assessments and technical training. Mirel biopolymers are the only non-starch bioplastics to gain all four Vinçotte certifications. In addition to the Vinçotte certifications, Mirel biopolymers have been certified compostable by the Biodegradable Products Institute ("BPI"), an independent North American certifier of compostable material. BPI certification shows that Mirel biopolymers comply with the specifications established in the American Society for Testing and Materials standard ASTM D6400 for composting in a professionally managed composting facility.

### *Regulatory Requirements*

Some applications for which Mirel may be suitable, such as food packaging, plastic-coated paper cups, and lids for disposable cups, involve food contact, which, in the United States, is regulated by the U.S. Food and Drug Administration ("FDA"). The FDA process for food contact requires the submittal of a dossier, which is made up of a number of extraction studies conducted under specific guidelines.

In 2010, Mirel F1005, F1006 and F3002 grades were cleared for use in non-alcoholic food contact applications. The conditions of use range from frozen food storage to boiling water up to 100°C, including microwave reheating. Mirel is suitable for a wide range of injection molded food service and packaging applications including caps and closures, and disposable items such as forks, spoons, knives, tubs, trays, and hot cup lids. The clearance also includes products such as housewares, cosmetics and medical packaging.

In early 2012, Mirel biopolymers in both film and thermoforming grades were cleared for use in food contact applications including paper coatings, bags, cups, trays, and squeeze bottles. An application to EFSA (European Food Safety Authority) for approval of Mirel biopolymers in film grade for use in food contact applications is pending in the European Union.

## **Trends and Opportunities for Mirel Biopolymers**

### *Branded Products*

The market for branded products and services with attributes of environmental responsibility and sustainability is an emerging business opportunity. We expect that by co-branding products that use Mirel and Mvera, Metabolix and its customers will be able to jointly promote environmental responsibility. We believe that producers are positioning products as environmentally responsible or superior to gain a competitive advantage as they believe consumer preferences are shifting. We believe the use of Mirel in branded products either directly or for packaging will facilitate and enhance customers' efforts to exploit this trend.

## *Regulated Markets*

Regulatory action, such as bans, taxes, subsidies, mandates and initiatives, to encourage substitution of renewable and sustainable materials for petroleum-based incumbents is increasing. It is notable that there are bans on single-use plastic bags being mandated in areas around the world. In the geographic segments where regulatory drivers exist, we expect that Mirel biopolymers can meet requirements for biobased content or biodegradability that favor Mirel biopolymers over conventional petroleum-based plastics. In addition, producers are now anticipating regulatory change and are initiating programs to introduce sustainable materials to their products prior to or in an attempt to forestall implementation of such regulation. We believe that as awareness of our practical and affordable alternative grows, the pace of regulatory change may accelerate.

## **Market Segments for Mirel Biopolymers**

Although there are significant opportunities across many market segments, we are initially focusing on four main market segments: agriculture/horticulture, compost and organic waste diversion, marine and aquatic, and sustainable packaging. These markets have the strongest need for materials that are biobased and biodegradable either for branding value, because of regulatory requirements, or because biodegradability offers a useful property such as new end-of-life solutions like composting or anaerobic digestion. To approach these market segments, we expect to conduct certain, focused product and market development activities, including working with potential customers to determine their specific needs, and we have begun the process of qualifying our material for certain customer applications. As we identify new sources for manufacturing and new inventory becomes available, we expect that these activities will accelerate.

The performance profile of Mirel biopolymers is closely matched to the needs of the following market segments:

### *Agriculture/Horticulture*

Applications such as agricultural film (mulch film, field film, bale wrap, green house film), sod netting, erosion control netting and fencing have a strong need for the biodegradability offered by Mirel. In the case of field and mulch agricultural film, Mirel will biodegrade naturally after use and can be tilled into the field after a growing season. This can avoid the costs associated with the labor of removing the film from the fields and the associated disposal costs. In horticulture, the use of Mirel can eliminate the need and cost of removing plant pots when planting and the subsequent costs associated with disposal. As compared to existing bioplastics in the market, Mirel offers biodegradability, excellent toughness and strength, and long term shelf life prior to use. We do not believe that existing products provide both the robust performance in use combined with the biodegradability that Mirel offers.

### *Compost and Organic Waste Diversion*

Applications such as industrial can liners, kitchen compost bags and organic lawn and leaf bags have a strong need for the biodegradability offered by Mirel. Composting is becoming more and more popular as a method for organic waste disposal. Industrial users are seeking solutions which help them eliminate waste and enhance sustainable options. The use of Mirel biopolymers allows both the industrial and consumer users to dispose of these wastes in a bag that is biodegradable in industrial composting as well as home composting. In addition, Metabolix has developed a distinct formulation of Mirel biopolymer called Mvera, which is a certified film grade resin intended for use in industrial composting.

### *Marine and Aquatic*

Studies have noted that the world's oceans show increasing levels of persistent plastic particles of a size ingestible by marine creatures at the bottom of the food chain. Larger plastic items are also accumulating in substantial quantities in certain parts of the ocean, and marine birds and mammals have been found dead from ingesting or getting tangled in plastic debris. Mirel allows brand owners the opportunity to offer a product that will biodegrade if released into the environment or in applications where marine degradation is a key attribute (e.g. erosion control).

### *Sustainable Packaging and One Time Use Items*

Many plastic items, particularly single use items such as bottles and caps, cups, lids and straws, and grocery bags become litter in the environment where they can become a significant problem. Mirel products, disposed of along with food waste, can be fed into composting or anaerobic digestion systems. Sustainable opportunities for the application of Mirel biopolymers exists to help reduce packaging usage with film or coated paper products that enable less paper and thinner coatings. Regulated materials used in one time use protective packaging for shipping electronic devices such as expandable polystyrene can be replaced with renewable equivalents based on PHA. Recycle of packaging materials can also be increased by solving issues with paper repulping that occur with paper treating materials such as waxes, adhesives and coatings.

### **Competition**

The plastics market is large, with many established players. The market has grown around the chemical processing of oil and natural gas, and is concentrated in the conventional, non-biodegradable petroleum-based segment.

Established companies in this segment include Dow Chemical, DuPont, BASF, Ineos, LyondellBasell, SABIC and Mitsubishi Chemical, among many others. The price of conventional petroleum-based plastic is volatile, as it is dependent on petroleum as a key manufacturing input. In addition, the non-biodegradability of conventional petroleum-based plastics makes them persistent in and harmful to the environment and creates significant waste.

A few companies, such as DuPont, Dow Chemical, Arkema, and Braskem have taken steps toward plastics based on renewable resources, and are commercializing conventional plastics that use building blocks derived from renewable resources as components. These products are generally not biodegradable. Other producers of petroleum-based plastics, including BASF, Mitsubishi Chemical, and DuPont, now produce certain petrochemical grades that are biodegradable in industrial compost environments, but are otherwise persistent in the environment and are still subject to the volatility of oil and natural gas prices.

Our most comparable competitors are in the biodegradable, renewable resource based plastic segment, within which there are three distinct technologies: PHA, polylactic acid (PLA) and starch-based biodegradables. Just as a wide variety of different petroleum-based plastics now serve the needs of the market; we believe that these three product classes are more complementary than competitive. We believe that of these three product classes, Mirel offers a broad range of properties and processing options, and will address a large proportion of opportunities as an environmentally attractive yet functionally equivalent alternative to conventional petroleum-based plastics. Unlike PLA and most starch-based biodegradables, Mirel can:

- biodegrade in natural soil and water environments, including the marine environment,
- biodegrade in industrial or home composts,
- remain functional in a wide range of temperature settings, and
- not break down in everyday use.

Companies active in the PHA plastics segment include Kaneka, Tianan, Tianjin, EcoMann and a minor producer in Brazil. The key players in PLA and starch-based biodegradable plastics include NatureWorks, Mitsui Chemical, Teijin, Novamont and Biome.

Some of Mirel's competitors are summarized below.

<u>Biodegradability</u>	<u>Based on Petroleum</u>	<u>Based on Renewable Resources</u>
Biodegradable	<p><i>Synthetic Biodegradable:</i></p> <p>BASF (Ecoflex™)</p> <p>Dupont (Biomax™)</p> <p>ShowaDenko (Bionolle™)</p> <p>Mitsubishi Chemical (GS Pla)</p>	<p><i>PHA:</i></p> <p>Kaneka (PHBH)</p> <p>Tianan (PHBV)</p> <p>Tianjin (SoGreen™)</p> <p>EcoMann (EM)</p> <p><i>PLA:</i></p> <p>NatureWorks (Ingeo™)</p> <p>Mitsui Chemical (Lacea™)</p> <p>Teijin</p> <p><i>Starch-based:</i></p> <p>Novamont (Mater-Bi™)</p> <p>Biome</p>
Non-biodegradable	Conventional petroleum-based plastics	<p>Dupont (Sorona™ (~30% biobased))</p> <p>Dow Chemical (Soybean Polyurethanes)</p> <p>Arkema (Nylon 11)</p> <p>Braskem (polyethylene)</p>

## Biobased Industrial Chemicals Platform

### Overview

The combined global market for conventional C4 and C3 industrial chemicals is estimated at more than \$10 billion annually. These fundamental building block industrial chemicals have application to a broad range of industrial and consumer products. We view this market as attractive both commercially and technologically for the development and deployment of our PHA fermentation and FAST recovery technologies. We believe we will be able to produce these chemicals from renewable feedstocks cost effectively as "drop in" replacements in the industry supply chain for conventional chemicals produced with oil priced at or above \$90 per barrel.

Our objective is to develop and commercialize biobased industrial chemicals starting with C4 and then C3 through partnerships with industry leaders. Our business strategy is to form strategic alliances where our partners contribute fermentation and manufacturing capabilities, access to market channels in the value chain and related assets, and Metabolix contributes intellectual property, proprietary technology and process engineering capabilities to enable commercialization of a new source of supply for competitive, cost-effective biobased industrial chemicals to meet rising global market demand.

In our biobased industrial chemicals platform, our C4 program is most advanced in development toward commercialization. We have developed our proprietary fermentation and FAST recovery processes to produce biobased gamma-butyrolactone ("GBL") at industrial scale. Through an established synthetic route, our biobased GBL can be converted to biobased butanediol ("BDO"), the workhorse of the C4 industry value chain that enables access to broad segments of the market.

We have also demonstrated that our technology is directly applicable to the manufacture of biobased acrylic acid, the primary industrial chemical in the C3 industry value chain. We have focused

initially on engineering production strains for fermentation and validating our FAST recovery process for production of biobased acrylic acid.

### **Market for C4 and C3 Industrial Chemicals**

Global demand for conventional C4 industrial chemicals is estimated at approximately \$3 billion annually, and has been growing at a rate of approximately 4 percent per year. C4 chemical products include BDO, and related chemicals including GBL, tetrahydrofuran ("THF") and pyrrolidones. These chemicals are used at industrial scale in a wide range of applications including engineering plastics, resins and solvents, auto parts, spandex, fabrics and fibers, personal care products and in semiconductor manufacturing. According to industry sources, manufacturing in this sector is concentrated as the top five companies represent approximately 60% of the market. Today, conventional C4 chemicals are produced almost entirely from fossil-based hydrocarbons such as natural gas, oil or coal. Furthermore, there are no material quantities of biobased C4 chemicals on the market. Industry experts currently estimate that the first commercial scale supply of biobased C4 chemicals based primarily on bio-succinic acid will begin to enter the marketplace in the 2014-2015 timeframe and will initially represent a small fraction of the C4 market.

Global demand for C3 chemicals is estimated at greater than \$8 billion per year based on sales of 9 billion pounds annually. The global market is projected to grow at an annual rate greater than five percent driven by increasing demand in Asia, including China and India. Conventional C3 chemicals, including crude acrylic acid, glacial acrylic acid and acrylates, are used in products such as superabsorbent polymers (SAP), water treatment chemicals, coatings (decorative, automotive, and paper) and adhesives.

Industry experts believe that escalating prices for both acrylic acid and its main feedstock propylene affect the economics of producing C3 chemicals and have created an interest in producing C3 from renewable routes. These routes may serve to reduce or contain costs and to uncouple production from the volatility of petroleum markets.

Industry experts also believe that regulatory and government mandates seeking to increase utilization of biobased chemicals will become meaningful drivers for the market adoption of biobased C4 and C3 chemicals into the industrial chemical supply chain. In addition, we believe that brand owners are beginning to actively seek more renewable options from their supply chain producers. We also believe that growing awareness among both manufacturers and consumers for products containing renewable content may also become an increasingly important factor in driving conversion to biobased chemicals over the long run.

### **Metabolix's PHA Technology and FAST Recovery Process**

Conventional C4 chemicals are produced through established synthetic routes utilizing petrochemical-based feedstocks. Our process for creating biobased industrial C4 chemicals involves engineering metabolic pathways into microbes that in a fermentation process produce specific biopolymers that serve as precursors for the C3 and C4 chemicals. Through our PHA technology, we are able to control the microbe biology to achieve high concentrations of specific, naturally-occurring biopolymers that accumulate inside cells as they metabolize sugars. This intracellular accumulation of the biopolymers inside the microbes is a unique and differentiating aspect of our technology. When the fermentation is completed, we have developed a novel, one-step recovery process known as "FAST" (fast-acting, selective thermolysis) that converts the biopolymers, in this case, poly-4-hydroxybutrate ("P4HB") directly to GBL using heat. In addition to producing GBL directly, known catalytic processes can be used to cost effectively convert GBL to BDO.

The FAST recovery process is a proprietary, low-cost, energy-efficient approach to recover high-purity biobased chemicals directly from dried whole fermentation broth. Our results show that

80 percent of the dry weight of the microbial cells from fermentation is P4HB. We have shown that we can recover 90-95 percent pure chemical product in a single recovery step. In addition, the residual biomass from the fermentation step is converted to char, and can be recycled and combusted for process heat, making the FAST process energetically self-sustaining. Further, the water evaporated during the drying of the whole fermentation broth can be recycled after the product is isolated to eliminate wastewater and minimize make-up water requirements.

We believe our technology is differentiated and that it allows diversification of feedstock from existing fossil sources to renewable sources and this will offer cost advantages. Based on our understanding of industry economics, inputs and cost drivers, we believe that our FAST process for biobased industrial chemicals may produce economic advantages in deployment such as lower capital investment and lower manufacturing cost under future anticipated oil price scenarios. We have the ability to repurpose existing fermentation assets and leverage our common FAST recovery process platform to manufacture a range of chemicals and intermediates allowing a low capital entry strategy. In addition, with the elimination of fossil fuel inputs with our process, we believe our biobased C4 and C3 chemicals can be produced with a significantly lower carbon footprint as compared to conventional chemicals, provided renewable energy is used to power fermentation.

### **Progress in our Biobased C4 Research and Development Program**

We began our program in biobased industrial chemicals in 2007 when we received an Advanced Technology Program ("ATP") award from the U.S. Department of Commerce's National Institute of Standards and Technology. The program was designed to create a class of biobased routes for producing important industrial chemical intermediates, reducing our nation's dependence on fossil-based feedstocks and providing the nation with competitive advantages in polymers, chemicals and agriculture, all while reducing adverse environmental impacts.

The \$2 million award funded our integrated bio-engineered chemicals ("IBEC") program to develop sustainable solutions for widely used C4 industrial chemicals. Over the three year grant period of our IBEC project, we achieved all of the program milestones. We demonstrated that we could engineer microbes to produce a range of PHA polymers through the fermentation of plant-derived sugars. We also demonstrated that these biopolymers could be converted into a variety of C4 industrial chemicals. At the conclusion of the project in 2009, we had developed a scalable first generation industrial production microbe.

Beginning in 2010, we focused our efforts on the technology and commercial development of the specialty C4 chemicals segment that includes GBL as well as BDO, THF and the pyrrolidones. Our initial focus is to develop a commercial-scale process to directly produce biobased GBL. We also plan to use an additional synthetic route to convert biobased GBL to biobased BDO, allowing us to access this broad segment of the C4 market.

During 2010, we completed our first large-scale fermentation demonstrating scale-up of biobased GBL by a factor of 250 times with the strain performing essentially as expected based on the prior laboratory results. Our recovery and purification efforts continued and we made progress toward production of biobased GBL samples for shipment to potential customers for testing. We also expanded exploratory partnership discussions focusing on both upstream and downstream aspects of the value chain.

Building on those discussions, in July 2011 Metabolix and CJ CheilJedang announced the execution of a joint development agreement to continue to advance and refine our production technology and assess investment options for the commercialization of biobased C4 chemicals via fermentation. CJ BIO, a division of CJ CheilJedang, is a world leader in fermentation based research and development and manufacturing producing a range of nucleotides, and amino acids, including lysine.

Under the joint development agreement, CJ will contribute fermentation assets and expertise to produce pilot quantities of dried whole fermentation broth containing the biopolymer precursor for C4 chemicals. We plan to continue the development of microbial strains and the scale-up of our proprietary FAST recovery process in an effort to produce high-purity C4 chemicals. In addition, we and CJ are collaborating closely to develop a detailed market and economic analysis examining all aspects of an investment to commercialize biobased C4 chemicals. We expect the initial market entry to be through GBL and BDO, with subsequent growth into THF and polyester engineering resins ("PBT"). CJ BIO operates world-scale fermentation facilities in China, Indonesia and Brazil and has announced new fermentation investments in Malaysia and the U.S. These sites will be analyzed as production bases for biobased C4 chemicals based on the Metabolix PHA technology.

In 2011, we continued refining and scaling our fermentation and thermolysis processes and conducted an in-depth analysis of the market opportunity for "green" GBL. We successfully conducted a trial fermentation run at the 60,000 liter industrial scale. We recovered the biomass from the production runs and, using our FAST technology, extracted tonnage quantity of our biobased GBL for use in pilot testing by potential customers.

We tested the GBL product produced using our PHA fermentation and FAST technologies and confirmed that the material met the existing industry specifications for conventional GBL. The existing industrial chemical specification benchmarks for GBL are 99.7% purity for general chemical grade and 99.9% for electronic grade. In addition, we sent our GBL samples to a private laboratory to test for the presence of Carbon 14 (a test for fossil carbon), and the results using this well established test showed that the carbon in our GBL samples meets the requirements for being designated "renewable."

We also worked with a prospective downstream partner and demonstrated at laboratory scale the ability to convert our biobased GBL to N-methyl-2-pyrrolidone ("NMP") and meet industry specifications. According to industry sources, over 70 percent of GBL consumption is for the manufacture of NMP, which is used as a solvent in lube oil extraction, electronics applications, paint strippers, magnetic wire coatings and engineering resins.

Based on meeting our internal milestones of producing biobased GBL at industrial scale and meeting industry specifications, in 2011 we continued to conduct a series of exploratory partnership discussions focusing on both upstream and downstream aspects of the C4 value chain.

In 2012, we expect to be prepared to complete the preliminary design for a commercial scale plant including all of the components of our fermentation and recovery process to generate biobased GBL. In conjunction with our technical progress, we expect to continue discussions with CJ and other industry leaders with the goal of forming the industry alliances necessary to successfully bring our biobased C4 industrial chemicals, including GBL and BDO, into commercial production.

### **Progress in our Biobased C3 Research and Development Program**

Today, the global market for C3 chemicals, primarily acrylic acid, is estimated at \$8 billion annually. The primary synthetic route for making conventional acrylic acid is the use of propylene oxidation which converts propylene to crude acrylic acid and glacial acrylic acid. This synthetic route to make acrylic acid relies almost entirely on fossil-based hydrocarbons. Based on our internal market assessments, we believe that there will be a clear and growing demand from brand owners for biobased acrylic as it is used in consumer-facing products such as paints, diapers and detergents.

Based on our success demonstrating our technology to produce biobased C4 chemicals, we are targeting the significant market for C3 chemicals, and specifically the production of biobased acrylic acid for deployment of our technology. Our initial efforts were focused on establishing a clear technology and intellectual property strategy for production of C3 chemicals with only minor modifications to existing manufacturing infrastructure. The additional consideration we have anticipated

early in our program to develop acrylic acid is the inherent difficulty working with the molecule as it is highly reactive and corrosive and has to be handled under proper conditions.

Our objective is to develop and commercialize a new route to the production of biobased acrylic acid and acrylic esters with the goal of being cost competitive with fossil-based C3 chemicals at an oil price of \$90 per barrel. Our strategy is to develop the new process and, given downstream processing and market considerations, work with a strategic partner early in the development cycle to develop the technology for successful commercialization.

In 2011, we undertook a market analysis of the global market for acrylic acid to assess the market participants, renewable technology competition, economics, intellectual property status, and end markets. We reached the conclusion that producing biobased C3 chemicals could be very attractive for deployment of our technology.

Based on this analysis, Metabolix began research and development in 2011 to extend our PHA fermentation and FAST recovery technology into the production of acrylic acid. We successfully engineered microbes that accumulate poly-3-hydroxypropanoate ("P3HP") and we demonstrated small scale (20-30L) fermentation. We also developed refinements to our FAST recovery technology adapted to the unique properties of acrylic acid. In our process, P3HP is produced by fermentation, then the dried biomass is converted directly to acrylic acid at essentially quantitative yield. A major advantage of our process is that it avoids any additional chemical conversion steps.

In 2012, Metabolix plans to continue scale up of fermentation and to engineer additional microbial strains for testing. We also plan to continue development and optimization of our FAST recovery technology to produce biobased acrylic acid or acrylate esters to match the chemical specifications of conventional chemical counterparts. In addition, we also expect to continue exploratory partnership discussions.

### **Industry Landscape**

The current global market for C4 and C3 chemicals is based almost entirely on fossil-based hydrocarbon feedstocks. In general, the conventional C4 and C3 markets in Europe, North America and Japan are dominated by several established international companies. The C4 market is expected to grow at a four to five percent rate over the next five years. In addition, in 2008 there was some contraction in the C3 market due to the recession and a decrease in the market for construction materials, including paints and coatings. Industry sources estimate a return to historical growth rates for C3 acrylic acid of approximately five percent annually based on the outlook for improved economic conditions and an increase in adoption of SAPs in China.

The nature of the chemicals industry historically follows a well-established trend where innovation and technology evolve to leverage new feedstocks that provide cost advantage. As potential alternatives to the primary synthetic routes currently deployed by the industry, there are several alternative bio-based routes being developed to produce biobased C4 and C3 chemicals. Based on our analysis of the market, we believe that over time, new capacity built to produce C4 and C3 will increasingly be based on technology that leverages renewable and less volatile feedstocks.

Our closest competitors are developing biobased technologies to produce biobased C4 and C3 through a variety of routes at industrial scale. These include Genomatica, Arkema, OPX/Dow and Novomer.

Summarized below is an overview of the industry landscape for conventional and biobased C4 and C3 industrial chemicals.

<u>Industrial Chemical Market</u>	<u>Top 5* Producers (Conventional Routes)</u>	<u>Biobased Alternative Routes</u>
C4 (GBL, BDO, NMP, and THF)	BASF Dairen Chemical ISP (Ashland) LyondellBasell Mitsubishi *Represent >60% of the global C4 (BDO) market	Genomatica (Direct BDO fermentation) Metabolix (PHA Fermentation) Myriant, Bioamber, Reverdia, (Succinic acid production followed by conversion to BDO)
C3 (Acrylic Acid)	Arkema BASF Dow (Rohm & Haas) LG Chemical Nippon Shokubai *Represent >50% of the global C3 acrylic acid market	Arkema (Glycerol catalytic conversion to Acrylic Acid) OPX/Dow, Cargill/Novozymes(3HP Fermentation) MATRIC (Chemical Conversion of Lactic Acid) Novomer (ethylene oxide conversion to B-propiolactone followed by conversion to acrylic acid—only biobased if ethylene oxide is derived from EtOH) Genomatica (fumaric acid metathesis with ethylene) Metabolix (PHA Fermentation)

## Crops Platform

### Overview:

The petroleum industry is based on a global model where fossil resources are extracted from the earth. Once captured, the fossil resource feedstock is transported to refineries where 90 percent is used to produce fuel and the remaining 10 percent is used to produce industrial chemicals, including plastics. With the increasing worldwide demand for fuels from renewable sources and the emerging demand for biobased plastics, chemicals and chemical intermediates, we believe there is a long term opportunity to create an alternative to the petroleum model based on the co-production of renewable energy and chemicals from crops.

Our objective is to develop patented technology to enable commercialization of renewable fuel and chemicals co-produced in proprietary crops. Our business strategy is to leverage our intellectual property and PHA technology in microbes and make the research adaptations and breakthroughs needed to create proprietary systems to produce poly-3-hydroxybutrate (PHB, a subclass of PHAs) in the leaves and stems of plants. Our approach leverages our FAST recovery technology to separate PHB from the plant biomass to produce biobased plastics, chemicals and biofuel with favorable economics.

Over the course of this program which began in 2001, Metabolix has engaged in collaborations with academic institutions and secured more than \$15 million in government grants to advance this research. In our research to date, we have achieved proof of concept for our proprietary technology for

producing PHB bioplastics in demonstration crops and crops of agronomic interest including tobacco, oilseeds, switchgrass and sugarcane. We have also filed for intellectual property covering our inventions and have been awarded more than 30 patents to date. Further, Metabolix researchers and academic collaborators have published our research results in peer reviewed journals.

The most recent grant, awarded to Metabolix by the Department of Energy ("DOE") in 2011, is intended to demonstrate the production and recovery of chemicals from crops. This three year, \$6 million grant is expected to enable us to increase yields of PHB in switchgrass plants and conduct pilot testing to convert the PHB-containing biomass to crotonic acid using our FAST recovery process. Crotonic acid can be converted to a variety of chemical intermediates that are typically produced from non-renewable resources. In addition to the value of the biomass for producing biofuel, this process could create a pathway from crotonic acid to chemical intermediates that are currently valued at over \$80 billion annually. Metabolix expects to continue investment in the crop program in 2012 focused on switchgrass.

### **PHB and FAST Recovery Technology for Crops**

PHAs are a natural component of numerous organisms in multiple ecosystems. In microbes, PHAs are natural intracellular stores of carbon and energy that accumulate as discrete granules within a cell when faced with a nutrient limitation. These granules of biopolymer can be isolated and converted to materials. Based on prior work demonstrating the production and recovery of PHA from microbial fermentation, researchers at Metabolix are developing proprietary genetic engineering systems to produce PHB from non-food crops. Precise insertion of novel pathways in plants is challenging due to the need for and the complexity of introducing multiple foreign genes and the lengthy time required for the cross-breeding of plant generations having new gene systems. Our researchers have designed expression systems for PHB using three genes (thiolase, reductase and PHA synthase) which are required to increase production of PHB in plant tissue. A key consideration in the work is to shift metabolism in the plant to increase PHB production but to not impair the ability of the plant to thrive and reproduce. Metabolix has developed different genetic engineering systems for different plant crops including tobacco, oilseeds, switchgrass and sugarcane. In research published to date in our program, we have achieved the following levels of PHB as a percent of dry weight in our plants: Tobacco (18% in leaves; 9% in whole plants), Oilseed/Camelina (8% in seeds; manuscript in development), switchgrass (6% in leaves) and sugarcane (4.8% in leaves).

Our current research is primarily focused on increasing PHB yield in switchgrass to a target of approximately 10 percent dry weight of the plant. Switchgrass is a commercially and ecologically attractive, non-food energy crop that is indigenous to North America. Switchgrass is an attractive biomass to energy crop that is generally considered to be a leading candidate for cellulose-derived production of ethanol and other biofuels. It is a high density perennial crop that can grow on marginal land and does not require substantial inputs in terms of water or fertilization. It also has the capability of sequestering significant amounts of carbon dioxide from the atmosphere in its root systems.

In tandem with this work, Metabolix researchers have been developing methods based on our FAST recovery technology which uses heat to convert PHB in the plant biomass to crotonic acid that can be recovered and then serve as a platform chemical to produce other chemical intermediates such as propylene, butanol and maleic anhydride. We envision that the residual densified biomass produced using the FAST process will be a higher energy, transportable feedstock (similar to coal) that can be readily integrated with existing power generation or for gasification to produce infrastructure compatible bioenergy.

## Plant Science Research Milestones:

**Tobacco:** We evaluated the utility of a plastid transformation in engineering a robust system for expression of a multigene, biosynthetic pathway for the production of the bioplastic PHB in tobacco. We showed that tobacco has the capability to produce high levels of PHB, up to an average of 18 percent dry weight in leaves and 9 percent in the biomass of the entire plant. These plants were the subject of a field trial in 2009. The significance of this work was as a demonstration system in tobacco for development of our technology. Results were published in 2011 in *Plant Physiology*.

**Oil Seed/Camelina:** Camelina is an industrial crop native to Canada and parts of the United States. We evaluated co-production of biomaterials with seed oil and meal in Camelina. In 2008, we established a two year research collaboration with noted oilseed experts at the Donald Danforth Plant Science Center ("Danforth Center"), a leading not-for-profit research institute in St. Louis, Missouri. This collaboration was supported financially by a \$1.14 million grant from the Missouri Life Sciences Trust Fund to the Danforth Center. Metabolix assembled a team of scientists in St. Louis to work closely with the Danforth Center's principal investigators with the purpose of achieving technical goals for stable production of biobased plastics directly in oilseed crops. Combining the Danforth Center's extensive experience in oilseed biochemistry and genetic engineering with our patented technologies allowed us to make significant progress towards these goals. Following the conclusion of the grant, in 2010, Metabolix continued to conduct oilseed research through its wholly-owned research company, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada. In 2012, Metabolix is focused on securing intellectual property in the oilseeds/camelina program.

**Sugarcane:** Sugarcane is a high yielding biomass crop that grows well in tropical climate zones including South America, Australia and parts of Asia. In 2007, we entered into a research collaboration with Australia's Cooperative Research Centre for Sugar Industry Innovation through Biotechnology ("CRC SIIB") to develop sugarcane lines for the production of bioplastics. Together with the CRC SIIB we achieved a bioplastic content level of 3.5 percent in sugarcane leaves. During 2010, we formed a collaboration with the Australian Research Council and The University of Queensland to further research with sugarcane. Under this collaboration we evaluated the use of new promoters to drive gene expression and achieved PHB levels as high as 4.8 percent of leaf dry weight. This research was published in March 2012 in the *Plant Biotechnology Journal*.

**Switchgrass:** In 2001, Metabolix was awarded the Biomass Biorefinery grant, a 5 year, \$7.5 million grant involving seven universities and two national laboratories. This was Metabolix's first grant supporting development of technology to convert biomass crops to polyhydroxyalkanoate ("PHA") polymers in a biorefinery setting. During this grant, we completed work demonstrating the first successful expression of a functional multigene pathway in switchgrass. In 2003, the Biomass grant was replaced with a grant from the USDA and research continued. The results of our work in switchgrass were published in 2008 in the *Plant Biotechnology Journal*. Following completion of work under these grants, we continued research aimed at increasing levels of PHB expression in switchgrass and on broadening our intellectual property portfolio.

## Department of Energy Grant and Recent Progress in Switchgrass

In 2011, Metabolix was awarded a \$6 million grant by the DOE to engineer switchgrass producing 10 percent by weight PHB in the whole plant and to develop methods to thermally convert the PHB-containing biomass to crotonic acid and a higher density residual biomass fraction for production of biofuel. Crotonic acid is a platform chemical that can be readily converted through simple, known chemical conversion steps to a range of commodity chemical intermediates including propylene, butanol and maleic anhydride.

To date, Metabolix has demonstrated PHB production of up to 6 percent in switchgrass leaf tissue using proprietary genetic engineering and breeding technology. Metabolix has also achieved promising results in the model plant tobacco where PHB production of up to 9 percent dry weight has been achieved in whole plant. The approaches demonstrated in previous work will be applied to the ongoing research with the goal of increasing the levels of PHB to 10 percent in switchgrass, a level we believe could be commercially viable, if attained. In 2012, we expect to continue to advance research focused on increasing PHB production in switchgrass and developing a thermal conversion process for crotonic acid.

### **The Potential Benefits to Producing Renewable Energy and Chemicals from Plant Crops**

We believe we can engineer a commercial system that co-produces biobased bioplastics or chemicals along with biomass for conversion to energy (such as steam, electricity or biofuels such as ethanol or biodiesel). This concept, called a "biomass biorefinery," is based on the co-production of energy and higher value biobased plastic or biobased chemicals. It is analogous to today's energy/petrochemical industry where synthetic plastics are derivative value-adding products along with energy produced from petroleum and natural gas. We believe the co-production of biobased plastics or chemicals with energy in an integrated system will offer superior economic value and efficiency as compared to a single product system.

We envision the following potential benefits to our approach:

*Integrated Value Chain Opportunity for Biobased Chemicals and Biofuels:* In a fully realized Metabolix crop-based bio-industrial production system, the value chain begins with the growth of crops containing PHB followed by polymer recovery to produce bioplastics or biobased chemicals and processing of residual biomass for generating energy or biofuel.

*Crop Diversification:* The production of PHB in crops provides an opportunity for farmers to diversify their crop plantings to a crop with higher income potential and potential for reduced risk exposure.

*Source of High Value Biobased Chemicals:* PHB can be used directly as bioplastic and to derive a number of valuable, biobased industrial chemicals. Adoption of PHA bioplastic materials derived from our PHB in consumable goods would avoid long term accumulation of plastic waste in landfills, roadsides, oceans and inland waters. PHA bioplastics are fully biodegradable under ambient, marine and anaerobic conditions. Production of biobased industrial chemicals from crops would serve to respond to the emerging demand for renewable content and would decouple chemical production from the market volatility for petroleum feedstocks.

*Greenhouse Gas Reduction with Bioenergy Production:* The cultivation of crops producing PHB can play a vital role in the reduction of global or local greenhouse gas emissions. Petrochemical plastics and chemicals require petroleum as both a feedstock and for process energy during production. In contrast, using crops to produce PHB uses CO<sub>2</sub> from the atmosphere to form the biopolymer in addition to generating energy results in a reduced carbon footprint.

### **Intellectual Property**

Our continued success depends in large part on our proprietary technology. We rely on a combination of patent, copyright, trademark and trade secret laws, as well as confidentiality agreements, to establish and protect our proprietary rights.

We own approximately 480 issued patents and approximately 230 patent applications worldwide, and we have licensed from third parties approximately 50 issued patents and patent applications worldwide. In 2011, we filed 15 new patent applications based on inventions including methods of processing Mirel biopolymers and compositions for end user applications, use of PHA-containing

biomass to produce biobased industrial chemicals, and PHA expression systems in microbes and plants. We were also granted or allowed 39 patent applications, 10 in the United States of America and 29 internationally, in 2011. The inventions covered under these patents include novel multi-gene encoding systems in microbes, methods for the extraction of PHA from biomass, polymer blends, and PHA biopolymers for medical applications.

Our extensive patent portfolio covers, among other things, the fundamental biotechnology needed to produce Mirel biopolymers and a range of biobased chemicals as well as biopolymer compositions, processes and derived products. The licensed patents and patent applications include patents covering our core technology that are owned by Massachusetts Institute of Technology ("MIT") and exclusively licensed to us. Under the MIT licensing agreement, we pay annual license fees. In addition, under this licensing agreement, we are obligated to pay royalties on sublicensing revenue and sales of products, if any, covered by the licensed patents.

Our intellectual property portfolio includes patents directed to compositions of polymers, genes, vectors, expression systems in plants and microbes, devices, coatings, films, as well as methods of manufacture and use. The terms of such patents are set to expire at various times between 2012 and 2030.

In 2007 we entered into an exclusive license agreement with the University of Massachusetts at Lowell ("UMass") relating to United States Patent No. 5,883,199. The licensed technology was developed by inventors at UMass. During 2010 we granted a nonexclusive sublicense under this patent to BASF Corporation to produce and market blends of PLA and polybutylene adipate terephthalate ("PBAT"). BASF sells these blends under the trade name Ecovio®. During the first quarter of 2012 we granted a nonexclusive sublicense under the same patent to NatureWorks, LLC to make, use and sell blends of PLA with certain other polymers, including polybutylene succinate ("PBS"). In 2007 we entered into an agreement granting Abbott Laboratories an exclusive worldwide patent license for the use of our multi-gene expression technology in pharmaceutical product applications. We expect that from time to time we may grant further licenses and sublicenses under our patents and the patents we have licensed from third parties as appropriate and consistent with the commercialization of our own products.

Our registered U.S. trademarks include *Metabolix* and *Biopol*, and Metabolix has U.S. registrations for *Telles*, *Mirel*, the Mirel heart-leaf design and *Mvera*. Additional U.S. registration applications for *Metabolix*, *Bio-industrial Evolution*, the Metabolix four-leaf design, *Mirel* and the Mirel heart-leaf design, and *Mvera* are pending. These marks and certain other trademarks have been registered in selected foreign countries.

## Employees

As of December 31, 2011, we had 119 full-time employees. Of those employees, 75 were in research and development, 7 were in sales and marketing and 37 in general and administration. Among our research staff, 21 hold Ph.D.'s and 39 hold masters' or bachelors' degrees in their respective disciplines. Our staff has expertise in the following areas: microbial genetics, bioinformatics, metabolic engineering, systems biology, plant genetic engineering, fermentation process engineering, chemical engineering and polymer science and engineering.

As a result of ADM's termination of our Telles joint venture and our subsequent decision to restructure our operations we reduced headcount. As of March 1, 2012, we had 90 full-time employees. Of those employees, 59 were in research and development, and 31 in general and administration. Most of our employees are located in Massachusetts. None of our employees are subject to a collective bargaining agreement. We consider our relationships with our employees to be good.

## Corporate and Investor Information

Our company was incorporated in Massachusetts in June 1992 under the name Metabolix, Inc. In September 1998, we reincorporated in Delaware. Financial and other information about our company is available on our website (<http://www.metabolix.com>). The information on our website is not incorporated by reference into this annual report on Form 10-K and should not be considered to be part of this annual report on Form 10-K. We make available on our website, free of charge, copies of our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the Securities and Exchange Commission (the "SEC"). In addition, the public may read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Also, our filings with the SEC may be accessed through the SEC's website at [www.sec.gov](http://www.sec.gov).

### ITEM 1A. RISK FACTORS

Our operations and financial results are subject to various risks and uncertainties that could have a materially adverse effect on our business, financial condition, results of operations and the trading price of our common stock.

#### Risks Relating to our Business

***We have incurred net losses since inception. Termination of the ADM commercial alliance has increased the risks and uncertainties relating to commercialization of our first and only product, Mirel.***

We have generated net losses since being founded in 1992. Our ability to generate revenues in the near-term is highly dependent on the successful commercialization of Mirel, our first and only product in the market, which we were commercializing through our Telles joint venture with ADM. In January 2012 we were notified by ADM that they were terminating our commercial alliance effective as of February 8, 2012. Under the commercial alliance, ADM financed the construction of and owned the Commercial Manufacturing Facility in which it manufactured biopolymer resins under contract to Telles. Subject to certain limitations, ADM also financed the working capital requirements of Telles. Telles agreed to pay us royalties on sales of Mirel during the Commercial Phase of the Commercial Alliance Agreement. In addition, if Telles were to engage us to perform certain services during the Commercial Phase, and we accepted the service arrangement, Telles agreed to reimburse us for the cost of the services provided pursuant to the Commercial Alliance Agreement. Without ADM's continued support of our biopolymers program, we may not have the necessary financial or other resources to pursue the commercialization of PHA biopolymers, including Mirel and Mvera. We may require another partner to continue commercialization of Mirel, and we may not be able to enter into such a partnership on commercially reasonable terms or at all.

Outside of biopolymers, our other technologies are in the early stages of development. We may never be able to manufacture and sell other products developed with our technology on a commercial scale. Our success will depend on our ability to obtain suitable partnerships and collaborations for commercialization of the technologies we have developed. Even if we can successfully manufacture and sell other products, whether we are able to generate a profit on any of these products is highly uncertain and depends on a number of factors including the cost of production, the price we are able to charge for these products, and the emergence of competing products.

## Risks Relating to our Biopolymers Business Platform

### *We may not be able to obtain sufficient biopolymer manufacturing and compounding capacity.*

ADM operated its Commercial Manufacturing Facility under a manufacturing agreement with Telles, which paid manufacturing fees to ADM for production of PHA biopolymer resins. After termination of the commercial alliance, ADM retained its ownership of the Commercial Manufacturing Facility. We retained certain pre-commercial manufacturing equipment that was used in connection with pilot plant production of Mirel. However, we do not currently have a source for commercial scale manufacturing of biopolymers. The current and anticipated methods for manufacturing Mirel are highly complex processes in which a variety of difficulties may arise. We cannot assure you that we will be able to successfully manufacture Mirel at a scale consistent with customer demand in a timely or economical manner, or at all, or that the quality of the commercial product will be acceptable on a consistent basis.

Since commercial manufacturing of Mirel at the Commercial Manufacturing Facility was still in its early stages, and a new source for manufacturing has yet to be identified, Mirel manufacturing costs are uncertain and may ultimately be higher than we expect. While we believe that manufacturing costs could be reduced over time as we gain manufacturing know-how and improve our technology, we cannot be sure that we can manufacture Mirel in an economical manner. If we fail to develop adequate manufacturing capacity and expertise or fail to manufacture Mirel economically at large scale or in commercial volumes, the commercialization of Mirel and our business, financial condition and results of operations will be materially adversely affected. Further, if we fail to obtain or maintain third party toll compounding services on acceptable terms, or to establish our own compounding facility to provide such services in a timely and economical manner, the commercialization of Mirel and our business, financial condition and results of operations will also be materially adversely affected.

We cannot assure you that we will have the necessary funds to finance the construction of a new commercial manufacturing facility, or that we will be able to develop a manufacturing infrastructure in a timely or economical manner, or at all. We may depend on obtaining commercial partners to finance and/or construct a commercial manufacturing facilities for Mirel production. If the commercial manufacturing capacity that we build or otherwise obtain is not appropriate to the level of Mirel market demand, we may not be able to meet market demand for Mirel, and Mirel manufacturing costs may not be economical.

### *We relied heavily on ADM for the successful implementation of our biopolymer commercialization.*

We relied on ADM:

- to provide capital, equipment and facilities for the manufacture of Mirel,
- to provide expertise in performing certain manufacturing and logistical activities,
- to provide funding for research and development programs, product development programs and commercialization activities,
- to provide a corporate infrastructure for European sales and marketing activities, and
- to provide access to raw materials.

To continue the commercialization of Mirel and our biopolymers business, we may depend on third party collaborations and partnerships for some or all of the above. We may not be successful in establishing or maintaining suitable partnerships, and we may not be able to negotiate collaboration agreements having terms satisfactory to us or at all. Failure to make or maintain these arrangements or a delay or failure in a collaborative partner's performance under any such arrangements could have a materially adverse affect on our business and financial condition.

Because of ADM's termination of the commercial alliance, our ability to commercialize our biopolymers has been adversely affected, other Metabolix programs may be delayed or terminated, and we may have to use our funds, personnel, equipment, facilities and other resources to undertake certain activities on our own. Performance issues, program delay or termination or unbudgeted use of our resources may have a material adverse effect on our business and financial condition.

***The commercial success of Mirel may be limited if we are unable to obtain raw materials in sufficient quantities or in a timely manner.***

We anticipate that the production of our biopolymer products will require large volumes of feedstock. ADM was the sole source of the dextrose (corn sugar) that was the primary feedstock for the production of Mirel. With the termination of the ADM commercial alliance, we are now free to explore the use of other feedstocks. However, we cannot predict the future availability of any particular feedstock or be sure that we will be able to purchase it in sufficient quantities or in a timely manner. Processing agents that are used in the manufacture of Mirel and additives and other materials blended with Mirel formulations may only be available from limited sources. If raw materials cannot be obtained in sufficient quantities or at acceptable prices, our ability to produce our biopolymer products may be impaired, the cost of manufacturing Mirel formulations may increase, and our business will be adversely affected.

***Our biopolymer products may not achieve market success.***

We currently have limited customer commitments for commercial quantities of our biopolymers. Some prospective customers are currently evaluating and performing tests on Mirel prior to making large-scale purchase decisions. The successful commercialization of Mirel is also dependent on our customers' ability to commercialize their products which use Mirel, which may never gain market acceptance.

Market acceptance of Mirel and future Metabolix products will depend on numerous factors, many of which are outside of our control, including among others:

- public acceptance of such products;
- ability to produce products of consistent quality that offer functionality comparable or superior to existing or new polymer products;
- our ability to produce products fit for their intended purpose;
- our ability to obtain necessary regulatory approvals for our products;
- the speed at which potential customers qualify Mirel for use in their products;
- our ability to meet customer demand for products with a favorable greenhouse gas profile;
- pricing of our products compared to competitive products, including petroleum-based plastics;
- the strategic reaction of companies that market competitive products;
- our reliance on third parties who support or control distribution channels; and
- general market conditions.

We currently have limited marketing and sales experience and capabilities and virtually no distribution experience or capabilities. Our future revenues will be materially dependent upon our ability to identify and hire new employees and augment our own resources by entering into distribution arrangements and collaborations with third parties. If we are unable to develop or obtain access to sales and marketing and distribution expertise, sales of our biopolymer products, if any, may be adversely affected.

***We face and will face substantial competition.***

We face and will face substantial competition from a variety of companies in the biodegradable, renewable resource-based plastic segment, within which there are three distinct technologies: PHA, PLA and starch-based biodegradables. While some of our competitors' existing products that are produced from renewable feedstocks do not have the range of properties that Mirel offers, such products are, nonetheless, suitable for use in a range of products at a price which may be lower than our premium priced product offerings. Our competitors include, but are not limited to, Kaneka, Tianan, Tianjin and EcoMann in the PHA plastic segment, NatureWorks, Mitsui Chemical, Teijin, Novamont, and Biome in PLA and starch-based biodegradables, as well as all of the producers of petroleum-based plastics. Many of our competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, sales and marketing, manufacturing, distribution, technical and other resources than Metabolix. These competitors may be able to adapt more quickly to new or emerging technologies and changes in customer requirements. In addition, current and potential competitors have established or may establish financial or strategic relationships among themselves or with existing or potential customers or other third parties. Accordingly, new competitors or alliances among competitors could emerge and rapidly acquire significant market share. We cannot assure you that we will be able to compete successfully against current or new competitors.

***Changes in government regulations encouraging the use of biodegradable alternatives to plastic products or the use of biofuels and changes in regulations pertaining to marketing of biodegradable products may have an adverse effect on our business.***

One of the key markets for our products is as compostable and biodegradable substitutes for non-biodegradable petroleum-based plastics. This market is driven in part by laws, regulations and policies designed to encourage or mandate the increased use of biodegradable alternatives to petroleum-based plastics. Numerous countries, states and localities have enacted such laws and regulations, including bans and taxes on the use of single-use plastic and non-biodegradable plastic bags, due to ecological and waste management concerns. The phasing out or elimination of these or similar laws and regulations may adversely affect the demand for our products.

The state of California has enacted legislation limiting the use of the terms "compostable," "biodegradable" and similar terms in connection with certain plastic products. Similar legislation has been adopted or is being proposed in other jurisdictions. While these restrictions also impact our competitors, these laws and regulations may limit our ability to promote or market Mirel based on its biodegradability characteristics. This could adversely affect the demand for Mirel which, in turn, could have a material adverse effect on our business, financial condition and results of operations.

In addition, we are in the early stage of developing plant crops for co-producing plastics or chemicals together with biofuels. The market for biofuels is heavily influenced by governmental laws, regulations and policies mandating or providing incentives for fuel alternatives. The phasing out or elimination of these or similar laws and regulations may adversely affect the demand for biofuels and deter investment in the research and development in such products or biofuels, which would adversely affect our business.

***Our success will be influenced by the price of petroleum, the primary ingredient in conventional petroleum-based plastics, relative to the price of biobased feedstocks used to make Mirel and other products.***

Our success will be influenced by the cost of Mirel relative to petroleum-based plastics. The cost of petroleum-based plastic is in part based on the price of petroleum. Mirel has been primarily manufactured using corn sugar, an agricultural feedstock. ADM supplied all required agricultural feedstock as part of our strategic alliance. If the price of plant sugar feedstocks were to increase and/or

if the price of petroleum decreases, Mirel may be less competitive relative to petroleum-based plastics. A material decrease in the cost of conventional petroleum-based plastics may require a reduction in the prices of our products for them to remain attractive in the marketplace or reduce the size of our addressable market.

### **Risks Relating to our Crop-Based and Industrial Chemicals Business Platforms**

#### ***We may not be successful in the development of our crop-based platform or our industrial chemicals program.***

We are at an early stage of developing the technology and processes to produce biobased plastics and chemicals in plant crops, including switchgrass, sugarcane and oilseed, and applying our core capabilities in microbial engineering and plant transformation to develop biological routes to chemicals and chemical intermediates. The technological challenges associated with these programs are extraordinary and we may not be able to overcome these challenges. We will be required to invest a significant amount over a long period of time to complete such development work, if it can be completed at all.

To date our plant science programs have focused primarily on the genetic engineering required to cause the crops to aggregate polymer in the plant mass during the life cycle of the plant. We have not yet achieved a high enough concentration of polymer in commercial crops to make the current technology and process economically feasible at a commercial scale. If we are able to complete the genetic engineering work that leads to such aggregation at acceptable levels, we will also need to perform additional process engineering so that plastic can be recovered from the harvested crops, processed and formulated as required to constitute a marketable product. The time required for development, regulatory approval and commercialization of crop-based products is very long. Such development work may not be successful and we may not have the financial resources to fund such work.

Our chemicals development efforts are also at a very early stage. Because we will be funding much, or perhaps all, of the development of such programs, there is a risk that we may not be able to continue to fund such programs to completion or to provide the support necessary to distribute, market and sell resulting products, if any, on a worldwide basis. These development programs will consume substantial resources.

We cannot predict the costs of producing biobased plastics or chemicals in plant crops or producing chemicals through biological routes, given the stage of development of these programs. The anticipated methods for manufacturing biobased plastics and chemicals in crops and for producing bio-engineered chemicals and energy are highly complex processes in which a variety of difficulties may arise and there are extensive regulatory requirements to be met. The success of our industrial chemicals program will also depend on the cost of the sugars that we will use as feedstocks, relative to the price of petroleum. Given these uncertainties, we may not be able to successfully produce biobased plastics or chemicals in plant crops or biosourced chemicals in an economical manner.

#### ***We may not be successful in marketing the products of our new technologies.***

The success of our business model depends on our ability to correctly identify market opportunities for biologically produced polymers and chemicals. We intend to identify new market needs, but we may not always have success in doing so, in part because customers may perceive risks in adopting new materials, like Mirel, for use with existing products and because the markets for new materials and other products are not well-developed. Our products and technologies may become uncompetitive or obsolete if our competitors adapt more quickly than we do to new technologies and changes in customers' requirements.

***We may rely heavily on future collaborative partners.***

We may enter into strategic partnerships to develop and commercialize our current and future research and development programs with other companies:

- to provide capital, equipment and facilities,
- to provide expertise in performing certain manufacturing and logistical activities,
- to provide funding for research and development programs, product development programs and commercialization activities,
- to provide access to raw materials, and/or
- to support or provide sales and marketing services.

We may not be successful in establishing or maintaining suitable partnerships, and we may not be able to negotiate collaboration agreements having terms satisfactory to us or at all. Failure to make or maintain these arrangements or a delay or failure in a collaborative partner's performance under any such arrangements could have a materially adverse affect on our business and financial condition.

**Other Business Risks**

***Our future profitability is uncertain, and we have a limited operating history on which you can base your evaluation of our business.***

We have had net operating losses since being founded in 1992. At December 31, 2011, our accumulated deficit was approximately \$246 million. Since 1992, we have been engaged primarily in research and development and other pre-commercial and early-stage commercial activities. Because we have a limited history of commercial operations and we operate in a rapidly evolving industry, we cannot be certain that we will generate sufficient revenue to operate our business and become profitable.

Our revenue will be dependent on the successful completion of the commercialization of Mirel and other future products, directly by Metabolix or through other partnerships or joint ventures with third parties, and our ability to obtain funding from government grants and other sources. If we are unable to commercialize our technologies relating to the production of biobased plastics and chemicals in crops and biosourced industrial chemicals, or if sales of Mirel or such other products are not significant, we could have significant losses in the future due to ongoing expenses of research and product development. The amount we spend will impact our ability to become profitable and this will depend, in part, on the number of new products that we attempt to develop. We may not achieve any or all of these goals and, thus, we cannot provide assurances that we will ever be profitable or achieve significant revenues.

***We may need to secure additional funding and may be unable to raise additional capital on favorable terms or at all.***

We have consumed substantial amounts of capital since our inception in 1992 for our research and development activities. Although we believe our unrestricted cash, cash equivalents and investments of approximately \$78 million as of December 31, 2011, will be sufficient to fund our anticipated cash requirements for at least the next 24 months, we may require significant additional financing in the future to fund our operations. We cannot assure you that additional financing will be available on terms acceptable to us, or at all. Until we can generate significant continuing revenues, we expect to satisfy our future cash needs through the use of existing cash resources and through strategic collaborations, governmental research grants, and/or by licensing all or a portion of our programs or technology. We may also seek additional funds through private or public sales of our securities, or debt

financings. If funds are not available, we may be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. Further, additional funding may significantly dilute the ownership interest of existing stockholders.

***If we lose key personnel or are unable to attract and retain necessary talent, we may be unable to develop or commercialize our products under development.***

We are highly dependent on our key technical and scientific personnel, who possess unique information related to our research and technology. If we were to lose the services of these individuals, we may be unable to readily find suitable replacements with comparable knowledge and experience necessary to further our research, development and commercial programs. Our success depends largely upon the continued service of our management and scientific staff and our ability to attract, retain and motivate highly skilled technical, scientific, management, and marketing and sales personnel. Because of the unique talents and experience of many of our scientific, engineering and technical staff, competition for our personnel is intense. The loss of key personnel or our inability to hire and retain personnel who have required expertise and skills could have a materially adverse effect on our research and development efforts and our business.

***Our products are made using genetically-engineered systems and may be, or may be perceived as being, harmful to human health or the environment.***

Mirel is a new material that has been produced by genetically-engineered microbes using sugar derived from genetically engineered corn as a feedstock. In the future our products may be produced in genetically-engineered crops or through fermentation using genetically-engineered microbes. We may incur liability and/or legal expenses if there are claims that our genetically-engineered crops damage the environment or contaminate other farm crops. Some countries have adopted regulations prohibiting or limiting the production of genetically-engineered crops and the sale of products made using genetically engineered organisms. Such regulations could harm our business and impair our ability to produce biobased polymers in that manner.

The subject of genetic engineering of crops and other species has received negative publicity and has aroused public debate. Government authorities could, for social or other purposes, prohibit or regulate the development and use of genetically-engineered organisms or products made from such organisms. Social concerns could adversely affect acceptance of our products.

***We are subject to significant foreign and domestic government regulations, and compliance or failure to comply with these regulations could harm our business.***

The manufacture, use, sale and marketing of Mirel is subject to government regulations in the U.S. and other countries, including requirements for government approval of food contact applications. Our plant-crop and biobased chemical products will also be subject to government regulation in our target markets. In the U.S., the EPA administers the Toxic Substances Control Act, or TSCA, which regulates the commercial registration, distribution, and use of chemicals. A similar program exists in the European Union, called REACH (Registration, Evaluation, Authorization, and Restriction of Chemical Substances). The use and handling of GBL, the initial target of our biobased industrial chemicals program, is regulated by the U.S. DEA. The failure to comply with governmental regulations or to obtain government approval for our products could have a material adverse effect on our results of operations and financial condition. Governmental regulation or negative publicity could delay, reduce or eliminate market demand for our products which could have a material adverse effect on our results of operations and financial condition.

Our current and planned activities also involve the use of a broad range of materials that are, or may be, considered hazardous under applicable laws and regulations. Accordingly, we are subject to a

number of foreign, federal, state, and local laws and regulations relating to protection of the environment, the storage, use, disposal of, and exposure to, hazardous materials and wastes, and health and safety. Compliance with these laws and regulations could be costly and could delay or even preclude commercialization of our products for certain applications.

If we were to violate or become liable under environmental, health and safety laws, we could incur costs, fines and civil and criminal penalties, personal injury and third party property damage claims, or could be required to incur substantial investigation or remediation costs. Moreover, a failure to comply with environmental laws could result in the revocation of environmental permits, which could prevent us, or our strategic partners, from conducting business. Environmental laws could become more stringent over time, imposing greater compliance costs and increasing risks and penalties associated with violations, which could harm our business. Accordingly, violations of present and future environmental laws could restrict our ability to expand facilities, pursue certain technologies, and could require us to acquire costly equipment, or to incur potentially significant costs to comply with environmental regulations.

***We may not have adequate insurance and may have substantial exposure to payment of product liability claims.***

The testing, manufacture, marketing, and sale of our products may involve product liability risks. Although we currently have product liability insurance covering claims up to \$4 million per occurrence and in the aggregate, we may not be able to maintain this product liability insurance at an acceptable cost, if at all. In addition, this insurance may not provide adequate coverage against potential losses. If claims or losses exceed our liability insurance coverage, it could have a materially adverse effect on our business and our financial condition.

***Potential future acquisitions could be difficult to integrate, divert the attention of key personnel, disrupt our business, dilute stockholder value and impair our financial results.***

As part of our business strategy, we may consider acquisitions of companies, technologies and assets that we believe are a strategic fit with our business. Acquisitions involve numerous risks, any of which could harm our business, including:

- difficulties in integrating the operations, technologies, existing contracts, accounting and personnel of the target company and realizing the anticipated benefits of the combined businesses;
- diversion of financial and management resources from existing operations;
- the price we pay or other resources that we devote may exceed the value we realize, or the value we could have realized if we had allocated the purchase price or other resources to another opportunity;
- potential loss of key employees, collaborators and strategic alliances from either our current business or the acquired company's business;
- assumption of unanticipated problems or latent liabilities; and
- inability to generate sufficient revenue to offset acquisition costs.

Acquisitions also frequently result in the recording of goodwill and other intangible assets which are subject to potential impairments in the future that could harm our financial results. In addition, if we finance acquisitions by issuing convertible debt or equity securities, our existing stockholders' ownership interest may be diluted, which could lower the market price of our common stock. As a result, if we fail to properly evaluate acquisitions or investments, we may not achieve the anticipated benefits of any such acquisitions, and we may incur costs in excess of what we anticipate. The failure to successfully evaluate and execute acquisitions or investments or otherwise adequately address these risks could materially harm our business and financial results.

## **Risks Relating to Intellectual Property**

### ***Intellectual property protection for our products is important and uncertain.***

Our commercial success will depend in part on our obtaining and maintaining patent, trade secret and trademark protection of our technologies in the United States and other jurisdictions, as well as successfully enforcing this intellectual property and defending this intellectual property against third-party challenges. In particular, we place considerable emphasis on obtaining patent protection for significant new technologies, products and processes in the United States and in foreign jurisdictions where we plan to use such technologies.

Our patent position involves complex legal and factual questions. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. Patents may not be issued for any pending or future pending patent applications owned by or licensed to us, and claims allowed under any issued patent or future issued patent owned or licensed by us may not be valid or sufficiently broad to protect our technologies. Moreover, we may be unable to protect certain of our intellectual property in the United States or in foreign countries. Foreign jurisdictions may not afford the same protections as U.S. law, and we cannot ensure that foreign patent applications will have the same scope as the U.S. patents. Additionally, any issued patents owned by or licensed to us now or in the future may be challenged, invalidated, or circumvented, and the rights under such patents may not provide us with competitive advantages. Competitors may also design around our technology or develop competing technologies.

We could incur substantial costs to bring suits or other proceedings in which we may assert our patent rights against others or defend ourselves in suits brought against us. An unfavorable outcome of any such litigation could have a material adverse effect on our business and results of operations.

If we are not able to defend the patent or trade secret protection position of our technologies, then we will not be able to exclude competitors from developing or marketing competing technologies, and we may not generate enough revenues from product sales to justify the cost of development of our technologies and to achieve or maintain profitability.

We also rely on trademarks to establish a market identity for our products. We may not obtain registrations for our pending or future trademark applications, and there will be many countries in which we will choose not to file trademark registration applications because of the costs of filing and prosecuting such applications. Enforcing or defending our registered and unregistered trademarks might result in significant litigation costs and damages, including the inability to continue using certain trademarks. In the event that we are unable to continue using certain trademarks, we may be forced to rebrand our products, which could result in the loss of brand recognition, and could require us to devote resources to advertise and market brands.

### ***A substantial portion of the technology used in our business is or may be owned by or subject to retained rights of third parties.***

Some of our intellectual property rights have been licensed from academic institutions. The academic institutions also generally have the right to terminate our license in the event that we fail to make required payments or otherwise breach the applicable agreements. We also have, and expect to have in the future, research and development agreements with academic institutions that may develop intellectual property. The academic institutions generally retain rights over the technology for use in certain fields. Even though the rights of the academic institutions are generally limited to the noncommercial academic and research fields, they may obtain rights to commercially exploit developed intellectual property in limited instances. Furthermore, our rights to intellectual property developed under research and development agreements with academic institutions are not always certain, and may be in the form of an option to obtain license rights to such intellectual property. If we fail to exercise

our option rights timely and/or we are unable to negotiate a license agreement, the academic institution may offer a license to the developed intellectual property to third parties for commercial purposes. Any such commercial exploitation could adversely affect our competitive position and have a material adverse effect on our business.

Some of our patents may cover inventions that were conceived or first reduced to practice under, or in connection with, U.S. government contracts or other federal funding agreements. The U.S. government may retain rights that could have a significant impact on the commercial value of the developed intellectual property.

Our employees, consultants, collaborators, customers and vendors who use our information and materials may develop new intellectual property relating to our products and technologies. We generally enter into agreements with such persons providing that inventions conceived by them in the course of rendering services to us will be our exclusive property or that we will have the option to license such rights. However, these agreements may not be honored and may not effectively assign intellectual property rights to us. Enforcing a claim that a party illegally obtained intellectual property rights is difficult, expensive and time consuming and the outcome is unpredictable. The failure to obtain such rights for Metabolix or to prevent others from obtaining such rights could adversely affect our competitive position.

***Third parties may claim that we infringe their intellectual property, and we could suffer significant litigation or licensing expense as a result.***

Various U.S. and foreign issued patents and pending patent applications owned by third parties exist in areas relevant to biopolymers and biobased chemicals, their compositions, formulations and uses, and processes for their production. Such third parties may claim that we infringe their patents. For example, we are aware of competitors with patents relating to biobased plastics. Such competitors may allege that we infringe these patents. There could also be existing patents of which we are not aware that our technologies may inadvertently infringe. In addition, because patent applications are maintained in secrecy for a period of time after they are filed, there may be currently pending applications, unknown to us, which may later result in issued patents that our technologies may infringe. If third parties assert claims against us alleging that we infringe their patents or other intellectual property rights, we could incur substantial costs and diversion of management resources in defending these claims, and the defense of these claims could have a materially adverse effect on our business. In addition, if third parties assert claims against us and we are unsuccessful in defending against these claims, these third parties may be awarded substantial damages, as well as injunctive or other equitable relief against us, which could effectively block our ability to make, use, sell, distribute, or market our products and services in the United States or abroad. We cannot currently predict whether a third party will assert a claim against us, or pursue infringement litigation against us; nor can we predict the ultimate outcome of any such potential claims or litigation.

In the event that a claim relating to intellectual property is asserted against us, or third parties not affiliated with us hold pending or issued patents that relate to our products or technology, we may seek licenses to such intellectual property or challenge those patents. However, we may be unable to obtain these licenses on acceptable terms, if at all, and our challenge of the patents may be unsuccessful. Our failure to obtain the necessary licenses or other rights could prevent the sale, manufacture, or distribution of some of our products and, therefore, could have a material adverse effect on our business.

***We rely in part on trade secrets to protect our technology, and our failure to obtain or maintain trade secret protection could limit our ability to compete.***

We rely on trade secrets to protect some of our technology and proprietary information, especially where we believe patent protection is not appropriate or obtainable. However, trade secrets are difficult to protect. We vigorously pursue confidentiality agreements and contractual provisions with our collaborators, potential customers, employees, and consultants to protect our trade secrets and proprietary know-how. These agreements may be breached and we may not have adequate remedies for such breach. While we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors or scientific and other advisors, our potential customers, or our strategic partners may unintentionally or willfully disclose our proprietary information to competitors. If we were to enforce a claim that a third party had illegally obtained and was using our trade secrets, our enforcement efforts would be expensive and time consuming, and the outcome would be unpredictable. In addition, courts outside the United States are sometimes unwilling to protect trade secrets. Moreover, if our competitors independently develop equivalent knowledge, methods and know-how, it will be more difficult for us to enforce our rights and our business could be harmed.

#### **Risks Relating to Owning our Common Stock**

***An active trading market for our common stock may not be available on a consistent basis to provide stockholders with adequate liquidity. Our stock price may be extremely volatile, and our stockholders could lose a significant part of their investment.***

An active trading market for shares of our common stock may not be sustained on a consistent basis. The public trading price for our common stock will be affected by a number of factors, including:

- reported progress of our business and technology development, relative to investor expectations;
- changes in earnings estimates, investors' perceptions, recommendations by securities analysts or our failure to achieve analysts' earnings estimates;
- quarterly variations in our or our competitors' results of operations;
- general market conditions and other factors unrelated to our operating performance or the operating performance of our competitors;
- future sales of our common stock;
- future issuance and/or sale of preferred stock;
- announcements by us, or our competitors, of acquisitions, new products, significant contracts, commercial relationships or capital commitments;
- commencement of, or involvement in, litigation;
- any major change in our board of directors or management;
- changes in governmental regulations or in the status of our regulatory approvals;
- announcements related to patents issued to us or our competitors and to litigation involving our intellectual property;
- a lack of, limited, or negative industry or security analyst coverage;
- developments in our industry and general economic conditions; and
- the other factors described elsewhere in these "Risk factors."

As a result of these factors, our stockholders may not be able to resell their shares at, or above, their purchase price. In addition, the stock prices of many technology companies have experienced wide

fluctuations that have often been unrelated to the operating performance of those companies. The valuations of many biotechnology companies without consistent product revenues and earnings are extraordinarily high based on conventional valuation standards, such as price to earnings and price to sales ratios. These trading prices and valuations may not be sustained. Any negative change in the public's perception of the prospects of biotechnology companies could depress our stock price regardless of our results of operations. These factors may have a materially adverse affect on the market price of our common stock.

***Our financial results may vary significantly from period to period which may reduce our stock price.***

Our financial results may fluctuate as a result of a number of factors, many of which are outside of our control, which may cause the market price of our common stock to fall. For these reasons, comparing our operating results on a period to period basis may not be meaningful, and you should not rely on our past results as an indication of our future performance. Our financial results may be negatively affected by any of the risk factors listed in this "Risk Factors" section and, in particular, the following risks:

- fluctuations due to revenue recognition under strategic alliance agreements;
- failure to produce commercialized products or to find customers for these products;
- the unpredictability of government funding for some of our programs;
- failure to estimate or control contract costs;
- adverse judgments or settlements in legal disputes;
- expenses related to acquisitions, mergers or joint ventures; and
- other one-time financial charges.

***Provisions in our certificate of incorporation and by-laws and Delaware law and our shareholder rights plan might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.***

Provisions of our certificate of incorporation and by-laws and Delaware law may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which our stockholders might otherwise receive a premium for their shares of our common stock. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management.

We have adopted a shareholder rights plan, the purpose of which is, among other things, to enhance our Board's ability to protect shareholder interests and to ensure that shareholders receive fair treatment in the event any coercive takeover attempt of the Company is made in the future. The adoption of the plan was intended, in part, to address the risk that a third party could acquire our Company at a price that does not reflect the full value of our business and our technologies. The shareholder rights plan could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, our Company or a large block of our Company's common stock.

In addition, Section 203 of the Delaware General Corporation Law prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

The existence of the foregoing provisions and anti-takeover measures could limit the price that investors might be willing to pay in the future for shares of our common stock. They could also deter

potential acquirers of our Company, thereby reducing the likelihood that our stockholders could receive a premium for their common stock in an acquisition.

***We do not currently intend to pay dividends on our common stock and, consequently, our stockholders' ability to achieve a return on their investment will depend on appreciation in the price of our common stock.***

We have never declared or paid any cash dividends on our common stock and do not currently intend to do so for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Therefore, our stockholders are not likely to receive any dividends on their common stock for the foreseeable future.

#### **ITEM 1B. UNRESOLVED STAFF COMMENTS**

Not applicable.

#### **ITEM 2. PROPERTIES**

We do not own any real property. We currently lease approximately 28,000 square feet of office and research and development space at 21 Erie Street, Cambridge, Massachusetts. Our lease for this facility expires in May 2014, with the option to renew for two additional five year periods. We also lease approximately 5,200 square feet of additional office space at One Kendall Square, Cambridge, Massachusetts where the majority of our general and administrative employees are located. Our lease for this facility expires in May 2014. We also lease approximately 13,700 square feet of office and laboratory space at 650 Suffolk Street, Lowell, Massachusetts. Our lease for this facility was extended in February 2012 for an additional two years and now expires in May 2014. Our wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada, leases approximately 4,600 square feet of office, laboratory and greenhouse space in Saskatoon. MOI's leases for these facilities expire in July 2012.

#### **ITEM 3. LEGAL PROCEEDINGS**

On February 17, 2012, a purported shareholder class action, *Hilary Coyne v. Metabolix, Inc., Richard P. Eno, and Joseph Hill*, Civil Action 1:12-cv-10318, was filed in the United States District Court for the District of Massachusetts, naming the Company and certain officers of the Company as defendants. The lawsuit alleges that the Company made material misrepresentations and/or omissions of material fact in the Company's disclosures during the period from March 10, 2010 through its January 12, 2012 press release announcing that Archer Daniels Midland Company (ADM) had given notice of termination of the Telles joint venture for PHA bioplastics, all in violation of Sections 10(b) and 20(a) of the Securities Exchange Act and Rule 10b-5. The lawsuit seeks: certification as a class action, compensatory damages in an unspecified amount, plaintiff's costs and attorneys' fees, and unspecified equitable or injunctive relief.

We are currently unable to assess the probability of loss or estimate a range of potential loss, if any, associated with this matter because it is at an early stage.

#### **ITEM 4. MINE SAFETY DISCLOSURES**

Not Applicable

**PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****Market Information**

Our common stock is traded on the NASDAQ Global Market under the symbol "MBLX." The following table sets forth, for the period indicated, the high and low sales prices for our common stock, as reported by the NASDAQ Global Market, for our two most recent fiscal years:

	Common Stock Price			
	2011		2010	
	High	Low	High	Low
First Quarter	\$ 12.78	\$ 7.77	\$ 13.13	\$ 8.83
Second Quarter	10.95	6.50	17.12	10.03
Third Quarter	7.74	4.08	18.44	10.01
Fourth Quarter	5.54	3.28	15.39	9.92

The close price of our common stock, as reported by the NASDAQ Global Market, was \$2.64 on March 7, 2012.

**Stockholders**

As of March 7, 2012, there were 34,138,574 shares of our common stock outstanding held by 66 stockholders of record.

**Dividends**

We have never declared or paid any cash dividends on our capital stock and do not expect to pay any cash dividends for the foreseeable future. We intend to use future earnings, if any, in the operation and expansion of our business. Any future determination relating to our dividend policy will be made at the discretion of our board of directors, based on our financial condition, results of operations, contractual restrictions, capital requirements, business properties, restrictions imposed by applicable law and other factors our board of directors may deem relevant.

**Equity Compensation Plan Information**

Please see Part III, Item 12, for information regarding securities authorized for issuance under our equity compensation plans.

**Unregistered Sales of Securities**

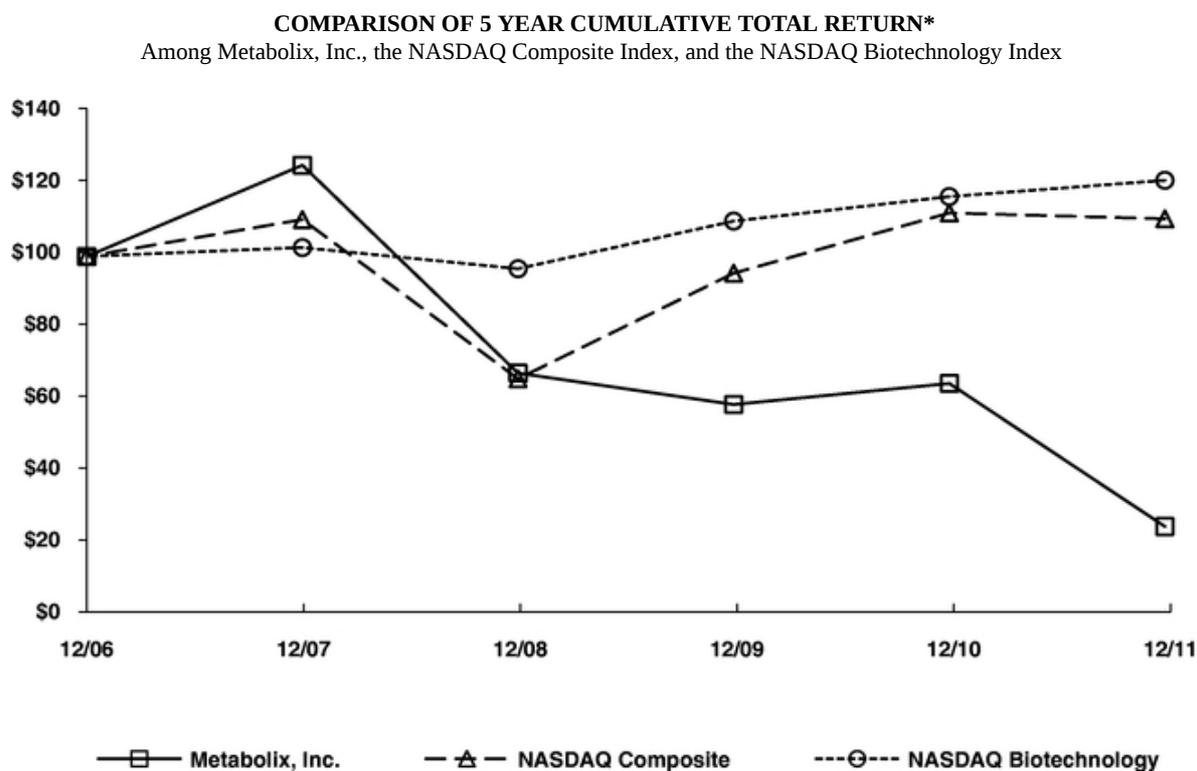
On October 14, 2011, the Company issued 25,596 shares of common stock to participants in its Metabolix, Inc. 401(k) Plan as a matching contribution. The issuance of these securities is exempt from registration pursuant to Section 3(a)(2) of the Securities Act of 1933 as excluded securities.

**Issuer Purchases of Equity Securities**

During the quarter ended December 31, 2011, there were no repurchases made by us or on our behalf, or by any "affiliated purchasers," of shares of our common stock.

**Stock Performance Graph**

This graph compares the percentage change in cumulative total stockholder return (change in stock price plus reinvested dividends) on our common stock with the cumulative total return for the NASDAQ Composite Index and the NASDAQ Biotechnology index for the periods set below. This graph assumes a \$100 investment in our common stock at a closing price of \$18.94 per share on December 31, 2006. The comparisons in the graph are not intended to forecast or be indicative of possible future performance of our common stock.



\* \$100 invested on 12/31/06 in stock or index, including reinvestment of dividends.

Fiscal year ending December 31.

	12/31/06	12/31/07	12/31/08	12/31/09	12/31/10	12/31/11
<b>Metabolix, Inc.</b>	\$ 100.00	\$ 125.66	\$ 67.16	\$ 58.34	\$ 64.26	\$ 24.02
<b>NASDAQ Composite</b>	100.00	110.38	65.58	95.27	112.22	110.58
<b>NASDAQ Biotechnology</b>	100.00	102.49	96.54	109.94	116.84	121.41

**ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA**

The selected condensed consolidated statement of operations data for the years ended December 31, 2011, 2010, and 2009 and balance sheet data as of December 31, 2011 and 2010 have been derived from our consolidated financial statements and related notes, which are included elsewhere in this report, and have been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as indicated in their report. The selected condensed consolidated statement of operations data for the years ended December 31, 2008 and 2007 and the balance sheet data as of December 31, 2009, 2008 and 2007 have been derived from our audited financial statements that are not included in this report. The selected financial data set forth below should be read in conjunction with our financial statements, the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this report. The historical results are not necessarily indicative of the results to be expected for any future period.

	Year ended December 31,				
	2011	2010	2009	2008	2007
(In thousands, except share and per share data)					
<b>Statement of operations data:</b>					
Total Revenue	\$ 1,425	\$ 448	\$ 1,425	\$ 1,555	\$ 1,683
Operating expenses:					
Research and development expenses, including cost of revenue	24,445	23,673	24,471	24,667	19,901
Selling, general and administrative expenses	15,841	15,714	15,683	15,780	15,598
Total operating expenses	40,286	39,387	40,154	40,447	35,499
Loss from operations	(38,861)	(38,939)	(38,729)	(38,892)	(33,816)
Interest income, net	76	136	772	2,887	5,941
Net loss	\$ (38,785)	\$ (38,803)	\$ (37,957)	\$ (36,005)	\$ (27,875)
Net loss per share Basic and Diluted	\$ (1.24)	\$ (1.45)	\$ (1.62)	\$ (1.58)	\$ (1.27)
Number of shares used in per share calculations Basic and Diluted	31,257,376	26,773,755	23,435,264	22,839,913	21,997,397

	Year ended December 31,				
	2011	2010	2009	2008	2007
(In thousands)					
<b>Balance Sheet Information:</b>					
Cash, cash equivalents and short-term investments	\$ 76,855	\$ 61,574	\$ 92,202	\$ 91,096	\$ 109,326
Total assets	82,912	66,771	97,554	96,946	119,004
Long-term deferred revenue	35,944	36,207	37,299	32,440	24,180
Other long-term obligations	340	493	649	805	963
Total liabilities	43,449	43,095	42,510	37,855	29,802
Accumulated deficit	(245,662)	(206,877)	(168,074)	(130,117)	(94,112)
Total stockholders' equity	39,463	23,676	55,044	59,091	89,202

## 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 the Consolidated Financial Statements and Notes thereto included in this Annual Report on Form 10-K.*

*All dollar amounts are stated in thousands.*

### Overview

Metabolix is an innovation-driven bioscience company focused on bringing environmentally friendly solutions to the plastics, chemicals and energy industries. We have core capabilities in microbial genetics, fermentation process engineering, chemical engineering, polymer science, plant genetics and botanical science, and we have assembled these capabilities in a way that has allowed us to integrate our biotechnology research with real world chemical engineering and industrial practice. In addition, we have created an extensive intellectual property portfolio to protect our innovations and, together with our technology, to serve as a valuable foundation for future industry collaborations.

The markets for petroleum-based plastics, chemicals and fuels are among the largest in the global economy. Issues associated with the prolonged use of petroleum-based products include plastic waste management and pollution, limited fossil fuel availability and price volatility, and global warming and climate change. We believe that a substantial global market opportunity exists to develop and commercialize our technology to produce sustainable, renewable alternatives to petroleum-based products including advanced biopolymers, biobased industrial chemicals and bioenergy.

Metabolix was formed to leverage the ability of natural systems to produce complex biopolymers from renewable resources. Metabolix has focused on a family of biopolymers found in nature called polyhydroxyalkanoates, or ("PHAs"), which occur naturally in living organisms and are chemically similar to polyesters. Metabolix has demonstrated the production of PHAs at the industrial scale to produce PHA biopolymers and biobased industrial chemicals, as well as production of PHB, a subclass of PHA biopolymer, in agriculturally significant crop plants.

In 2006, we entered into a commercial alliance with ADM Polymer Corporation ("ADM Polymer"), a wholly-owned subsidiary of Archer Daniels Midland Company ("ADM"), one of the largest agricultural processors in the world. On January 9, 2012, ADM notified us that they were terminating the commercial alliance, effective as of February 8, 2012. ADM had recently undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of Telles. As the basis for the decision, ADM indicated to us in January that the projected financial returns from the alliance were too uncertain.

Under the commercial alliance, ADM was responsible for resin manufacturing, and Metabolix was primarily responsible for product development, compounding, marketing and sales. Through this alliance, the companies developed a proprietary, world scale microbial fermentation and recovery system for producing PHA biopolymers and established a joint venture company, Telles, LLC ("Telles"), to commercialize PHA biopolymer products. In 2009, ADM completed construction of the initial phase of its Commercial Manufacturing Facility located in Clinton, Iowa ("the Commercial Manufacturing Facility"). In 2010, the plant commenced operations and began production. In 2010 and 2011, Telles conducted significant product and commercial development activities with potential customers, marketed and sold product to customers under the tradenames Mirel™ and Mvera™, and developed a network of business partners and distributors. In January 2012, ADM notified us that they were terminating the alliance effective February 8, 2012.

Upon termination, ADM retained the Commercial Manufacturing Facility. We retained significant rights and assets associated with the PHA biopolymers business consistent with our intent to launch the business using a new commercial model, continuing business operations, marketing biopolymer

products, and identifying alternate manufacturing capability. We hold exclusive rights to the Metabolix technology and intellectual property used in the joint venture. We have also acquired all of Telles's product inventory and compounding raw materials, all product certifications and all product trademarks including Mirel™ and Mvera™, and we retained all co-funded pilot plant equipment in locations outside of the Clinton plant. Metabolix has no obligations under the ledger account totaling \$433 million which was funded by ADM to construct the Commercial Manufacturing Facility and to provide working capital to Telles.

In the first quarter of 2012, we restructured the biopolymers business and downsized our operations to more appropriately align our 2012 business priorities and strategic plans with current cash and investment resources. Although the restructuring was done primarily through employee termination, we retained a core team in our biopolymers group to provide continuity with technology, manufacturing process, and markets. We have continued to work closely with customers during this transition to understand their product needs and to match them to available inventory. In addition, we have opened constructive discussions with alternative manufacturing and commercialization partners for biopolymers. Through Telles, we learned extremely valuable information about how customers and brand owners are envisioning the use of PHA biopolymers in their products. Based on these interactions, we remain confident that Metabolix biopolymers provide an important solution to those wishing to reduce dependence on petroleum, reduce plastic waste in the environment, and utilize new solutions to meet sustainable packaging goals.

In 2012, our primary objectives are to advance business discussions with third parties with the goal of establishing a new commercial model for our PHA biopolymers, to work closely with our core customers to provide product from existing inventory during the transition phase and ensure ongoing development of PHA biopolymer products, to narrow our market development focus to high value market segments as the foundation to successfully build the business, and to establish a new manufacturing and supply chain properly sized to our business.

For our second platform we are developing C4 and C3 chemicals from biobased sources, not the fossil fuels that are currently used to produce most industrial chemicals today. During 2009 we completed all work under our U.S. Department of Commerce National Institute of Standards and Technology grant, a \$2 million grant aimed at producing C4 chemicals from renewable sources. We were able to achieve all of the technical milestones outlined in this grant. In 2010, we continued to scale up our C4 chemicals technology and continued efforts on chemical recovery and purification. We made progress toward production of biobased gamma-butyrolactone ("GBL") samples for shipment to potential customers and we expanded exploratory partnership discussions.

In 2011, Metabolix and CJ CheilJedang ("CJ") announced a joint development agreement to continue to advance and refine our production technology and assess investment options for the commercialization of biobased C4 chemicals via fermentation. The two companies are collaborating closely to develop a detailed market and economic analysis examining all aspects of an investment to commercialize biobased C4 chemicals. In addition to this collaboration, in the C4 program we produced GBL at industrial scale and demonstrated a chemical profile consistent with existing industrial specifications.

The Company believes that developing and commercializing biobased C3 chemicals could represent another attractive market for our technology.

Our third technology platform, crop-based businesses, which is at an early stage, is an innovative biorefinery system which uses plant crops to co-produce PHAs that can subsequently be recovered as bioplastics or biobased chemicals while also generating bioenergy or biofuels in an integrated biorefinery. For this system, we intend to extract polymer from the engineered plant crop, so that the remaining plant material can be used as a biomass feedstock for the production of bioenergy products including electricity and biofuel. In 2010, we expanded our recovery technology to enable the

production of industrial chemicals from this platform. Our crop research has included tobacco, as well as oilseed, specifically camelina, sugarcane and switchgrass.

In 2011, Metabolix was awarded a \$6 million grant by the U.S. Department of Energy ("DOE") to engineer switchgrass producing 10 percent PHB, by weight, in the whole plant and to develop methods to thermally convert the PHB-containing biomass to crotonic acid and a higher density residual biomass fraction for production of biofuel.

We have incurred significant losses since our inception. As of December 31, 2011, our accumulated deficit from inception to date was \$245,662 and total stockholders' equity was \$39,463. We recognized net losses of \$38,785, \$38,803 and \$37,957 in 2011, 2010, and 2009, respectively.

### **Collaborative Arrangements**

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. By their nature, these agreements are complex and have multiple elements that cover a variety of present and future activities.

### **ADM Collaboration**

From 2004 to 2006 we collaborated with ADM Polymer Corporation, a wholly-owned subsidiary of ADM, one of the largest agricultural processors in the world, in a technology alliance to demonstrate the capabilities of our fermentation and recovery technologies and to prepare a master plan and budget for the construction of a Commercial Manufacturing Facility. In 2006, we entered into a commercial alliance with ADM Polymer to build the Commercial Manufacturing Facility and to market and sell PHA bioplastics. On January 9, 2012, ADM Polymer notified us that they were terminating the commercial alliance, effective as of February 8, 2012, pursuant to the terms of the agreement. ADM recently undertook a strategic review of its business investments and activities and made the decision to focus outside of Telles. As the basis for the decision, ADM indicated to us in January 2012 that the projected financial returns from the alliance were too uncertain.

During the commercial alliance, ADM was responsible for the construction, financing and operation of the Commercial Manufacturing Facility through a manufacturing agreement with Telles. ADM Polymer owns the Commercial Manufacturing Facility. We were responsible for providing or procuring compounding services to convert the output from the Commercial Manufacturing Facility into forms that were suitable for various commercial applications.

Through December 31, 2011, we received the following payments from the alliances to offset operating cash needs:

- upfront payment of \$3,000 from ADM in November 2004;
- milestone payments of \$2,000 from ADM in May 2006;
- support payments of \$22,050 from ADM, on behalf of Telles, through June 30, 2009;
- cumulative cost sharing payments from ADM for pre-commercial manufacturing plant construction and operations under the technology alliance of \$1,209; and
- cumulative cost sharing payments from ADM for pre-commercial manufacturing plant construction and operations under the commercial alliance of \$10,318.

All of these payments were recorded as deferred revenue on the Company's balance sheet. At December 31, 2011, we expected to begin recognizing this deferred revenue upon achievement of a milestone referred to in the Commercial Alliance Agreement as the "First Commercial Sale." The deferred revenue would be recognized on a straight line basis over a period of approximately ten years

in which our contractual obligations were fulfilled in accordance with the terms of the Commercial Alliance Agreement. Achievement of the First Commercial Sale milestone required the sale by Telles to third parties of at least one million pounds of PHA resin manufactured at ADM's Commercial Manufacturing Facility. Qualifying sales had to meet certain criteria, including a minimum order size, product acceptance by the customers in accordance with the terms of their contracts, and receipt of payment, in order for such sales to contribute towards the First Commercial Sale threshold. A portion of the deferred revenue representing estimated amounts that were expected at December 31, 2011 to be recognized within the next twelve months has been classified as short-term in the Company's balance sheet at December 31, 2011. Effective with the termination of the alliance in February of 2012 we expect to recognize all of the deferred revenue related to the alliance agreements with ADM in the first quarter of 2012.

Although Telles is a separate legal entity owned equally by us and ADM, ADM disproportionately funded the activities of the joint venture. Specifically, the cost of the Commercial Manufacturing Facility, the working capital requirements of the joint venture and the support payments to us exceeded the investments made by us to establish compounding operations for the joint venture. In order to rebalance the respective investments made by the parties, a preferential distribution of cash flow provided that all profits, after payment of all royalties, reimbursements and fees, from the joint venture were to be distributed to ADM until ADM's disproportionate investment in the joint venture, including the costs of constructing the Commercial Manufacturing Facility, were returned to ADM. In order to track the disproportionate investments ADM made, a Ledger Account was established to record the respective investments made by the parties. As of December 31, 2011 the balance of the ADM Ledger Account was \$433,053. Metabolix has no obligation to ADM with respect to the Ledger Account after the termination of the alliance.

### Government Grants

As of December 31, 2011, expected gross proceeds of \$5,908 remain to be received under our U.S. and Canadian government grants, which include amounts for reimbursement to our subcontractors, as well as reimbursement for our employees' time, benefits and other expenses related to performance under the grants.

The status of our United States and Canadian government grants is as follows:

<u>Program Title</u>	<u>Funding Agency</u>	<u>Total Government Funds</u>	<u>Total received through December 31, 2011</u>	<u>Remaining amount available as of December 31, 2011</u>	<u>Contract/Grant Expiration</u>
Renewable Enhanced Feedstocks For Advanced Biofuels And Bioproducts	Department of Energy	\$ 6,000	\$ 260	\$ 5,740	June 2014
Blow Molded Bioproducts From Renewable Plastics	Department of Agriculture	349	309	40	August 2012
Advanced Technologies For Engineering Of Camilina	Canadian Ministry of Agriculture	210	82	128	February 2013
Total		<u>\$ 6,559</u>	<u>\$ 651</u>	<u>\$ 5,908</u>	

## **Critical Accounting Estimates and Judgments**

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs and expenses, and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates.

We believe that of our significant accounting policies, which are described in Note 2 to our consolidated financial statements, the accounting policies described below involve a greater degree of judgment and complexity. Accordingly, we believe that the accounting policies described below are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of operations.

### **Revenue Recognition**

We recognize revenue under government research grants when the related expense is incurred and we have obtained governmental approval to use the grant funds for agreed upon budgeted expenses.

For revenue received under our arrangements with ADM, we recognize revenue in accordance with the accounting guidance on revenue recognition and revenue arrangements with multiple deliverables.

Our discontinued arrangement with ADM contained multiple elements including obligations for us to provide future compounding services, sales and marketing services, and certain research and development activities. We determined that these elements could not be separated and accounted for individually as separate units of accounting. Therefore payments received from ADM through December 31, 2011 have been classified as deferred revenue at the respective balance sheet dates. At December 31, 2011 we expected that this deferred revenue would begin to be recognized upon achievement of the contractual First Commercial Sale. All amounts would be recognized on a straight line basis over the estimated period, of approximately ten years, in which our obligations would be fulfilled in accordance with the term of the Commercial Alliance Agreement. Effective with the termination of the alliance in February of 2012 we expect to recognize all of the deferred revenue related to the alliance agreements with ADM in the first quarter of 2012.

Fees to license the use of our proprietary and licensed technologies are recognized only after both the license period has commenced and the licensed technology, if any, has been delivered to the licensee. Royalty revenue is recognized when it becomes determinable and collectability is reasonably assured, otherwise we recognize royalty revenue upon receipt of payment.

### **Stock-Based Compensation**

The accounting standard for stock-based compensation requires that all stock-based awards to employees be recognized as an expense in the consolidated financial statements and that such expense be measured at the fair value of the award.

Determining the appropriate fair value model and calculating the fair value of stock-based payment awards requires the use of highly subjective assumptions, including the expected life of the stock-based payment awards and stock price volatility. We use the Black-Scholes option-pricing model to value our option grants and determine the related compensation expense. The assumptions used in calculating the fair value of stock-based awards represent management's best estimates, but the estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change, and we use different assumptions, our stock-based compensation expense could be materially different in the future. See Note 12 to the consolidated financial statements for further

discussion on the key assumptions used to determine the fair values of option grants pursuant to the Black-Scholes option pricing model.

We account for stock compensation arrangements with non-employees in accordance with the accounting standard for equity instruments that are issued to other than employees for acquiring, or in conjunction with selling, goods or services, using a fair value approach. For stock options granted to non-employees, the fair value of the stock options is estimated using the Black-Scholes valuation model. Stock-based compensation expense is recognized over the period of expected service by the non-employee. As the service is performed, we are required to update these assumptions and periodically revalue unvested options and make adjustments to the stock-based compensation expense using the new valuation. These adjustments may result in higher or lower stock-based compensation expense than originally estimated or recorded, with a corresponding increase or decrease in compensation expense in the statement of operations. Ultimately, the final compensation charge for each option grant to non-employees is unknown until those options have vested or services have been completed.

## Results of Operations

### Comparison of the Years Ended December 31, 2011 and 2010

#### Revenue

	Year ended December 31,		Change
	2011	2010	
Grant revenue	\$ 918	\$ 64	\$ 854
License fee and royalty revenue from related parties	447	122	325
License fee and royalty	60	50	10
Research and development revenue	—	212	(212)
Total revenue	<u>\$ 1,425</u>	<u>\$ 448</u>	<u>\$ 977</u>

Total revenue was \$1,425 and \$448 for the twelve months ended December 31, 2011 and 2010, respectively. During the twelve months ended December 31, 2011 we recognized \$918 of grant revenue compared to \$64 for the respective period in 2010. The increase in grant revenue for the twelve months ended December 31, 2011 was primarily generated from our Renewable Enhanced Feedstocks for Advanced Biofuels and Bioproducts ("REFABB") grant and our Blow Molded Bioproducts from Renewable Plastics grant. During the twelve months ended December 31, 2011 we recognized \$447 of license fee and royalty revenue from related parties compared to \$122 for the respective period in 2010. License fee and royalty revenue from related parties increased primarily as a result of a royalty earned under a licensing agreement with Tephra, Inc. ("Tephra"), a related party. There was no research and development revenue during the twelve months ended December 31, 2011. During the twelve months ended December 31, 2010 research and development revenue was derived primarily from the delivery of product samples to potential customers. During the twelve months ended December 31, 2011 revenue from Mirel product samples was recognized by Telles.

We expect revenue to increase in the first quarter of 2012 as we fully recognize the deferred revenue related to our alliance agreements with ADM upon formal termination of those agreements in February of 2012. In addition, we expect grant revenue to increase due to our REFABB grant for the development of biobased chemicals and bioenergy. With the acquisition of inventory from Telles we expect to recognize product revenue and related cost of goods sold during 2012.

**Expense**

	Year ended December 31,		Change
	2011	2010	
Research and development expenses, including cost of revenue	\$ 24,445	\$ 23,673	\$ 772
Selling, general, and administrative expenses	15,841	15,714	127
Total operating expense	<u>\$ 40,286</u>	<u>\$ 39,387</u>	<u>\$ 899</u>

**Research and development expenses, including cost of revenue**

Research and development expenses, including cost of revenue, were \$24,445 and \$23,673 for the twelve months ended December 31, 2011 and 2010, respectively. The increase of \$772 was primarily attributable to an increase in contracted research, employee compensation and related benefit expenses and consulting services, partially offset by a decrease in material production costs. Expenses related to contracted research and development services were \$2,410 and \$1,710 for the twelve months ended December 31, 2011 and 2010, respectively. The increase of \$700 was primarily due to an increase in product development work related to Mirel, industrial chemicals and plant science work performed in conjunction with our new Department of Energy REFABB grant. A portion of expenses related to the REFABB grant are reimbursed to us by the U.S. Department of Energy and recorded as Grant revenue. Employee compensation and related benefit expenses were \$12,847 and \$12,561 for the twelve months ended December 31, 2011 and 2010, respectively. The increase of \$286 was primarily attributable to annual compensation merit increases and hiring of new personnel to support our manufacturing process and research programs, including employees for our Canadian subsidiary. Consulting expenses were \$769 and \$383 for the twelve months ended December 31, 2011 and 2010, respectively. The increase of \$386 was primarily related to increased product development activities within our biobased industrial chemicals platform. Material production costs decreased to \$2,054 from \$2,693 for the twelve months ended December 31, 2011 and 2010, respectively. The reduction of \$639 was primarily due to shifting activity at our pre-commercial manufacturing facility to ADM's Commercial Manufacturing Facility, partially offset by an increase in material production costs incurred to produce C4 chemicals.

We expect our research and development expenses to decline during 2012 as a result of ADM's termination of our Telles joint venture in February 2012 and our subsequent decision to restructure our operations, primarily through employee termination. We plan to retain a core team to provide continuity with the commercialization of our bioplastics technology and we will continue to evaluate options to launch the PHA biopolymers business with a new commercial model. We also expect to continue development of biobased industrial chemicals. In addition, we will continue to incur costs in support of our REFABB grant, the object of which is the demonstration of low cost chemicals production from biomass crops and developing intellectual property in our oilseeds program.

**Selling, general, and administrative expenses**

Selling, general, and administrative expenses were \$15,841 and \$15,714 for the twelve months ended December 31, 2011 and 2010, respectively. Selling, general, and administrative expenses were generally consistent for the two comparative years. The small increase is primarily due to employee recruiting and compensation expenses incurred during the year ended December 31, 2011.

We expect a decline in selling, general and administrative expenses during 2012. The decrease is primarily related to the termination of the Telles joint venture in February 2012 and our subsequent

decision to restructure our operations, primarily through employee terminations. We expect that this will result in lower sales and marketing expenses.

### Other Income (Net)

	Year ended December 31,		Change
	2011	2010	
Total other income (net)	\$ 76	\$ 136	\$ (60)

Other income (net) during both periods consisted of interest income.

### Comparison of the Years Ended December 31, 2010 and 2009

#### Revenue

	Year ended December 31,		Change
	2010	2009	
Grant revenue	\$ 64	\$ 1,143	\$ (1,079)
License fee and royalty revenue from related parties	122	120	2
License fee and royalty	50	10	40
Research and development revenue	212	152	60
Total revenue	\$ 448	\$ 1,425	\$ (977)

Total revenue was \$448 and \$1,425 for the twelve months ended December 31, 2010 and 2009, respectively. During the twelve months ended December 31, 2010 we recognized \$64 of grant revenue compared to \$1,143 for the respective period in 2009. During the twelve months ended December 31, 2010 we had one active grant, the Blow Molded Bioproducts from Renewable Plastics grant, with total funding of \$349. During the twelve months ended December 31, 2009 grant revenue primarily consisted of revenue derived from the Bio-Engineered Chemicals grant, which was completed during the fourth quarter of 2009.

#### Expense

	Year ended December 31,		Change
	2010	2009	
Research and development expenses, including cost of revenue	\$ 23,673	\$ 24,471	\$ (798)
Selling, general, and administrative expenses	15,714	15,683	31
Total operating expense	\$ 39,387	\$ 40,154	\$ (767)

#### Research and development expenses

Research and development expenses, including cost of revenue, were \$23,673 and \$24,471 for the twelve months ended December 31, 2010 and 2009, respectively. The decrease of \$798 was primarily due to a decrease in material production costs and a decrease in depreciation expense, partially offset by an increase in employee compensation and related benefit expenses, expenses related to product development and testing services, and travel related expenses. Material production costs decreased to \$2,693 from \$4,111 for the twelve months ended December 31, 2010 and 2009, respectively. The

reduction of \$1,418 was primarily due to reduced activity at our pre-commercial manufacturing facility as a result of commencing operations at the ADM Commercial Manufacturing Facility. Depreciation expense decreased to \$1,522 during the twelve months ended December 31, 2010 from \$2,588 during the respective period in 2009. The decrease of \$1,066 was a result of reaching full depreciation on equipment and facility improvements at the pre-commercial manufacturing facility at the end of 2009. Employee compensation and related benefit expenses increased to \$12,561 during the twelve months ended December 31, 2010 compared to \$11,452 for the respective period in 2009. The increase of \$1,109 was primarily the result of an increase in headcount to support Telles product development activities. Expenses related to product development and testing services increased to \$1,710 from \$1,499 for the twelve months ended December 31, 2010 and 2009, respectively. The increase of \$211 was primarily due to work needed to move eight compounded product grades of material from ADM's Commercial Manufacturing Facility to commercial status and build appropriate inventory to supply the market. Travel related expenses increased to \$850 from \$630 for the twelve months ended December 31, 2010 as compared to 2009. The increase of \$220 was primarily due to product development activities.

#### ***Selling, general, and administrative expenses***

Selling, general, and administrative expenses were \$15,714 and \$15,683 for the years ended December 31, 2010 and 2009, respectively. Selling, general, and administrative expenses were fairly consistent for the two comparative years.

#### **Other Income (Net)**

	Year ended December 31,		Change
	2010	2009	
Total other income (net)	\$ 136	\$ 772	\$ (636)

Other income (net) was \$136 and \$772 for the years ended December 31, 2010 and 2009, respectively. Other income (net) during both periods consisted of investment income. The overall decrease of \$636 was primarily due to a market decline in investment yields.

#### **Liquidity and Capital Resources**

Currently, we require cash to fund our working capital needs, to purchase capital assets and to pay our operating lease obligations.

The primary sources of our liquidity have been:

- equity financing;
- our strategic alliance with ADM;
- government grants; and
- interest earned on cash and short-term investments.

Following the recent termination of our strategic alliance with ADM in the first quarter 2012, it will not be a source of future liquidity.

We have incurred significant expenses relating to our research and development efforts. As a result, we have incurred net losses since our inception. As of December 31, 2011, we had an accumulated deficit of \$245,662. Our total unrestricted cash, cash equivalents and investments as of December 31, 2011 were \$78,358 as compared to \$61,574 at December 31, 2010. As of December 31, 2011, we had no outstanding debt.

Our cash and cash equivalents at December 31, 2011 were held for working capital purposes. We do not enter into investments for trading or speculative purposes. The primary objective of our investment activities is to preserve our capital. As of December 31, 2011, we had restricted cash of \$622. Restricted cash consists of \$522 held in connection with the lease agreements for our Cambridge, Massachusetts facilities and \$100 held in connection with our corporate credit card program. Investments are made in accordance with our corporate investment policy, as approved by our Board of Directors. Investments are limited to high quality corporate debt, U.S. Treasury bills and notes, bank debt obligations, municipal debt obligations and asset-backed securities. The policy establishes maturity limits, concentration limits, and liquidity requirements. As of December 31, 2011, we were in compliance with this policy.

We believe that our cash, cash equivalents and investments and interest we earn on these balances, will be sufficient to meet our anticipated cash requirements for at least the next 24 months. If our available cash, cash equivalents, and short-term investments are insufficient to satisfy our liquidity requirements, or if we require additional capital to construct or acquire manufacturing facilities, we may need to sell additional equity or debt securities or obtain a credit facility. The sale of additional equity and debt securities may result in additional dilution to our stockholders. If we raise additional funds through the issuance of debt securities or preferred stock, these securities could have rights senior to those of our common stock and could contain covenants that would restrict our operations. We may require additional capital beyond our currently forecasted amounts. Any such required additional capital may not be available on reasonable terms, if at all. If we are unable to obtain additional financing, we may be required to reduce the scope of, delay or eliminate some or all of our planned research, development and commercialization activities, which could harm our business.

In the first quarter of 2012, Metabolix restructured its business and expects to take a restructuring charge of approximately \$1,000. Metabolix also expects to recognize approximately \$38,900 in deferred revenue in the first quarter of 2012 in connection with the termination of the ADM alliance. Metabolix currently expects cash usage for 2012 to be in the range of \$28,000 to \$30,000, and to end 2012 with cash and investments of approximately \$48,000 to \$50,000. The Company anticipates ending 2012 with an annual cash usage run rate of \$24,000, excluding any additional partner funding, grant revenue or other sources of income. In connection with the wind-up of the Telles joint venture, Metabolix agreed to make a payment of approximately \$3,000 to ADM in exchange for all of Telles's inventory, including compounding raw materials and finished goods, the trademarks owned by Telles, including Mirel and Mvera, and all product registrations, certifications and approvals for Telles's PHA biopolymers. Metabolix also retains ownership of the pilot plant equipment used for development of PHA biopolymers and will assume certain Telles contract rights and obligations.

Net cash used in operating activities was \$31,731 for the year ended December 31, 2011 compared to net cash of \$31,995 and \$25,759 used in operating activities during 2010 and 2009, respectively. The cash used during 2011 primarily reflects the net loss for the year partially offset by non-cash expense, including stock-based compensation expense of \$4,633, depreciation expense of \$1,507 and the Company's 401(k) stock matching contribution expense of \$529. The increase in cash used in operating activities during the twelve months ended December 31, 2010 as compared to the respective period in 2009 was primarily due to a decrease in depreciation expense of \$1,087, an increase in net loss of \$846 and the receipt of \$3,150 in final quarterly support payments from ADM during the twelve months ended December 31, 2009. Depreciation expense declined primarily as a result of reaching full depreciation on equipment and facility improvements at the pre-commercial manufacturing facility during 2009.

Net cash of \$8,908 was used in investing activities during the twelve months ended December 31, 2011, compared to net cash of \$31,377 provided by investing activities during 2010 and \$18,855 used in investing activities during 2009. Net cash used in investing activities during the twelve months ended

December 31, 2011 included \$107,477 used to purchase investments and \$895 used to purchase capital equipment, partially offset by \$99,464 provided by the sale and maturity of investments.

Net cash of \$49,407 was provided by financing activities during the twelve months ended December 31, 2011, compared to net cash of \$2,339 and \$29,234 provided by investment activities during 2010 and 2009, respectively. Net cash provided by financing activities during 2011 primarily reflects net proceeds of \$49,333 provided from our common stock offering that was completed during May 2011. The cash provided by financing activities during 2010 was solely attributable to the proceeds received from the exercise of stock options and warrants. Net cash provided by financing activities during 2009 primarily reflects the net proceeds of \$29,118 provided from our common stock offering that was completed during November 2009.

### Off-Balance Sheet Arrangement

As of December 31, 2011, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of the Securities and Exchange Commission's Regulation S-K.

### Contractual Obligations

The following table summarizes our contractual obligations at December 31, 2011:

	Payments Due by Period				
	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
Operating lease obligations	\$ 2,925	\$ 1,342	\$ 1,583	\$ —	\$ —
Purchase obligations	75	25	50	—	—
Total	<u>\$ 3,000</u>	<u>\$ 1,367</u>	<u>\$ 1,633</u>	<u>\$ —</u>	<u>\$ —</u>

Our lease obligations relate to current office and laboratory space. The lease for our primary facility located on Erie Street in Cambridge Massachusetts will expire in May 2014. We have the option to extend this lease for two additional five-year periods at then current market rates.

In March 2007 we entered into a rental agreement to lease additional office and laboratory space in Lowell, Massachusetts to support our Telles joint venture with ADM. The lease was extended in February 2012 for an additional two years and its current rental rate and now will expire in May 2014.

In April 2008 we entered into a rental agreement to lease additional office space in Cambridge, Massachusetts. The term of the lease commenced in May 2008 and will expire in May 2014.

During August 2010, the Company began to conduct research operations through a wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada. MOI has leased office, laboratory and greenhouse space in Saskatoon and conducts its industrial oilseed research there. These leases will expire in July 2012.

### Related Party Transactions

We entered into sublicense agreements in 1999 and 2003 with Tepha Inc. ("Tepha"), a related party, to sublicense certain technology to Tepha. The sublicense contains provisions for us to receive sublicense maintenance fees, milestone payments and royalties on sublicense product and sublicensing revenues received by Tepha.

See Note 8 to our consolidated financial statements for a full description of our related party transactions.

## **Effects of Inflation**

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

## **Recent Accounting Standards Changes**

For a discussion of recent accounting standards please read Note 2, Summary of Significant Accounting Policies, to our consolidated financial statements included in this report.

## **ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK**

Our exposure to market risk is confined to our cash, cash equivalents and marketable securities. The unrestricted cash and cash equivalents and marketable securities are held for working capital purposes. Our primary investment objective is capital preservation, with a secondary objective of generating income on such capital. We do not enter into investments for trading or speculative purposes.

### *Interest Rate Risk.*

We invest in high-quality financial instruments, primarily money market funds, federal agency notes, U.S. treasury notes, investment-grade commercial paper, and corporate debt securities. All of our interest-bearing securities are subject to interest rate risk and could decline in value if interest rates fluctuate. Because of the short-term maturities of our cash equivalents and short-term investments, we do not believe that an increase in market rates would have any significant impact on the realized value of our marketable securities. However, in a declining interest rate environment, as short-term investments mature, reinvestment occurs at less favorable interest rates which would negatively impact our investment income. Exposure to market rate risk for changes in interest rates relates to our unrestricted cash, cash equivalents and investments, totaling \$78,358 at December 31, 2011. Based on a hypothetical 10% adverse movement in interest rates, the potential annual losses in future earnings and cash flows are estimated to be \$8.

## **ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

The consolidated financial statements and related financial statement schedules required to be filed are indexed on page F-1 and are incorporated herein.

## **ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

## **ITEM 9A. CONTROLS AND PROCEDURES**

### **Effectiveness of Disclosure Controls and Procedures**

As of the end of the period covered by this Annual Report on Form 10-K, under the supervision of our Chief Executive Officer and our Chief Financial Officer, we evaluated the effectiveness of our disclosure controls and procedures, as such term is defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act. Based on this evaluation, our Chief Executive Officer and our Chief Financial

Officer concluded that as of December 31, 2011 our disclosure controls and procedures are effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act (1) is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms, and (2) is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Our disclosure controls and procedures include components of our internal control over financial reporting. Management's assessment of the effectiveness of our internal control over financial reporting is expressed at the level of reasonable assurance because a control system, no matter how well designed and operated, can provide only reasonable, but not absolute, assurance that the control system's objectives will be met.

### **Management's Annual Report on Internal Control over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act. Our 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. Our internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

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

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2011. In making this assessment, management used the criteria set forth in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Based on its assessment of internal control over financial reporting, management has concluded that, as of December 31, 2011, our internal control over financial reporting was effective 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.

The effectiveness of our internal control over financial reporting as of December 31, 2011 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

### **Changes in Internal Control over Financial Reporting**

There have been no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) of the Exchange Act that occurred during our last fiscal quarter in the period covered by this Annual Report on Form 10-K that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

## ITEM 9B. OTHER INFORMATION

On March 6, 2012, the Company entered into a Joint Commercial Alliance Settlement Agreement (the "Settlement Agreement") with ADM Polymer Corporation ("ADM"), Telles, LLC ("Telles") and Telles (Europe) BV ("Telles BV"), a wholly-owned subsidiary of Telles, relating to the dissolution and wind-up of Telles. Under the Settlement Agreement, Telles and Telles BV transferred to Metabolix substantially all of Telles' and Telles BV's inventory. Telles also transferred to Metabolix all trademarks owned by Telles, including MIREL, MVERA, TELLES and the Mirel heart-leaf design. Telles and Telles BV assigned to Metabolix, and Metabolix assumed, substantially all of the contracts to which Telles or Telles BV were a party. ADM retained the rights to certain settlement and inventory sale proceeds related to transactions that occurred prior to the date of the Settlement Agreement. Telles also transferred to Metabolix all of Telles' right, if any, to certifications, product approvals, registrations and similar items held in Telles' name, to the extent transferable.

As consideration for the transfers to Metabolix noted above, Metabolix paid approximately \$3.0 million to Telles, which was funded directly to ADM in partial satisfaction of loan obligations due from Telles to ADM. In addition, Telles paid to ADM an amount equal to the aggregate cash balances of Telles and Telles BV on the date of the Settlement Agreement, minus \$100,000 retained by Telles to settle any remaining trade obligations. In the event that ADM is required to repay to Telles or to pay to any creditor of Telles any amounts included in the purchase price or the funds distributed to ADM by Telles pursuant to the Settlement Agreement, Metabolix will reimburse ADM in an amount equal to 50% of such payments.

Pursuant to the Settlement Agreement, ADM relinquished any claims with respect to certain co-funded equipment situated at locations other than the Clinton, Iowa Commercial Manufacturing Facility, and Metabolix and Telles waived any rights to post-termination manufacturing and fermentation services under the Commercial Alliance Agreement. The Settlement Agreement also contains mutual releases of claims, indemnification of ADM by Metabolix for claims related to the inventory, contracts and equipment noted above, and terms relating to the management of Telles by ADM during the final wind-up process.

### PART III

Pursuant to General Instructions G to Form 10-K, the information required for Part III, Items 10, 11, 12, 13 and 14, is incorporated herein by reference from the Company's proxy statement for the Annual Meeting of Stockholders to be held on May 31, 2012 which is expected to be filed not later than 120 days after the fiscal year end covered by this Form 10-K.

### PART IV

## ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this Report:

(1) **Financial Statements**

See Index to Financial Statements on page F-1.

(2) **Supplemental Schedules**

All schedules have been omitted because the required information is not present in amounts sufficient to require submission of the schedule, or because the required information is included in the consolidated financial statements or notes thereto.

(3) **Exhibits**

See Item 15(b) below.

(b) The following exhibits are filed as part of, or incorporated by reference into, this annual report on Form 10-K:

<u>Exhibit Number</u>	<u>Description</u>
3.1(1)	Amended and Restated Certificate of Incorporation of the Registrant
3.3(1)	Amended and Restated By-laws of the Registrant
3.4(5)	Certificate of Designations, Preferences and Rights of a Series of Preferred Stock of Metabolix, Inc. classifying and designating the Series A Junior Participating Cumulative Preferred Stock
4.1(1)	Specimen Stock Certificate for shares of the Registrant's Common Stock
4.2(5)	Shareholder Rights Agreement, dated as of July 7, 2009, between Metabolix, Inc. and American Stock Transfer & Trust Company, LLC, as Rights Agent
4.3(9)	Amendment No. 1 to Shareholder Rights Agreement, dated as of February 6, 2012, between the Company and American Stock Transfer & Trust Company, LLC, as Rights Agent
10.1†(1)	1995 Stock Plan
10.1.1†(1)	1995 Stock Plan, Form of Incentive Stock Option Agreement
10.1.2†(1)	1995 Stock Plan, Form of Non-Qualified Stock Option Agreement
10.2†(1)	2005 Stock Plan
10.2.1†(1)	2005 Stock Plan, Form of Incentive Stock Option Agreement
10.2.2†(1)	2005 Stock Plan, Form of Non-Qualified Stock Option Agreement
10.3†(1)	2006 Stock Option and Incentive Plan
10.3.1†(1)	2006 Stock Option and Incentive Plan, Form of Incentive Stock Option Agreement
10.3.2†(1)	2006 Stock Option and Incentive Plan, Form of Non-Qualified Stock Option Agreement
10.3.3†(1)	2006 Stock Option and Incentive Plan, Form of Director Non-Qualified Stock Option Agreement
10.4#(1)	License Agreement between the Registrant and Massachusetts Institute of Technology dated July 15, 1993, as amended
10.5#(1)	Commercial Alliance Agreement by and among the Registrant, ADM/Metabolix Sales Company, LLC and ADM Polymer Corporation dated July 14, 2006
10.6#(1)	Operating Agreement of ADM/Metabolix Sales Company, LLC by and between the Registrant and ADM Polymer Corporation dated July 14, 2006
10.7(1)	Letter Agreement by and between the Registrant and Archer Daniels Midland Company dated November 3, 2004
10.8†(8)	Amended and Restated Employment Agreement between the Registrant and Richard P. Eno dated March 17, 2011
10.9†(1)	Employment Agreement between the Registrant and Oliver P. Peoples dated July 20, 2006
10.9.1†(7)	First Amendment to Employment Agreement between the Registrant and Oliver P. Peoples executed December 19, 2008

<u>Exhibit Number</u>	<u>Description</u>
10.9.2†(7)	Second Amendment to Employment Agreement between the Registrant and Oliver P. Peoples executed February 25, 2009
10.10†(4)	Employment Agreement between the Registrant and Joseph D. Hill executed March 21, 2008
10.10.1†(7)	First Amendment to Employment Agreement between the Registrant and Joseph D. Hill executed December 23, 2008
10.11†(7)	Change of Control Severance Agreement between the Registrant and Sarah P. Cecil executed December 18, 2008
10.12†(7)	Employment Agreement between the Registrant and Robert E. Engle executed December 19, 2008
10.13†(6)	Employment Agreement between the Registrant and Johan van Walsem executed July 9, 2009
10.14†*	Employment Agreement between the Registrant and Lynne H. Brum executed November 14, 2011
10.15†(1)	Form of Employee Noncompetition, Nondisclosure and Inventions Agreement with Oliver P. Peoples and Johan van Walsem
10.16†(1)	Form of Noncompetition, Nondisclosure and Inventions Agreement between the Registrant Richard P. Eno, Joseph D. Hill, Robert E. Engle and Sarah P. Cecil
10.17†(1)	Form of Indemnification Agreement between the Registrant and its Directors and Officers
10.18(1)	Lease Agreement between the Registrant and 21 Erie Realty Trust dated as of December 29, 2003 for the premises located at 21 Erie Street, Cambridge, Massachusetts 02139
10.19(2)	Lease between Fortune Wakefield, LLC ("Landlord") and Metabolix, Inc. dated March 30, 2007
10.20#(1)	License Agreement between the Registrant and Tepha, Inc. dated as of October 1, 1999
10.21#(1)	License Agreement between the Registrant and Tepha, Inc. dated as of September 9, 2003
10.22#(3)	Exclusive License Agreement between the Registrant and Abbott Laboratories dated November 12, 2007
10.23(9)	Letter Agreement, dated as of February 6, 2012, by and among the Company, Jack W. Schuler, Renate Schuler and the Schuler Family Foundation.
14.1*	Metabolix, Inc. Code of Business Conduct and Ethics
21.1(10)	Subsidiaries of the Registrant
23.1*	Consent of PricewaterhouseCoopers LLP, an independent registered public accounting firm
24.1	Power of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K)
31.1*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934

<u>Exhibit Number</u>	<u>Description</u>
31.2*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934
32.1*	Certification Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

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† Indicates a management contract or any compensatory plan, contract or arrangement.

# Confidential treatment has been granted for certain portions of this document pursuant to a Commission order. Such provisions have been filed separately with the Commission.

\* Filed herewith

- (1) Incorporated by reference herein to the exhibits to the Company's Registration Statement on Form S-1 (File No. 333-135760)
- (2) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007 (File No. 001-33133)
- (3) Incorporated by reference herein to the exhibits to the Company's 2007 Annual Report on Form 10-K filed March 13, 2008 (File No. 001-33133)
- (4) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed March 24, 2008 (File No. 001-33133)
- (5) Incorporated herein by reference to the exhibits to the Company's Registration Statement on Form 8-A on July 8, 2009 (File No. 001-33133)
- (6) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2009 (File No. 001-33133)
- (7) Incorporated by reference herein to the exhibits to the Company's 2008 Annual Report on Form 10-K filed March 12, 2009 (File No. 001-33133)
- (8) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011 (File No. 001-33133)
- (9) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed February 10, 2012 (File No. 001-33133)
- (10) Incorporated by reference herein to the Company's 2010 Annual Report on Form 10-K filed March 10, 2011



<u>Name</u>	<u>Title</u>	<u>Date</u>
<hr/> <i>/s/ CELESTE B. MASTIN</i> <hr/>		
Celeste B. Mastin	Director	March 12, 2012
<hr/> <i>/s/ EDWARD M. MULLER</i> <hr/>		
Edward M. Muller	Director	March 12, 2012
<hr/> <i>/s/ OLIVER P. PEOPLES</i> <hr/>		
Oliver P. Peoples	Director	March 12, 2012
<hr/> <i>/s/ ANTHONY J. SINSKEY</i> <hr/>		
Anthony J. Sinskey, Sc.D.	Director	March 12, 2012
<hr/> <i>/s/ MATTHEW STROBECK</i> <hr/>		
Matthew Strobeck	Director	March 12, 2012
<hr/> <i>/s/ BARBARA H. WELLS</i> <hr/>		
Barbara H. Wells	Director	March 12, 2012
<hr/> <i>/s/ ROBERT L. VAN NOSTRAND</i> <hr/>		
Robert L. Van Nostrand	Director	March 12, 2012

**METABOLIX, INC.**  
**Index to Consolidated Financial Statements**

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## Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Metabolix, Inc.

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, of stockholders' equity and comprehensive loss, and of cash flows present fairly, in all material respects, the financial position of Metabolix, Inc. and its subsidiaries at December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2011 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective 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 (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) 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.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts

March 12, 2012

## METABOLIX, INC.

## CONSOLIDATED BALANCE SHEETS

(In thousands, except share and per share amounts)

	December 31, 2011	December 31, 2010
<b>Assets</b>		
Current Assets:		
Cash and cash equivalents	\$ 21,277	\$ 12,526
Short-term investments	55,578	49,048
Accounts receivable	146	—
Due from related parties	311	828
Unbilled receivables	304	8
Prepaid expenses and other current assets	823	846
Total current assets	<u>78,439</u>	<u>63,256</u>
Restricted cash	622	622
Property and equipment, net	2,276	2,776
Long-term investments	1,503	—
Other assets	72	117
Total assets	<u>\$ 82,912</u>	<u>\$ 66,771</u>
<b>Liabilities and Stockholders' Equity</b>		
Current Liabilities:		
Accounts payable	\$ 512	\$ 239
Accrued expenses	3,574	4,085
Current portion of deferred rent	165	165
Short-term deferred revenue	2,914	1,906
Total current liabilities	<u>7,165</u>	<u>6,395</u>
Deferred rent, net of current portion	221	386
Long-term deferred revenue	35,944	36,207
Other long-term liabilities	119	107
Total liabilities	<u>43,449</u>	<u>43,095</u>
Commitments and contingencies (Note 7)		
Stockholders' Equity:		
Preferred stock (\$0.01 par value per share); 5,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock (\$0.01 par value per share); 100,000,000 shares authorized at December 31, 2011 and 2010, 34,115,798 and 26,895,389 shares issued and outstanding at December 31, 2011 and 2010, respectively	341	269
Additional paid-in capital	284,796	230,299
Accumulated other comprehensive loss	(12)	(15)
Accumulated deficit	(245,662)	(206,877)
Total stockholders' equity	<u>39,463</u>	<u>23,676</u>
Total liabilities and stockholders' equity	<u>\$ 82,912</u>	<u>\$ 66,771</u>

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

## METABOLIX, INC.

## CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except share and per share amounts)

	Years Ended December 31,		
	2011	2010	2009
Revenue:			
Grant revenue	\$ 918	\$ 64	\$ 1,143
License fee and royalty revenue from related parties	447	122	120
License fee revenue	60	50	10
Research and development revenue	—	212	152
Total revenue	1,425	448	1,425
Operating expense:			
Research and development expenses, including cost of revenue	24,445	23,673	24,471
Selling, general, and administrative expenses	15,841	15,714	15,683
Total operating expenses	40,286	39,387	40,154
Loss from operations	(38,861)	(38,939)	(38,729)
Other income:			
Interest income, net	76	136	772
Net loss	\$ (38,785)	\$ (38,803)	\$ (37,957)
Net loss per share:			
Basic and Diluted	\$ (1.24)	\$ (1.45)	\$ (1.62)
Number of shares used in per share calculations:			
Basic and Diluted	31,257,376	26,773,755	23,435,264

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

## METABOLIX, INC.

## CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended December 31,		
	2011	2010	2009
<b>Cash flows from operating activities</b>			
Net loss	\$ (38,785)	\$ (38,803)	\$ (37,957)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation	1,507	1,647	2,734
Charge for 401(k) company common stock match	529	443	428
Stock-based compensation	4,633	4,696	4,653
Gain on sale of equipment	—	—	(70)
Changes in operating assets and liabilities:			
Accounts receivable	(146)	19	140
Unbilled receivable	(296)	(5)	53
Due from related parties	(71)	(15)	—
Prepaid expenses and other assets	68	(104)	(205)
Accounts payable	273	(387)	(232)
Accrued expenses	(623)	329	334
Deferred rent and other long-term liabilities	(153)	(156)	(156)
Deferred revenue	1,333	341	4,519
Net cash used in operating activities	<u>(31,731)</u>	<u>(31,995)</u>	<u>(25,759)</u>
<b>Cash flows from investing activities</b>			
Purchase of property and equipment	(895)	(906)	(2,017)
Proceeds from sale of equipment	—	—	70
Change in restricted cash	—	(29)	—
Purchase of investments	(107,477)	(83,814)	(119,956)
Proceeds from sale and maturity of short-term investments	99,464	116,126	103,048
Net cash provided by (used in) investing activities	<u>(8,908)</u>	<u>31,377</u>	<u>(18,855)</u>
<b>Cash flows from financing activities</b>			
Proceeds from options exercised	74	2,339	116
Proceeds from public stock offering, net of issuance costs	49,333	—	29,118
Net cash provided by financing activities	<u>49,407</u>	<u>2,339</u>	<u>29,234</u>
Effect of exchange rate changes on cash and cash equivalents	(17)	(9)	—
Net increase (decrease) in cash and cash equivalents	8,751	1,712	(15,380)
Cash and cash equivalents at beginning of period	12,526	10,814	26,194
Cash and cash equivalents at end of period	<u>\$ 21,277</u>	<u>\$ 12,526</u>	<u>\$ 10,814</u>

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





**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**

**(In thousands, except for share and per share amounts)**

**1. Nature of Business**

Metabolix, Inc. (the "Company") is an innovation-driven bioscience company which is focused on bringing environmentally friendly solutions to the plastics, chemicals and energy industries. The Company has core capabilities in microbial genetics, fermentation process engineering, chemical engineering, polymer science, plant genetics and botanical science, and has assembled these capabilities in a way that has allowed the integration of biotechnology with chemical engineering and industrial practice. The Company is subject to risks common to companies in the biotechnology industry including, but not limited to, development by the Company's competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, the need to obtain additional funding, and compliance with government regulations.

**2. Summary of Significant Accounting Policies**

**Principles of Consolidation**

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany transactions were eliminated. Telles, the Company's joint venture with Archer Daniels Midland Company ("ADM"), is not being consolidated by the Company.

During August 2010, the Company began to conduct research operations through its newly established wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada. The Company has leased office, laboratory and greenhouse space in Saskatoon and will conduct its industrial oilseed research there. Accordingly, the operating results of MOI from August 1, 2010 are included in the Company's results beginning with the fiscal quarter ending September 30, 2010.

**Use of Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from those estimates.

**Cash and Cash Equivalents**

The Company considers all highly liquid investments purchased with an original maturity date of ninety days or less at the date of purchase to be cash equivalents.

**Investments**

The Company considers investments purchased with an original maturity date of ninety days or more at the date of purchase and a maturity date of one year or less at the balance sheet date to be short-term investments. All other investments are classified as long-term. At December 31, 2011 investments consisted of corporate debt and debt securities of the United States government. At December 31, 2010 investments consisted of U.S. Treasury securities and debt securities of the U.S. government. All investments were classified as available for sale as of December 31, 2011 and 2010. See Note 4 for further discussion on investments.

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**2. Summary of Significant Accounting Policies (Continued)**

Unrealized gains and temporary losses on investments are included in accumulated other comprehensive income (loss) as a separate component of stockholders' equity. Realized gains and losses, dividends, interest income and declines in value judged to be other-than-temporary credit losses are included in other income (expense). Any premium or discount arising at purchase is amortized and/or accreted to interest income.

**Restricted Cash**

The Company had restricted cash in the amount of \$622 at December 31, 2011 and 2010. At December 31, 2011 and 2010 restricted cash consisted of \$522 held in connection with the lease agreements for the Company's Cambridge, Massachusetts facilities and \$100 held in connection with the Company's corporate credit card program.

**Foreign Currency Translation**

Foreign denominated assets and liabilities of MOI are translated into U.S. dollars at the prevailing exchange rates in effect on the balance sheet date. Revenues and expenses are translated at average exchange rates prevailing during the period. Any resulting translation gains or losses are recorded in the accumulated other comprehensive income (loss) in the consolidated balance sheet.

**Comprehensive Income (Loss)**

Comprehensive income (loss) is comprised of net income (loss) and certain changes in stockholders' equity that are excluded from net income (loss). The Company includes unrealized gains and losses on marketable securities and foreign currency translation adjustments in other comprehensive income (loss).

**Concentration of Credit Risk**

Financial instruments that potentially subject the Company to concentrations of credit risk primarily consist of cash and cash equivalents and short-term investments. The Company primarily invests its excess cash and cash equivalents in money market funds, corporate debt, federal agency notes and U.S. treasury notes. Investments are acquired in accordance with the Company's investment policy which establishes a concentration limit per issuer.

**Fair Value Measurements**

The carrying amounts of the Company's financial instruments as of December 31, 2011 and 2010, which include cash equivalents, investments, accounts receivable, unbilled receivables, due from related parties, accounts payable, and accrued expenses, approximate their fair values due to the short-term nature of these instruments. See Note 15 for further discussion on fair value measurements.

**Segment Information**

The accounting guidance for segment reporting establishes standards for reporting information on operating segments in annual financial statements. The Company operates in one segment, which is the business of developing and commercializing technologies for the production of polymers and chemicals

**METABOLIX, INC.****NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except for share and per share amounts)****2. Summary of Significant Accounting Policies (Continued)**

in plants and in microbes. The Company's chief operating decision-maker does not manage any part of the Company separately, and the allocation of resources and assessment of performance are based on the Company's consolidated operating results. As of December 31, 2011 and 2010 less than 10% of the Company's combined total assets were located outside of the United States. In addition, the reported net loss outside of the United States was less than 10% of the combined net loss of the consolidated Company.

**Property and Equipment**

Property and equipment are stated at cost less accumulated depreciation. Repairs and maintenance are charged to operations as incurred. Gains and losses on the disposition of equipment are recorded in net income or loss and the related cost and accumulated depreciation are removed from the respective accounts. Depreciation is computed using the straight-line method over the estimated useful lives as follows:

<u>Asset Description</u>	<u>Estimated Useful Life</u>
Equipment	2.5 - 3 years
Furniture and Fixtures	5
Software	3
Leasehold improvements	Shorter of useful life or term of lease

The Company accounts for operating lease incentive payments received from a lessor in accordance with the accounting standard on accounting for leases. The Company records landlord incentive payments received as deferred rent and amortizes these amounts as reductions to lease expense over the lease term.

**Impairment of Long-Lived Assets**

The Company accounts for the impairment and disposal of long-lived assets in accordance with accounting guidance on accounting for the impairment or disposal of long-lived assets. The guidance requires that long-lived assets, such as property and equipment be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The guidance further requires that companies recognize an impairment loss only if the carrying amount of a long-lived asset is not recoverable based on its undiscounted future cash flows and measure an impairment loss as the difference between the carrying amount and fair value of the asset.

**Research and Development Expenses**

All costs associated with internal research and development as well as research and development services conducted for others are expensed as incurred. Research and development expenses include direct costs for salaries, employee benefits, subcontractors, facility related expenses, depreciation and stock-based compensation related to employees and non-employees involved in the Company's research and development. Costs related to revenue-producing contracts are recorded as research and development expenses. The Company's portion of the costs incurred by ADM relating to the

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**2. Summary of Significant Accounting Policies (Continued)**

pre-commercial manufacturing of Mirel are netted against amounts due from ADM and recorded as due from related party on the balance sheet.

**Selling, General, and Administrative Expenses**

The Company's selling, general and administrative expense line item includes costs for salaries, employee benefits, facilities expenses, consulting fees, travel expenses, depreciation expenses, and office related expenses incurred to support the selling and administrative operations of the Company.

**Revenue Recognition**

The Company recognizes revenue in accordance with the accounting standard on revenue recognition and revenue arrangements with multiple deliverables. Principal sources of revenue are government grants, license fees, royalty revenues and research and development payments that are primarily derived from collaborative agreements with other companies.

The Company recognizes revenue when all of the following criteria are met: persuasive evidence of an arrangement exists, delivery has occurred or a service has been rendered, price to the customer is fixed or determinable, and collectability is reasonably assured.

The Company's research and development revenue includes revenue from research services and delivery of specified materials or sample product produced from the research services. Revenue is recognized upon completion of the related services. Revenue related to product sales from the Company's pre-commercial manufacturing operations is generally recognized after a customer has received delivery and the customer's contractual acceptance period has ended. Product sales revenue has been recorded in research and development revenue in the consolidated statements of operations.

Fees to license the Company's proprietary and licensed technologies are recognized only after both the license period has commenced and the technology has been delivered. Royalty revenue is recognized when it becomes determinable and collectability is reasonably assured; otherwise the Company recognizes royalty revenue upon receipt of payment.

On January 1, 2011, the Company adopted new authoritative guidance on revenue recognition for multiple-element arrangements. The guidance, which applies to multiple-element arrangements entered into or materially modified on or after January 1, 2011, amends the criteria for separating and allocating consideration in a multiple-element arrangement by modifying the fair value requirements for revenue recognition and eliminating the use of the residual method. The fair value of deliverables under the arrangement may be derived using a "best estimate of selling price" if vendor-specific objective evidence and third-party evidence is not available. Deliverables under the arrangement will be separate units of accounting, provided (i) a delivered item has value to the customer on a standalone basis; and (ii) if the arrangement includes a general right of return relative to the delivered item, delivery or performance of the undelivered item is considered probable and substantially within the Company's control. Metabolix' existing license and collaboration agreements continue to be accounted for under previously-issued revenue recognition guidance for multiple-element arrangements.

On January 1, 2011, Metabolix adopted new authoritative guidance on revenue recognition for milestone payments related to arrangements with continuing performance obligations. Consideration for

**METABOLIX, INC.****NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except for share and per share amounts)****2. Summary of Significant Accounting Policies (Continued)**

events that meet the definition of a milestone in accordance with the accounting guidance for the milestone method of revenue recognition is recognized as revenue in its entirety in the period in which the milestone is achieved only if all of the following conditions are met: (i) the milestone is commensurate with either Metabolix' performance to achieve the milestone or the enhancement of the value of the delivered item as a result of a specific outcome resulting from the Company's performance to achieve the milestone; (ii) the consideration relates solely to past performance; and (iii) the amount of the milestone consideration is reasonable relative to all of the deliverables and payment terms, including other potential milestone consideration, within the arrangement. Otherwise, the milestone payments are not considered to be substantive and are, therefore, deferred and recognized as revenue over the term of the arrangement as Metabolix completes its performance obligations. The adoption of this guidance did not materially change the Company's previous method of recognizing milestone payments.

Government grant revenue is earned as research expenses related to the grants are incurred.

**Intellectual Property Costs**

The Company includes all costs associated with the prosecution and maintenance of patents within selling, general and administrative expenses in the consolidated statement of operations.

**Stock-Based Compensation**

The Company accounts for stock-based compensation costs in accordance with the accounting standards for stock-based compensation, which require that all share-based payments to employees be recognized in the statement of operations based on their fair values. Compensation cost is based on the grant-date fair value of the award, adjusted for estimated forfeitures, and is recognized on a straight-line basis over the period during which an employee is required to provide service in exchange for the award. See Note 12 for a description of the types of stock-based awards granted, the compensation expense related to such awards and detail of equity-based awards outstanding.

**Basic and Diluted Net Loss per Share**

Basic net loss per share is computed by dividing net loss by the weighted-average number of common shares outstanding and warrants outstanding during the period that were previously issued for little or no consideration, excluding the dilutive effects of common stock equivalents. Common stock equivalents include stock options and certain warrants. Diluted net loss per share is computed by dividing net loss by the weighted-average number of dilutive common shares outstanding during the period. Diluted shares outstanding is calculated by adding to the weighted shares outstanding any potential (unissued) shares of common stock from outstanding stock options and warrants based on the treasury stock method. In periods when a net loss is reported, all common stock equivalents are excluded from the calculation because they would have an anti-dilutive effect, meaning the loss per share would be reduced. Therefore, in periods when a loss is reported there is no difference in basic and dilutive loss per share.

The number of shares of potentially dilutive common stock related to options and warrants that were excluded from the calculation of dilutive shares since the inclusion of such shares would be

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

**2. Summary of Significant Accounting Policies (Continued)**

anti-dilutive for the three years ended December 31, 2011, 2010 and 2009, respectively, are shown below:

	Year ended December 31,		
	2011	2010	2009
Options	3,858,685	3,246,079	3,138,829
Warrants	4,086	4,086	4,086
Total	3,862,771	3,250,165	3,142,915

**Income Taxes**

The Company follows the accounting guidance on accounting for income taxes which requires recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided to reduce the deferred tax asset to a level which, more likely than not, will be realized. See Note 13 for further discussion of income taxes.

**Recent Accounting Standards Changes**

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In December 2011, the FASB issued ASU 2011-11, *Balance Sheet (Topic 210): Disclosures about Offsetting Assets and Liabilities* ("ASU 2011-11"). This newly issued accounting standard requires an entity to disclose both gross and net information about instruments and transactions eligible for offset in the statement of financial position as well as instruments and transactions executed under a master netting or similar arrangement and was issued to enable users of financial statements to understand the effects or potential effects of those arrangements on its financial position. This ASU is required to be applied retrospectively and is effective for fiscal years, and interim periods within those years, beginning on or after January 1, 2013. As this accounting standard only requires enhanced disclosure, the adoption of this standard is not expected to have an impact on the Company's financial position or results of operations.

In June 2011, the FASB issued ASU No. 2011-05, *Comprehensive Income (Topic 220): Presentation of Comprehensive Income* ("ASU 2011-05"). Under the amended guidance, a company may present the total of comprehensive income, the components of net income, and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements. In either case, a company is required to present each component of net income along with total net income, each component of other comprehensive income along with a total for other comprehensive income, and a total amount for comprehensive income. The amendment originally required a company to present on the face of the financial statements

**METABOLIX, INC.****NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except for share and per share amounts)****2. Summary of Significant Accounting Policies (Continued)**

reclassification adjustments for items that are reclassified from other comprehensive income to net income in the statement(s) where the components of net income and the components of other comprehensive income are presented; however, this provision was deferred under amended accounting guidance issued by the FASB in December 2011. These ASUs are required to be applied retrospectively and are effective for fiscal years, and interim periods within those years, beginning after December 15, 2011, which for Metabolix, Inc. means January 1, 2012. As these accounting standards do not change the items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income, the adoption of these standards is not expected to have an impact on the Company's financial position or results of operations.

In May 2011, the FASB issued ASU No. 2011-04, "Fair Value Measurement (Topic 820): Amendments to *Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs*" ("ASU 2011-04"). This newly issued accounting standard clarifies the application of certain existing fair value measurement guidance and expands the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This ASU is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011, which for Metabolix, Inc. means January 1, 2012. The adoption of this standard is not expected to have a material impact on the Company's financial position or results of operations.

**3. Significant Collaborations**

The Company follows the accounting guidance for collaborative arrangements which require that certain transactions between collaborators be recorded in the income statement on either a gross or net basis, depending on the characteristics of the collaboration relationship, and provides for enhanced disclosure of collaborative relationships. The Company evaluated its collaborative agreements for proper income statement classification based on the nature of the underlying activity. If payments to and from collaborative partners are not within the scope of other authoritative accounting literature, the income statement classification for the payments is based on a reasonable, rational analogy to authoritative accounting literature that is applied in a consistent manner. Amounts due from collaborative partners related to development activities are generally reflected as a reduction of research and development expense because the performance of contract development services is not central to the Company's operations. For collaborations with commercialized products, if the Company is the principal, as defined in the amended guidance, it records revenue and the corresponding operating costs in the respective line items within the statement of operations. If the Company is not the principal, it records operating costs as a reduction of revenue. The amended guidance describes the principal as the party who is responsible for delivering the product or service to the customer, has latitude with establishing price, and has the risks and rewards of providing product or service to the customer, including inventory and credit risk. The adoption of amended guidance did not affect the financial position or results of operations of the Company.

**METABOLIX, INC.****NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except for share and per share amounts)****3. Significant Collaborations (Continued)****ADM Collaboration*****Technology Alliance and Option Agreement***

On November 3, 2004, the Company signed a Technology Alliance and Option Agreement with ADM Polymer Corporation ("ADM Polymer"), a wholly-owned subsidiary of ADM, one of the largest agricultural processors in the world to establish an alliance whereby the Company would provide technology and licenses thereto and research and development services, and ADM would provide manufacturing services and capital necessary to produce biobased plastic on a commercial scale.

The goal of the Technology Alliance and Option Agreement was to demonstrate the capabilities of the Company's fermentation and recovery technologies on a commercial scale and to prepare a master plan and budget for the construction of a 110 million pound per annum Commercial Manufacturing Facility, which would provide the basis for entering into the next phase of the collaboration under a Commercial Alliance Agreement.

The Technology Alliance and Option Agreement provided ADM with an option (the "Option") to enter into a commercial alliance for further research, development, manufacture, use, and sale of biopolymers on the terms and conditions set forth in the Commercial Alliance Agreement (see below). On July 12, 2006, ADM exercised this Option.

Under the Technology Alliance and Option Agreement, ADM made a nonrefundable, noncreditable upfront payment of \$3,000 to the Company in 2004. In May 2006, the Company received a \$2,000 payment from ADM in recognition of achieving certain technical goals under the Technology Alliance and Option Agreement. Due to future obligations of the Company under the agreements for which fair value cannot be determined, including the requirement to provide research and development activities and recovery services under the Technology Alliance and Option Agreement and certain manufacturing services, including sales and marketing activities and other services under the Commercial Alliance Agreement, the entire upfront payment and milestone payments received have been recorded as deferred revenue. The Company's policy is to expense, as period costs, the direct and incremental costs incurred associated with this collaboration.

The Technology Alliance and Option Agreement was amended in 2005 to define certain cost sharing activities related to pre-commercial manufacturing, to change certain milestones and to make other minor modifications. In accordance with this amendment ADM agreed to reimburse the Company for one-half of certain costs incurred by the Company related to the Company's establishment of pre-commercial manufacturing capabilities. Amounts reimbursed totaled \$1,209, and were recorded as deferred revenue. Further reimbursements were made under the Commercial Alliance agreement as noted below.

***Commercial Alliance Agreement***

In 2006, the Company entered into a commercial alliance with ADM Polymer. The Commercial Alliance Agreement between Metabolix and ADM Polymer specified the terms and structure of the alliance. The primary function of this agreement was to establish the activities and obligations of ADM and the Company to commercialize PHA biopolymers, which have been marketed under the brand name Mirel™. These activities included: the establishment of a joint venture company, Telles, to market

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**3. Significant Collaborations (Continued)**

and sell PHA biopolymers, the construction of a manufacturing facility capable of producing 110 million pounds of material annually (the "Commercial Manufacturing Facility"), the licensing of technology to Telles and to ADM, and the conducting of various research, development, manufacturing, sales and marketing, compounding and administrative services by the parties.

Telles was a limited liability company, formed and equally owned by ADM and Metabolix. It was intended to: (i) serve as the commercial entity to establish and develop the commercial market for PHA biopolymers, and conduct the marketing and sales in accordance with the goals of the commercial alliance, (ii) assist in the coordination and integration of the manufacturing, compounding and marketing activities, and (iii) administer and account for financial matters on behalf of the parties. Metabolix and ADM each have 50% ownership and voting interest in Telles. Pursuant to the terms of the Commercial Alliance Agreement, the termination of the Commercial Alliance Agreement triggers the dissolution, winding up and liquidation of Telles.

On January 9, 2012, ADM notified the Company that they were terminating the commercial alliance, effective as of February 8, 2012. ADM had recently undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of Telles. As the basis for the decision, ADM indicated to the Company in January that the projected financial returns from the alliance were too uncertain. Please refer to footnote 17, subsequent events, for further discussion of the termination.

A summary of the key activities under the Commercial Alliance Agreement is as follows: (i) ADM agreed to arrange for, finance the construction of, and own, a facility in which it would manufacture biopolymer resins under contract to Telles, (ii) Metabolix agreed to either arrange for and finance the acquisition or construction of a facility in which it would compound bioplastics or it would arrange for third parties to compound bioplastics, and (iii) Metabolix, acting in the name and on behalf of Telles, agreed to establish the initial market for biopolymers. The Company also agreed to continue its research and development efforts to further advance the technology and expand and enhance the commercial potential of PHA biopolymers. Subject to certain limitations, ADM agreed to finance the working capital requirements of Telles.

The Commercial Alliance Agreement called for Telles to pay the Company quarterly support payments of \$1,575 each. The last of fourteen quarterly support payments was received as of June 30, 2009. All quarterly support payments received from ADM on behalf of Telles, totaling \$22,050, have been recorded as deferred revenue on the Company's balance sheet.

During the "Construction Phase" of the agreement all pre-commercial material production expenses incurred by ADM and the Company were to be shared equally. Accordingly, from the execution of this agreement in July 2006 through December 31, 2011, ADM has reimbursed the Company \$10,318. All amounts received from ADM, prior to the "Commercial Phase," relating to this agreement are recorded as deferred revenue. The Construction Phase of the commercial alliance was scheduled to end, and the Commercial Phase was scheduled to begin, upon the achievement of a milestone referred to in the Commercial Alliance Agreement as "First Commercial Sale." Achievement of this milestone required the sale by Telles to third parties of at least one million pounds of PHA biopolymer resin manufactured at the Commercial Manufacturing Facility. Qualifying sales were required to meet certain criteria, including a minimum order size, product acceptance by the customers

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**3. Significant Collaborations (Continued)**

in accordance with the terms of their contracts, and receipt of payment, in order for such sales to contribute towards First Commercial Sale. The First Commercial Sale milestone had not been achieved when the alliance was terminated.

ADM operated the Commercial Manufacturing Facility under a manufacturing agreement with Telles. Telles paid manufacturing fees to ADM for production of PHA biopolymer resins and paid compounding fees to the Company for certain compounding services. During the Commercial Phase of the Commercial Alliance Agreement, Telles agreed to pay the Company royalties on sales of Mirel. In addition, if Telles were to engage us to perform certain services during the Commercial Phase, and the Company accepted the service arrangement, Telles agreed to reimburse the Company for the cost of the services provided pursuant to the Commercial Alliance Agreement.

While Telles was a fifty-fifty joint venture, ADM advanced a disproportionate share of the financial capital needed to construct the Commercial Manufacturing Facility and to fund the joint venture's activities. Therefore, the Commercial Alliance Agreement provided that all profits, after payment of all royalties, reimbursements and fees, from Telles would first be distributed to ADM until ADM's cost of constructing the Commercial Manufacturing Facility and any negative net cash flow of Telles funded by ADM had been returned. Once ADM had recovered such amounts, the profits of Telles were to be distributed in equal amounts to the parties. In order to track the disproportionate investments ADM made, a Ledger Account was established to record the respective investments made by the parties. Metabolix has no obligation to ADM with respect to the Ledger Account after termination of the alliance.

Under the Commercial Alliance Agreement ADM was permitted, under limited circumstances, to terminate the alliance if a change in circumstances that was not reasonably within the control of ADM made the anticipated financial return from the project inadequate or too uncertain. The agreement provided that, on a termination by ADM due to a change in circumstances, the Company would be permitted to continue to produce and sell Mirel, and ADM would be required to perform manufacturing services for the Company for a period of time following the termination (subject to certain payment obligations to ADM).

The Company's agreements with ADM limited the rights of both ADM and the Company to work with other parties or alone in developing or commercializing certain PHAs produced through fermentation. These exclusivity obligations ended upon termination of the alliance. Also, upon termination of the alliance, Metabolix intellectual property licenses to ADM Polymer and Telles ended, with Metabolix retaining all rights to its intellectual property.

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

**4. Investments**

Investments consist of the following:

	<u>Amortized Cost</u>	<u>Unrealized</u>		<u>Market Value</u>
		<u>Gain</u>	<u>(Loss)</u>	
<b>December 31, 2011</b>				
Short-term investments				
Corporate debt	\$ 29,854	\$ 13	\$ (1)	\$ 29,866
Government-sponsored enterprises	25,709	5	(2)	25,712
Long-term investments				
Government-sponsored enterprises	1,503	—	—	1,503
Total	<u>\$ 57,066</u>	<u>\$ 18</u>	<u>\$ (3)</u>	<u>\$ 57,081</u>
<b>December 31, 2010</b>				
Short-term investments				
Treasuries	\$ 1,008	\$ —	\$ —	\$ 1,008
Government-sponsored enterprises	48,046	7	(13)	48,040
Total	<u>\$ 49,054</u>	<u>\$ 7</u>	<u>\$ (13)</u>	<u>\$ 49,048</u>

**5. Property and Equipment**

Property and equipment consisted of the following:

	<u>Year ended December 31,</u>	
	<u>2011</u>	<u>2010</u>
Equipment	\$ 5,054	\$ 4,683
Furniture and fixtures	232	232
Leasehold improvements	2,565	2,465
Software	349	237
Total property and equipment, at cost	8,200	7,617
Less: Accumulated depreciation	(5,924)	(4,841)
Property and equipment, net	<u>\$ 2,276</u>	<u>\$ 2,776</u>

Depreciation expense for the years ended December 31, 2011, 2010, and 2009 was \$1,507, \$1,647 and \$2,734 respectively. The Company had no capitalized leased equipment as of December 31, 2011 or 2010.

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

**6. Accrued Expenses**

Accrued expenses consist of the following:

	Year ended December 31,	
	2011	2010
Employee compensation and benefits	\$ 1,740	\$ 2,275
Professional services	185	236
Contracted research and development	90	334
Intellectual property	240	234
Other	1,319	1,006
Total accrued expenses	\$ 3,574	\$ 4,085

**7. Commitments and Contingencies****Leases**

The Company rents its facilities under operating leases, which expire through May 2014. Rental payments under operating leases for the years ended December 31, 2011, 2010 and 2009 were \$1,808, \$1,674 and \$1,659, respectively. The deferred rent liability recorded on the Company's balance sheet at December 31, 2011 and 2010 includes the unamortized balance of the landlord incentive payments and the cumulative difference between actual facility lease payments and lease expense recognized ratably over the operating lease period. At December 31, 2011, the Company's future minimum payments required under operating leases are as follows:

Year ended December 31,	Minimum lease payment
2012	\$ 1,342
2013	1,175
2014	408
2015	—
2016 and thereafter	—
Total	\$ 2,925

**Litigation**

Please refer to footnote 17, subsequent events for a discussion of a shareholder class action law suit filed in February 2012.

**8. Related Party Transactions****Tepha Inc.**

During 1999 and 2003, the Company entered into sublicense agreements with Tepha Inc. ("Tepha"), to sublicense technology to Tepha. The Company directors Edward M. Giles and Anthony J. Sinskey serve on the Board of Directors of Tepha. The agreements with Tepha contain provisions for

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**8. Related Party Transactions (Continued)**

sublicense maintenance fees to be paid to the Company upon Tephra achieving certain financing milestones and for product related milestones. Under the agreement, the Company also receives royalties on net sales of licensed products and sublicensing revenues received by Tephra, subject to a minimum payment each year.

The Company recognized license and royalty revenues of \$444, \$122 and \$120, from Tephra for the years ended December 31, 2011, 2010, and 2009, respectively. As of December 31, 2011 and 2010, the Company had no outstanding receivable due from Tephra.

**ADM**

The Company's collaborative partner ADM made a \$5,000 investment in the Company as part of the redeemable convertible preferred stock issuance in January 2006. Concurrent with the Company's initial public offering, ADM purchased 535,714 shares of the Company's stock in a private placement. ADM made various payments to the Company under the collaborative agreement signed during 2004 and 2006. See Note 3 for further discussion regarding collaborative agreements with ADM. As of December 31, 2011 and 2010, respectively, the Company had an outstanding balance receivable of \$203 and \$813 from ADM which was recorded as due from related parties on the consolidated balance sheet.

**Telles**

Telles is a limited liability company, formed and equally owned by the Company and ADM, which was intended to: (i) serve as the commercial entity to establish and develop the commercial market for Mirel, and conduct the marketing and sales in accordance with the goals of the commercial alliance, (ii) assist in the coordination and integration of the manufacturing, compounding and marketing activities, and (iii) administer and account for financial matters on behalf of the parties. The Company and ADM each have 50% ownership and voting interest in Telles. The Company had an outstanding receivable of \$108 and \$15 due from Telles at December 31, 2011 and 2010, respectively. The Company recognized license and royalty revenue of \$3 for the year ended December 31, 2011. No license and royalty revenue was recognized in prior years.

As a result of ADM's notice of termination, the operations of Telles were discontinued effective February 8, 2012 and the company will be dissolved.

**9. Redeemable Convertible Preferred Stock**

The Company's certificate of incorporation, as amended and restated, authorizes it to issue up to 5,000,000 shares of \$0.01 par value preferred stock. As of December 31, 2011 and 2010 no preferred stock was issued or outstanding.

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**10. Common Stock**

**Common Stock Issuances**

During May 2011, the Company completed a public offering of 7,130,000 shares of its common stock at a price of \$7.25 per share. Net proceeds were \$49,333 after deducting underwriting discounts, commissions and offering costs of \$2,360. The Company intends to use the proceeds from the offering for working capital and other general corporate purposes.

During November 2009, the Company completed a public offering of 3,450,000 shares of its common stock at a price of \$9.00 per share. Net proceeds were \$29,118 after deducting underwriting discounts, commissions and offering costs of \$1,932. The Company intends to use the proceeds from the offering for working capital and other general corporate purposes.

**Warrants**

In connection with signing a lease agreement in 2004, the Company issued the landlord warrants to purchase 4,086 shares of common stock at an exercise price of \$3.30 per share. The warrants expire ten years from the lease term commencement date. The fair value of these warrants is immaterial. At December 31, 2011, these warrants were all outstanding and exercisable.

**11. Shareholder Rights Plan**

On July 7, 2009, the Company adopted a Shareholder Rights Plan, the purpose of which is, among other things, to enhance the Board's ability to protect shareholder interests and to ensure that shareholders receive fair treatment in the event any coercive takeover attempt of the Company is made in the future. The Shareholder Rights Plan could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, the Company or a large block of the Company's common stock.

In connection with the adoption of the Shareholder Rights Plan, the Board of Directors of the Company declared a dividend distribution of one preferred stock purchase right (a "Right") for each outstanding share of common stock to shareholders of record as of the close of business on July 8, 2009. The Rights currently are not exercisable and are attached to and trade with the outstanding shares of common stock. Under the Shareholder Rights Plan, the Rights become exercisable if a person becomes an "acquiring person" by acquiring 15% or more of the outstanding shares of common stock or if a person commences a tender offer that would result in that person owning 15% or more of the common stock. If a person becomes an "acquiring person," each holder of a Right (other than the acquiring person) would be entitled to purchase, at the then-current exercise price, such number of shares of the Company's preferred stock which are equivalent to shares of common stock having twice the exercise price of the Right. If the Company is acquired in a merger or other business combination transaction after any such event, each holder of a Right would then be entitled to purchase, at the then-current exercise price, shares of the acquiring company's common stock having a value of twice the exercise price of the Right.

On February 6, 2012, the Company entered into a letter agreement (the "Schuler Agreement") with Jack W. Schuler, Renate Schuler and the Schuler Family Foundation, a tax-exempt private operating foundation of which Jack W. Schuler and Renate Schuler serve as two of the three directors (collectively, the "Schuler Stockholders"). The Schuler Stockholders may be deemed to have aggregate

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**11. Shareholder Rights Plan (Continued)**

beneficial ownership of up to 5,091,295 shares (the "Schuler Shares"), or approximately 14.9%, of the Company's outstanding common stock, par value \$0.01 per share (the "common stock").

Pursuant to the Schuler Agreement, the Schuler Stockholders have made certain representations and covenants regarding ownership, voting support arrangements, standstill arrangements and rights of first refusal. In exchange for these representations and covenants, the Company agreed to amend the Shareholder Rights Plan to allow the Schuler Stockholders, under certain circumstances, to increase their beneficial ownership up to 19.99% of the outstanding common stock without becoming Acquiring Persons (as defined in the Rights Agreement).

On February 6, 2012, contemporaneously with the execution of the Schuler Agreement, the Company amended the Rights Plan to provide that, generally, so long as the Schuler Stockholders and their respective affiliates and associates do not at any time have Control Intent, they may acquire additional shares of common stock without becoming acquiring persons under the Rights Plan, provided that their collective beneficial ownership does not at any time equal or exceed 20% of the then outstanding shares of common stock.

**12. Stock-Based Compensation**

The Company adopted a stock plan in 1995, (the "1995 Plan") which provided for the granting of incentive stock options, nonqualified stock options, stock awards, and opportunities to make direct purchases of stock, to employees, officers, directors and consultants of the Company. In June 2005 the 1995 Plan was terminated and the Company adopted a new plan (the "2005 Plan"). No further grants or awards were subsequently made under the 1995 Plan. A total of 907,679 options were awarded from the 1995 Plan and as of December 31, 2011, 89,253 of these options remain outstanding and eligible for future exercise and continue to be governed by the terms of the 1995 Plan.

The 2005 Plan provided for the granting of incentive stock options, nonqualified stock options, stock awards, and opportunities to make direct purchases of stock, to employees, officers, directors and consultants of the Company. In November 2006 the 2005 Plan was terminated and the Company adopted a new plan (the "2006 Plan"). No further grants or awards were subsequently made under the 2005 Plan. A total of 1,619,134 options were awarded from the 2005 Plan and as of December 31, 2011, 294,621 of these options remain outstanding and eligible for future exercise and continue to be governed by the terms of the 2005 Plan.

The 2006 Plan provides for the granting of incentive stock options, nonqualified stock options, stock appreciation rights, deferred stock awards, restricted stock awards, unrestricted stock awards, cash-based awards and dividend equivalent rights. The 2006 Plan states that not more than 10,000,000 shares shall be issued under the plan. A total of 4,493,212 options have been awarded from the 2006 Plan and as of December 31, 2011, 3,474,811 of these options remain outstanding and eligible for future exercise.

Options granted under the Plans generally vest ratably over four years from the date of hire for new employees, or date of award for existing employees, or date of commencement of services with the Company for nonemployees, and generally expire ten years from the date of issuance. The Company's policy is to issue new shares upon the exercise of stock options.

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**12. Stock-Based Compensation (Continued)**

A summary of the activity related to the shares of common stock covered by outstanding options follows:

	Number of Shares	Weighted Average Exercise Price	Remaining Contractual Term (in years)	Aggregate Intrinsic value
Balance at December 31, 2010	3,246,079	\$ 11.28		
Granted	907,160	7.71		
Exercised	(21,851)	3.39		
Cancelled	(272,703)	13.00		
Balance at December 31, 2011	<u>3,858,685</u>	10.36	6.09	\$ 918
Vested and expected to vest at December 31, 2011	3,768,130	10.41	6.06	913
Exercisable at December 31, 2011	2,441,618	11.10	5.46	878

The weighted average grant date fair value per share of options granted during fiscal years 2011, 2010, and 2009 was \$5.02, \$8.08 and \$5.55, respectively. The total intrinsic value of options exercised was \$81, \$2,439 and \$422 for the years ended December 31, 2011, 2010 and 2009 respectively.

A summary of information about the shares of common stock covered by outstanding and exercisable options under the option plans at December 31, 2011 follows:

Range of exercise prices	Stock Options Outstanding			Stock Options Exercisable		
	Number of shares	Weighted average remaining contractual life (in years)	Weighted average exercise price per share	Number of shares	Weighted average exercise price per share	
\$1.65 - 6.93	777,874	5.12	\$ 4.20	543,031	\$ 3.66	
7.09 - 9.12	1,048,842	7.22	8.36	382,837	8.37	
9.20 - 11.02	669,133	5.95	10.06	386,350	10.07	
11.22 - 14.49	845,499	6.16	13.15	620,228	12.97	
14.53 - 23.99	467,337	5.31	18.94	459,172	19.01	
24.97 - 24.97	50,000	5.39	24.97	50,000	24.97	
	<u>3,858,685</u>	6.09	10.36	<u>2,441,618</u>	11.10	

**Expense Information for Employee Stock Option Awards**

The Company recognized stock-based compensation expense, related to employee stock option awards, of \$4,621, \$4,663 and \$4,707 for the years ended December 31, 2011, 2010 and 2009, respectively. At December 31, 2011, there was approximately \$5,721 of pre-tax stock-based compensation expense; net of estimated forfeitures, related to unvested awards not yet recognized which is expected to be recognized over a weighted average period of 2.35 years.

**METABOLIX, INC.****NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(In thousands, except for share and per share amounts)****12. Stock-Based Compensation (Continued)**

For the years ended December 31, 2011, 2010 and 2009, the Company determined the fair value of stock options using the Black-Scholes option pricing model with the following assumptions for option grants, respectively:

	Year Ended December 31,		
	2011	2010	2009
Expected dividend yield	—	—	—
Risk-free rate	0.88% - 2.38%	1.41% - 2.59%	1.67% - 2.58%
Expected option term (in years)	5.5 - 5.6	5.4 - 5.6	5.4 - 5.6
Volatility	77% - 80%	79% - 80%	81%

For the years ended December 31, 2011, 2010 and 2009 expected volatility is estimated based on the Company's historical volatility benchmarked against the historical volatilities of a peer group of similar public companies. Due to the Company's limited trading history management believes that this approach provides additional information about future stock price movements when compared to analyzing the historical volatility of the Company on its own.

The risk-free interest rate used for each grant is equal to the U.S. Treasury yield curve in effect at the time of grant for instruments with a term similar to the expected life of the related option.

For the year ended December 31, 2011, the expected term of the options is based upon evaluation of historical and expected future exercise behavior.

The stock price volatility and expected terms utilized in the calculation involve management's best estimates at that time, both of which impact the fair value of the option calculated under the Black-Scholes methodology and, ultimately, the expense that will be recognized over the life of the option. The accounting standard for stock-based compensation requires that the Company recognize compensation expense for only the portion of options that are expected to vest. Therefore, the Company has estimated expected forfeitures of stock options for the grants valued. In developing a forfeiture rate estimate, the Company considered its historical experience and actual forfeitures for the year. The Company will continue to evaluate its forfeiture rate as compared to the actual number of forfeitures in future periods to determine if adjustments to compensation expense may be required.

**Expense Information for Non-employee Stock Option Awards**

During the years ended December 2011, and 2010, the Company granted stock options to purchase 34,500, and 3,500 shares of common stock, respectively, to non-employee consultants. There were no stock options granted to non-employee consultants during 2009. The compensation expense related to these options is to be recognized over a period of four years. The granted stock options vest quarterly and such vesting is contingent upon future services provided by the consultants to the Company. The Company recorded an expense of \$12 and \$33 for the years ended December 31, 2011 and 2010, respectively. The Company recorded a benefit of \$54 for the year ended December 31, 2009. Options remaining unvested for non-employees are subject to revaluation each reporting period prior to vesting in full. Since the fair market value of the options issued to non-employees is subject to change in the future, the compensation expense recognized in each year may not be indicative of future stock-based compensation charges.

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

## 12. Stock-Based Compensation (Continued)

The fair value of each unvested option granted to non-employees was revalued at year end using the Black-Scholes option pricing model with the following assumptions:

	Year Ended December 31,		
	2011	2010	2009
Expected dividend yield	—	—	—
Risk-free rate	1.89% - 3.47%	2.53% - 3.84%	2.71% - 3.85%
Expected option term (in years)	10	10	10
Volatility	76% - 78%	79% - 80%	81%

## 13. Income Taxes

There is no provision for income taxes because the Company has incurred operating losses since inception. The reported amount of income tax expense for the years differs from the amount that would result from applying domestic federal statutory tax rates to pretax losses primarily because of changes in valuation allowance. Significant components of the Company's net deferred tax asset at December 31, 2011, 2010 and 2009 are as follows:

	2011	2010	2009
Net operating loss carryforward	\$ 61,269	\$ 47,124	\$ 32,896
Capitalization of research and development expenses	3,606	4,430	5,795
Credit carryforwards	6,762	5,877	5,624
Other temporary differences	23,035	21,781	23,713
Total deferred tax assets	94,672	79,212	68,028
Valuation Allowance	(94,672)	(79,212)	(68,028)
Net deferred tax asset	\$ —	\$ —	\$ —

The items accounting for the difference between the income tax benefit computed at the federal statutory rate of 34% and the provision for income taxes were as follows:

	Year Ended December 31,		
	2011	2010	2009
Federal income tax at statutory federal rate	34.0%	34.0%	34.0%
State taxes	5.0%	4.1%	5.6%
Permanent differences	(2.4)%	(1.5)%	(2.2)%
Tax credits	2.4%	2.0%	3.1%
State rate change on deferred balances	1.4%	(6.5)%	(0.4)%
Adjustment to prior year tax accounts	(0.5)%	(3.3)%	(2.5)%
Change in valuation allowance	(39.9)%	(28.8)%	(37.6)%
Total	0.00%	0.00%	0.00%

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**13. Income Taxes (Continued)**

The Company follows the accounting guidance for income taxes including guidance, which addresses accounting for uncertainty in income taxes. This guidance prescribes a threshold for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. It also provides guidance on de-recognition, classification, interest and penalties, accounting in interim periods, disclosures and transitions. The Company had no amounts recorded for any unrecognized tax benefits as of December 31, 2011 or December 31, 2010.

The tax years 2008 through 2011 remain open to examination by major taxing jurisdictions to which the Company is subject, which are primarily in the U.S.

The Company's policy is to record estimated interest and penalties related to uncertain tax positions as income tax expense. As of December 31, 2011, and December 31, 2010, the Company had no accrued interest or penalties recorded related to uncertain tax positions.

At December 31, 2011 the Company had net operating loss carryforwards (NOLs) for federal and state income tax purposes of \$180,436 and \$142,414, respectively. Included in the federal and state net operating loss carryforwards is approximately \$19,201 of deduction related to the exercise of stock options subsequent to the adoption of amended accounting guidance related to stock-based compensation. This amount represents an excess tax benefit as defined under the amended accounting guidance related to stock-based compensation and has not been recorded as a deferred tax asset. The Company's existing federal and state net operating loss carryforwards begin to expire in 2012. The Company also had available research and development credits for federal and state income tax purposes of approximately \$4,502 and \$3,200 respectively. The federal and state research and development credits will begin to expire in 2014 and 2016 respectively. As of December 31, 2011 the Company also had available investment tax credits for state income tax purposes of \$117 which also began to expire in 2012. Management of the Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are comprised principally of net operating loss carryforwards and research and development credits. Under the applicable accounting standards, management has considered the Company's history of losses and concluded that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets. Accordingly, a full valuation allowance has been established against the deferred tax assets.

Utilization of the net operating loss and research and development credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986 due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes may limit the amount of net operating loss and research and development credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. The Company has not currently completed an evaluation of ownership changes through December 31, 2011 to assess whether utilization of the Company's NOL or R&D credit carryforwards would be subject to an annual limitation under section 382. To the extent an ownership change occurs in the future, the net operating loss and credit carryforwards may be subject to limitation.

**14. Employee Benefits**

The Company maintains a 401(k) savings plan in which substantially all of its regular U.S. employees are eligible to participate. Participants may contribute up to 60% of their annual

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**14. Employee Benefits (Continued)**

compensation to the plan, subject to eligibility requirements and annual IRS limitations. In 2007 the Company initiated a matching contribution in common stock of up to 4.5% of a participant's total compensation dependent upon the level of participant contributions made during the plan year. Pursuant to this plan, the Company issued 68,558, 35,151 and 49,518 shares of common stock during the twelve months ended December 31, 2011, 2010 and 2009, respectively, and recorded \$529, \$443 and \$428, respectively, of related expense. Company contributions are fully vested upon issuance.

**15. Fair Value Measurements**

The Company has certain financial assets recorded at fair value which have been classified as Level 1, 2 or 3 within the fair value hierarchy as described in the accounting standards for fair value measurements. Fair value is the price that would be received from the sale of an asset or the price paid to transfer a liability in an orderly transaction between independent market participants at the measurement date. Fair values determined by Level 1 inputs utilize observable data such as quoted prices in active markets for identical instruments. Fair values determined by Level 2 inputs utilize data points other than quoted prices in active markets that are observable either directly or indirectly. Fair values determined by Level 3 inputs utilize unobservable data points in which there is little or no market data, which require the reporting entity to develop its own assumptions. The fair value hierarchy level is determined by the lowest level of significant input.

The Company's financial assets classified as Level 2 have been initially valued at the transaction price and subsequently valued typically utilizing third party pricing services. Because the Company's investment portfolio may include securities that do not always trade on a daily basis, the pricing services use many observable market inputs to determine value including reportable trades, benchmark yields and benchmarking of like securities. The Company validates the prices provided by the third party pricing services by reviewing their pricing methods and obtaining market values from other pricing sources. After completing the validation procedures, the Company did not adjust or override any fair value measurements provided by these pricing services as of December 31, 2011 or December 31, 2010.

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

## 15. Fair Value Measurements (Continued)

The tables below present information about the Company's assets that are measured at fair value on a recurring basis as of December 31, 2011 and December 31, 2010 and indicate the fair value hierarchy of the valuation techniques utilized to determine such fair value.

Description	Fair value measurements at reporting date using			Balance as of 12/31/11
	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Cash equivalents:				
Money Market funds	\$ 18,262	\$ —	\$ —	\$ 18,262
Short-term investments:				
Corporate Debt	—	29,866	—	29,866
Government Securities	—	25,712	—	25,712
Long-term investments:				
Government Securities	—	1,503	—	1,503
Total	\$ 18,262	\$ 57,081	\$ —	\$ 75,343

Description	Fair value measurements at reporting date using			Balance as of 12/31/10
	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Cash equivalents:				
Money Market funds	\$ 11,533	\$ —	\$ —	\$ 11,533
Short-term investments:				
Treasuries	—	1,008	—	1,008
Government Securities	—	48,040	—	48,040
Total	\$ 11,533	\$ 49,048	\$ —	\$ 60,581

## 16. U.S. Department of Energy Grant

Effective September 1, 2011, the Company entered into a multi-year \$6.0 million grant agreement entitled, *Renewable Enhanced Feedstocks for Advanced Biofuels and Bioproducts*, with the U.S. Department of Energy for the development of switchgrass. The Company will use the funds to perform research to enhance the yield of bio-based products, biopower, or fuels made from switchgrass to produce denser biomass and other products that can be further processed to make fuels such as butanol, chemicals such as propylene, and other materials to improve the economic competitiveness of future biorefineries. Continued receipt of grant proceeds is contingent upon the availability of government appropriated funds and the Company's ability to make substantial progress towards meeting the objectives of the award. The Company will recognize revenue from the grant over the term of the agreement as it incurs related research and development costs and provided it meets its prorated cost-sharing obligation of approximately \$3.9 million. The Company may elect to retain rights to

**METABOLIX, INC.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

**(In thousands, except for share and per share amounts)**

**16. U.S. Department of Energy Grant (Continued)**

inventions it conceives or reduces to practice in the performance of work under the award, subject to certain rights of the U.S. Government.

During the year ended December 31, 2011, the Company recognized \$515 in revenue related to this grant.

**17. Subsequent Events**

On January 9, 2012, ADM gave notice of their intent to terminate the Telles joint venture for PHA biopolymers effective February 8, 2012. ADM indicated that it had undertaken a strategic review of its business investments and activities and made the decision to focus resources outside of the Telles joint venture. As a consequence of the termination, ADM will retain its manufacturing plant in Clinton, Iowa which was previously used for making the PHA biopolymers and the Company released ADM from any future manufacturing obligations stipulated in the alliance agreement. In connection with the wind-up of the Telles joint venture, Metabolix agreed to make a payment of approximately \$3,000 to ADM in exchange for all of Telles's inventory, including compounding raw materials and finished goods, the trademarks owned by Telles, including Mirel and Mvera, and all product registrations, certifications and approvals for Telles's PHA biopolymers. Metabolix also retains ownership of the pilot plant equipment used for development of PHA biopolymers and will assume certain Telles contract rights and obligations. The Company will have no further performance obligations in connection with the commercial alliance after its termination, and as a result, approximately \$38,858 of short and long-term deferred revenue at December 31, 2011 is expected to be recognized by the Company during its first fiscal quarter of 2012.

In connection with ADM's notice of termination, the Company announced on January 12, 2012 that it was restructuring its biopolymers business and downsizing its operations to more appropriately align its 2012 business priorities and strategic plans with current cash and investment resources. The Company expects to record restructuring charges of approximately \$1,000 during its first fiscal quarter of 2012 related to employee post-employment termination benefits and contract early termination costs in accordance with ASC 420-10-00, *Exit or Disposal Cost Obligations*.

On February 17, 2012, a purported shareholder class action, *Hilary Coyne v. Metabolix, Inc., Richard P. Eno, and Joseph Hill*, Civil Action 1:12-cv-10318, was filed in the United States District Court for the District of Massachusetts, naming the Company and certain officers of the Company as defendants. The lawsuit alleges that the Company made material misrepresentations and/or omissions of material fact in the Company's disclosures during the period from March 10, 2010 through its January 12, 2012 press release announcing that ADM had given notice of termination of the Telles joint venture for PHA bioplastics, all in violation of Sections 10(b) and 20(a) of the Securities Exchange Act and Rule 10b-5. The lawsuit seeks: certification as a class action, compensatory damages in an unspecified amount, plaintiff's costs and attorneys' fees, and unspecified equitable or injunctive relief.

We are currently unable to assess the probability of loss or estimate a range of potential loss, if any, associated with this matter because it is at an early stage.

## METABOLIX, INC.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In thousands, except for share and per share amounts)

## 18. Summary of Quarterly Financial Data (unaudited)

The following tables summarize the unaudited quarterly financial data for the last two fiscal years.

	Quarter ended			
	March 31,	June 30,	September 30,	December 31,
<b>2011</b>				
Total revenues	\$ 326	\$ 191	\$ 469	\$ 439
Loss from operations	(9,660)	(10,005)	(9,579)	(9,617)
Net loss	(9,640)	(9,982)	(9,560)	(9,603)
Basic and diluted net loss per share	(0.36)	(0.33)	(0.28)	(0.28)
<b>2010</b>				
Total revenues	\$ 180	\$ 109	\$ 46	\$ 113
Loss from operations	(9,857)	(9,577)	(10,021)	(9,484)
Net loss	(9,802)	(9,543)	(9,991)	(9,467)
Basic and diluted net loss per share	(0.37)	(0.36)	(0.37)	(0.35)

Full year amounts may not sum due to rounding.





November 9, 2011

Lynne H. Brum

Re: Employment Agreement

Dear Lynne:

We are pleased to offer the following terms for your employment by Metabolix, Inc. (the "Company").

1. Employment.

1.1. General. The Company will employ you, and you will be employed by the Company, as Vice President of Marketing and Corporate Communications of the Company, reporting to the Company's Chief Executive Officer, and you shall have the responsibilities, duty and authority commensurate with that position. You will also perform such reasonable other and/or different services for the Company, in addition to your primary duties as Vice President of Marketing and Corporate Communications as may be assigned to you from time to time. You agree that if your employment hereunder ends for any reason, you will tender to the Company your resignation of all offices with the Company as of the date of your termination, such resignation not being relevant to the issue of the reason for your termination under this Agreement.

1.2. Devotion to Duties. While you are employed hereunder, you will use your best efforts, skills and abilities to perform faithfully all duties assigned to you pursuant to this Agreement and will devote your full business time and energies to the business and affairs of the Company. While you are employed hereunder, you will not undertake any other employment from any person or entity without the prior written consent of the Company.

2. Term. Your employment with the Company shall commence on November 14, 2011 (or such other date as the parties shall mutually agree) (the "Commencement Date") and shall continue until termination as provided in Section 4. The term of this Agreement shall be referred to as the "Agreement Term."

3. Compensation.

3.1. Base Salary. While you are employed hereunder, the Company will pay you a base salary at the annual rate of no less than \$220,000 per year (the "Base Salary"). You shall be eligible for an annual salary increase in the good faith determination of the Company

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and the Compensation Committee of its Board of Directors. The Company will pay such Base Salary on a semi-monthly basis in accordance with the Company's normal payroll practices and will deduct from each monthly salary payment all amounts required to be deducted or withheld under applicable law or under any employee benefit plan in which you participate.

3.2. Bonus Opportunity. You will be eligible to receive an annual cash bonus in an amount of up to 80% of the Base Salary, based upon the Company's good faith assessment of your achievement of individual goals, and of the Company's achievement of its goals, which assessment shall be done by the Company's Compensation Committee in conjunction with the Company's Chief Executive Officer. Individual goals for each calendar year will be established, and modified, in good faith by you and the Chief Executive Officer in conjunction with the Company's Compensation Committee. The Company expects that the annual target bonus opportunity will be in the range of 40% of your Base Salary for performance fully meeting those expectations. To the extent the Company awards you a cash bonus, the bonus, if payable, shall be calculated and paid no later than two and a half months following the later of the close of the calendar or Company fiscal year to which such bonus relates. In order to receive an annual bonus, you must be employed at the time of a timely payment. For your first year of employment, and any other partial year, your cash bonus will be awarded on a pro rata basis.

3.3. Equity Compensation. At the first meeting of the Company's Compensation Committee following the Commencement Date, the Company shall grant you a stock option under the Metabolix, Inc. 2006 Stock Option and Incentive Plan, as amended and restated (the "2006 Stock Plan"), to purchase 35,000 shares of common stock of the Company (the "Option") at an exercise price equal to the Fair Market Value (as defined in the 2006 Stock Plan) of the Company's common stock on the date of such grant. Provided you are employed by the Company on the vesting date, the Option shall vest in equal installments as to 1/16 of the shares three months after the Commencement Date and on the last day of each three (3) month period following the first vesting date until the Option fully vests. Except as provided herein, the Option will be subject to the terms and conditions of the 2006 Stock Plan and the customary terms and conditions of the Company's standard form of stock option agreement. To the extent allowed pursuant to Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"), such option shall be deemed to be an incentive stock option.

3.4. Vacation. You will be entitled to paid vacation and paid holidays, accrued and used in accordance with the Company's policies as in effect from time to time. All vacation days will be taken at times mutually agreed by you and the Company and will be subject to the business needs of the Company.

- 3.5. Fringe Benefits. You will be entitled to participate in all employee benefit plans which the Company provides or may establish for the benefit of its senior executives (for example,

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group life, disability, medical, dental and other insurance, retirement, pension, profit-sharing and similar plans) (collectively, the “Fringe Benefits”). Your eligibility to participate in the Fringe Benefits and receive benefits thereunder will be subject to the plan documents governing such Fringe Benefits. Nothing contained herein will require the Company to establish or maintain any Fringe Benefits.

- 3.6. Reimbursement of Certain Expenses. You shall be reimbursed for reasonable and necessary business expenses incurred by you while you are employed by the Company, which are directly related to the furtherance of the Company’s business. You must submit any request for reimbursement no later than ninety (90) days following the date that such business expense is incurred in accordance with the Company’s reimbursement policy regarding same, and business expenses must be substantiated by appropriate receipts and documentation. If a business expense reimbursement is not exempt from Section 409A of the Code, any reimbursement in one calendar year shall not affect the amount that may be reimbursed in any other calendar year and a reimbursement (or right thereto) may not be exchanged or liquidated for another benefit or payment. Any business expense reimbursements subject to Section 409A of the Code shall be made no later than the end of the calendar year following the calendar year in which you incur such business expense.

4. Termination. This Agreement shall terminate upon the occurrence of any of the following:

- 4.1. Termination by You or by the Company Without Cause. You may terminate this Agreement at any time upon not less than 30 days prior written notice to the Company. The Company may terminate this Agreement, without Cause, at any time upon not less than 30 days prior written notice to you.
- 4.2. Termination for Cause. This Agreement shall terminate, at the election of the Company, for Cause upon written notice by the Company to you. For the purposes of this Section, “Cause” for termination shall be limited to the following:
- a) Your conviction of a felony; or
  - b) Your commission of fraud, or misconduct that results in material and demonstrable damage to the business or reputation of the Company; or
  - c) Your willful and continued failure to perform your duties hereunder (other than such failure resulting from your incapacity due to disability, as defined herein) within 10 business days after the Company delivers a written demand for performance to you that specifically identifies the actions to be performed.
- 4.3. Death or Disability. This Agreement shall terminate upon your death or disability. If you shall be disabled so as to be unable to perform the essential functions of your position under this Agreement with or without reasonable accommodation, the Board

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may remove you from any responsibilities and/or reassign you to another position with the Company during the period of such disability, and such reassignment shall not trigger a Good Reason termination as provided herein. Notwithstanding any such removal or reassignment, you shall continue to receive your Base Salary (less any disability pay or sick pay benefits to which you may be entitled under the Company’s policies) and benefits under this Agreement (except to the extent that you may be ineligible for one or more such benefits under applicable plan terms) for a period of three months, and your employment may be terminated by the Company at any time thereafter. Nothing in this Section shall be construed to waive your rights, if any, under existing law including, without limitation, the Family and Medical Leave Act of 1993, 29 U.S.C. §2601 *et seq.* and the Americans with Disabilities Act, 42 U.S.C. §12101 *et seq.*

Notwithstanding the foregoing, if and only to the extent that your disability is a trigger for the payment of deferred compensation, as defined in Section 409A of the Code, “disability” shall have the meaning set forth in Section 409A(a)(2)(C) of the Code.

5. Effect of Termination.

- 5.1. Termination for Cause, Death, Disability or Voluntary Resignation. In the event (i) you are terminated for Cause; (ii) you are terminated for death or Disability; or (iii) you voluntarily resign (other than for Good Reason), unless otherwise specifically provided herein, you, or your estate, shall be eligible only to receive (i) the portion of your Base Salary as has accrued prior to the effectiveness of such termination and has not yet been paid, (ii) an amount equal to the value of your accrued unused vacation days, and (iii) reimbursement for expenses properly incurred by you on behalf of the Company prior to such termination if such expenses are properly documented in accordance with Company policy and practice and submitted for reimbursement within 30 days of the termination date (collectively, the “Accrued Obligations”). Such amounts will be paid promptly after termination in accordance with Massachusetts law and in no event more than 45 days after the date on which your employment terminates.
- 5.2. Termination Without Cause or Resignation for Good Reason. In the event that (i) you are terminated without Cause; or (ii) you resign for Good Reason, and contingent on your executing a complete release of claims against the Company with standard exceptions for vested benefits and equity interests, rights to indemnification, and exceptions for all claims not waivable under applicable law, and provided you do not revoke the release (a fully effective release is hereafter, the “Release”) within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive:
- a) continuation of your Base Salary in effect at the time of termination for a period of twelve (12) months, commencing on the 37<sup>th</sup> day after the date on which your employment terminates (provided the Release is effective prior to such date), payable in accordance with the Company’s normal payroll practices, provided that the first

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payment will include all amounts which would have been paid in the 37 days following your termination of employment.

- b) payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of termination until the earlier of (x) 12 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.

5.3. Additional Benefits upon Termination in Connection With a Change of Control. In the event that your employment is terminated by the Company without Cause or by you for Good Reason (each as defined herein) within 12 months immediately following or 6 months immediately prior to a Change of Control, then, in addition to the Accrued Obligations, and contingent on your executing a complete release of claims against the Company, and provided you do not revoke the release (a fully effective release is hereafter, the "Release") within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive:

- a) continuation of your Base Salary in effect at the time of termination for a period of twelve (12) months, commencing on the 37<sup>th</sup> day after the date on which your employment terminates (provided the Release is effective prior to such date), payable in accordance with the Company's normal payroll practices, provided that the first payment will include all amounts which would have been paid in the 37 days following your termination of employment.
- b) payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of termination until the earlier of (x) 12 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.
- c) full vesting of all unvested equity, including but not limited to any options or restricted stock granted to you under the 2006 Stock Plan or any authorized successor stock plan, provided that the conditions to vesting other than the passage of time have been satisfied.

5.4. Excise Tax. You agree that the payments and benefits hereunder, and under all other contracts, arrangements or programs that apply to you (the "Company Payments"), shall be reduced to an amount that is one dollar less than the amount that would trigger an excise tax under Section 4999 of the Code, as determined in good faith by the Company's independent public accountants, provided, however, that the reduction shall occur only if the reduced Company Payments received by you (after taking into account further reductions for applicable federal, state and local income, social security and other taxes) would be greater than the unreduced Company Payments to be received by you minus (i) the excise tax payable with respect to such Company Payments under Section 4999 of the Code; and (ii) all applicable federal, state and local income, social security and other taxes on such Company Payments. You and the Company agree to cooperate

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in good faith with each other in connection with any administrative or judicial proceedings concerning the existence or amount of golden parachute penalties with respect to payments or benefits that you receive. In the event that such payments are required to be reduced pursuant to this Section, such payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits, and to the extent any payment is to be made over time (e.g., in installments, etc.), then the payments shall be reduced in reverse chronological order.

5.5. "Change of Control." As used herein, a "Change of Control" shall occur or be deemed to have occurred only upon any one or more of the following events:

- a) any "person" (as such term is used in Sections 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")) becomes a "beneficial owner" (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) (other than the Company, any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or any corporation owned, directly or indirectly, by the stockholders of the Company, in substantially the same proportions as their ownership of stock of the Company), directly or indirectly, of securities of the Company, representing fifty percent (50%) or more of the combined voting power of the Company's then outstanding securities; or
- b) persons who, as of the Commencement Date, constituted the Company's Board of Directors (the "Incumbent Board") cease for any reason including, without limitation, as a result of a tender offer, proxy contest, merger, consolidation or similar transaction, to constitute at least a majority of the Board of Directors, provided that any person becoming a director of the Company subsequent to the Commencement Date whose election was approved by at least a majority of the directors then comprising the Incumbent Board shall, for purposes of this Section, be considered a member of the Incumbent Board; or
- c) the consummation of a merger or consolidation of the Company with any other corporation or other entity, other than (1) a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation or (2) a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no "person" (as hereinabove defined) acquires more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities; or

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- d) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

- 5.6. Definition of Good Reason. As used in this Agreement, ‘Good Reason’ means that you have complied with the ‘Good Reason Process’ (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties or the assignment to you of duties materially inconsistent with this Agreement; (ii) a diminution in your Base Salary below the minimum Base Salary set forth herein; (iii) a material change in the geographic location at which you provide services to the Company with the relocation of your principal place of business beyond 40 road miles from the Company’s Cambridge, MA offices being material; (iv) the material breach of this Agreement by the Company; or (v) a change in your reporting relationship to the Chief Executive Officer as set forth herein ‘Good Reason Process’ shall mean that (i) you reasonably determine in good faith that a ‘Good Reason’ condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 60 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company’s efforts, for a period not less than 30 days following such notice (the ‘Cure Period’), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within 60 days after the end of the Cure Period. If the Company permanently cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.
- 5.7. Separation from Service. Notwithstanding anything set forth in Sections 4 and 5 of this Agreement, a termination of employment shall be deemed not to have occurred until such time as you incur a “separation from service” with the Company in accordance with Section 409A(a)(2)(A)(i) of the Code and the applicable provisions of Treasury Regulation Section 1.409A-1(h).
- 5.8. Section 409A. Anything in this Agreement to the contrary notwithstanding, if at the time of your ‘separation from service,’ the Company determines that the you are a ‘specified employee’ within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that you become entitled to under this Agreement on account of your separation from service would be considered deferred compensation subject to the 20 percent additional tax imposed pursuant to Section 409A(a) of the Code as a result of the application of Section 409A(a)(2)(B)(i) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after your separation from service, or (B) your death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment described in Section 5 is considered a separate payment.

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6. Taxes. All payments required to be made by the Company to you under this Agreement shall be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may reasonably determine it should withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Agreement be exempt from, or comply with, the provisions of Section 409A of the Code, and this Agreement shall be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Agreement.
7. Noncompetition, Confidentiality and Inventions Obligations. You will execute the enclosed Employee Noncompetition, Confidentiality and Inventions Agreement simultaneously with the execution of this Agreement.
8. Disclosure to Future Employers. You will provide, and the Company, in its discretion, may similarly provide, a copy of the covenants contained in the Employee Noncompetition, Confidentiality and Inventions Agreement to any business or enterprise which you may, directly or indirectly, own, manage, operate, finance, join, control or in which you may participate in the ownership, management, operation, financing, or control, or with which you may be connected as an officer, director, employee, partner, principal, agent, representative, consultant or otherwise.
9. Representations. You hereby represent and warrant to the Company that you understand this Agreement, that you enter into this Agreement voluntarily and that your employment under this Agreement will not conflict with any legal duty owed by you to any other party.
10. General.
- 10.1. Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party’s address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand, at the time of the delivery thereof to the receiving party at the address of such party set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5<sup>th</sup> business day following the day such mailing is made.

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- 10.2. Entire Agreement. This Agreement, together with any Stock Option Agreements executed by you and the Company (either prior to or in conjunction with this Agreement) and the Employee Noncompetition, Confidentiality and Inventions Agreement, embody the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Agreement.
- 10.3. Modifications and Amendments. The terms and provisions of this Agreement may be modified or amended only by written agreement executed by the parties hereto.
- 10.4. Waivers and Consents. The terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or

consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.

- 10.5. Assignment. The Company shall cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business or that aspect of the Company's business in which you are principally involved and may assign its rights and obligations hereunder to any Company affiliate. You may not assign your rights and obligations under this Agreement without the prior written consent of the Company and any such attempted assignment by you without the prior written consent of the Company will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Agreement shall inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, shall be issued and paid to your estate.
- 10.6. Governing Law. This Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.
- 10.7. Jury Waiver. You and the Company agree to waive trial by jury in connection with any action arising from or relating to this Agreement.
- 10.8. Severability. The parties intend this Agreement to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby,

and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.

- 10.9. Headings and Captions. The headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.
- 10.10. Acknowledgments. You recognize and agree that the enforcement of the Noncompetition, Nondisclosure and Inventions Agreement is necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the proprietary nature of the Company's business, the restrictions set forth in the Noncompetition, Confidentiality and Inventions Agreement are reasonable as to time and scope.
- 10.11. Counterparts. This Agreement may be executed in two or more counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.
- 10.12. Conditions. This Agreement is subject to and contingent upon the Company's receipt of proof that you have appropriate authorization to work in the United States as required by U.S. laws and regulations, and upon satisfactory completion of a background check.

If you accept the above terms, please so indicate by signing and returning to us the enclosed copy of this Agreement no later than November 7, 2011.

Very truly yours,

METABOLIX, INC.

By: /s/ Richard P. Eno  
Name: Richard P. Eno  
Title: President & CEO

**Accepted and Agreed:**

/s/ Lynne H. Brum  
Lynne H. Brum

14 Nov. 2011  
Date

**Enclosure:**  
Employee Noncompetition, Confidentiality and Inventions Agreement

## Metabolix, Inc.

## Code of Business Conduct and Ethics

Introduction**Purpose and Scope**

The Board of Directors of Metabolix, Inc. (together with its subsidiaries, the “Company”) established this Code of Business Conduct and Ethics to aid the Company’s directors, officers and employees in making ethical and legal decisions when conducting the Company’s business and performing their day-to-day duties.

The Company’s Board of Directors or a committee of the Board is responsible for administering the Code. The Board of Directors has delegated day-to-day responsibility for administering and interpreting the Code to a Compliance Officer. Our General Counsel has been appointed the Company’s Compliance Officer under this Code.

The Company expects its directors, officers and employees to exercise reasonable judgment when conducting the Company’s business. The Company encourages its directors, officers and employees to refer to this Code frequently to ensure that they are acting within both the letter and the spirit of this Code. The Company also understands that this Code will not contain the answer to every situation you may encounter or every concern you may have about conducting the Company’s business ethically and legally. In these situations, or if you otherwise have questions or concerns about this Code, the Company encourages each officer and employee to speak with his or her supervisor (if applicable) or, if you are uncomfortable doing that, with the Compliance Officer under this Code, or the Company’s Chief Executive Officer.

**Contents of this Code**

This Code has two sections which follow this Introduction. The first section, “**Standards of Conduct**,” contains the actual guidelines that our directors, officers and employees are expected to adhere to in the conduct of the Company’s business. The second section, “**Compliance Procedures**,” contains specific information about how this Code functions including who administers the Code, who can provide guidance under the Code and how violations may be reported, investigated and punished. This second section also contains a discussion about waivers of and amendments to this Code.

**A Note About Other Obligations**

The Company’s directors, officers and employees generally have other legal and contractual obligations to the Company. This Code is not intended to reduce or limit the other obligations that you may have to the Company. Instead, the standards in this Code should be viewed as the *minimum standards* that the Company expects from its directors, officers and employees in the conduct of its business.

Standards of Conduct**Conflicts of Interest**

The Company recognizes and respects the right of its directors, officers and employees (“Associates”) to engage in outside activities which they may deem proper and desirable, provided that these activities do not impair or interfere with the performance of their duties to the Company or their ability to act in the Company’s best interests. In most, if not all, cases this will mean that our directors, officers and employees must avoid situations that present a potential or actual conflict between their personal interests and the Company’s interests.

A “conflict of interest” occurs when an Associate’s personal interest interferes with the Company’s interests. Conflicts of interest may arise in many situations. For example, conflicts of interest can arise when an Associate takes an action or has an outside interest, responsibility or obligation that may make it difficult for him or her to perform the responsibilities of his or her position objectively and/or effectively in the Company’s best interests. Conflicts of interest may also occur when a director, officer or employee or his or her immediate family member receives some personal benefit (whether improper or not) as a result of the director’s, officer’s or employee’s position with the Company. Each individual’s situation is different and in evaluating his or her own situation, a director, officer or employee will have to consider many factors.

Any transaction or relationship that reasonably could be expected to give rise to a conflict of interest should be reported promptly to the Compliance Officer. The Compliance Officer may notify the Board of Directors or a committee thereof as he or she deems appropriate. Actual or potential conflicts of interest involving a director, executive officer or the Compliance Officer should be disclosed directly to the Chairman of the Board of Directors.

**Factors that may be considered in evaluating a potential conflict of interest** are, among other things:

- whether it may interfere with the Associate’s job performance, responsibilities or morale;
- whether the Associate has access to confidential information;
- whether it may interfere with the job performance responsibilities or morale of others within the organization;
- any potential adverse or beneficial impact on the Company’s business;
- any potential adverse or beneficial impact on our relationships with the Company’s customers or suppliers or other service providers;
- whether it would enhance or support a competitor’s position;

- the extent to which it would result in financial or other benefit (direct or indirect) to the Associate;
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- the extent to which it would result in financial or other benefit (direct or indirect) to one of Company's customers; suppliers or other service providers; and
- the extent to which it would appear improper to an outside observer.

The following are **examples** of situations that may, depending on the facts and circumstances, involve conflicts of interest:

- **Employment by (or consulting for) or service on the board of a competitor, customer, supplier, or other service provider.** "Moonlighting" does not necessarily create a conflict of interest, if such activities do not interfere with the performance of duties for the Company. However, any activity that enhances or supports the position of a competitor to the detriment of the Company, including employment by or service on the board of a competitor, is prohibited. Employment by or service on the board of a customer or supplier or other service provider is generally discouraged and must be approved by the Compliance Officer prior to acceptance.
  - **Owning, directly or indirectly, a significant financial interest in any entity that does business, seeks to do business, or competes with the Company.** In addition to the factors described above, factors to be considered in evaluating ownership for conflicts of interest include the size and nature of the investment; the nature of the relationship between the Company and the other entity; the employee's/officer's/director's access to confidential information, and their ability to influence Company decisions.
  - **Soliciting or accepting gifts, favors, loans or preferential treatment from any person or entity that does business or seeks to do business with the Company.** Business gifts and entertainment are meant to create goodwill and sound working relationships and not to gain improper advantage with customers or facilitate approvals from government officials. Employees/officers/directors should not accept gifts, services, travel or entertainment that may reasonably be deemed to affect their judgment or actions in the performance of their duties for the Company. Gifts and entertainment should not be offered, provided or accepted unless consistent with customary business practices and not (a) excessive in value, (b) in cash or cash equivalents, (c) susceptible of being construed as a bribe or kickback, or (d) in violation of any laws. This principle applies to the Company's transactions everywhere in the world, even where the practice is considered "a way of doing business." An employee/officer/director who is uncertain about the appropriateness or acceptability of a particular gift should consult with the Compliance Officer, who may seek guidance from the Nominating and Corporate Governance Committee.
  - **Soliciting contributions to any charity or for any political candidate from any person or entity that does business or seeks to do business with the Company.**
  - **Conducting Company business transactions with a family member, significant other, or person who shares a household with an Associate.** Related-party transactions must be approved by the Nominating and Corporate Governance Committee and will be publicly disclosed to the extent required by applicable laws and regulations.
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- **Exercising supervisory or other authority (directly or indirectly) on behalf of the Company over a co-worker who is also a family member.** No family member of a Director or executive officer should be employed by the Company. Human Resources should be notified of any relationship between non-executive employees. No employee should be in a position of exercising supervisory or other authority (directly or indirectly) on behalf of the Company over a co-worker who is also a family member. The employee's supervisor and/or the Compliance Officer may consult with Human Resources to assess the advisability of reassignment.

### ***Compliance with Laws, Rules and Regulations***

The Company seeks to conduct its business in compliance with both the letter and the spirit of applicable laws, rules and regulations. No director, officer or employee shall engage in any unlawful activity in conducting the Company's business or in performing his or her day-to-day company duties, nor shall any director, officer or employee instruct others to do so.

### ***Protection and Proper Use of the Company's Assets***

Loss, theft and misuse of the Company's assets has a direct impact on the Company's business and its profitability. Directors, officers and employees are expected to protect the Company's assets that are entrusted to them and to protect the Company's assets in general. Directors, officers and employees are also expected to take steps to ensure that the Company's assets are used only for legitimate business purposes.

### ***Corporate Opportunities***

Directors, officers and employees owe a duty to the Company to advance its legitimate business interests when the opportunity to do so arises. Each director, officer and employee is prohibited from:

- diverting to himself or herself or to others any opportunities that are discovered through the use of the Company's property or information or as a result of his or her position with the Company unless such opportunity has first been presented to, and rejected by, the Company,
- using the Company's property or information or his or her position for improper personal gain, or
- competing with the Company.

### ***Confidentiality***

Confidential information generated and gathered in the Company's business plays a vital role in its business, prospects and ability to compete. "Confidential information" includes all non-public information that might be of use to competitors or harmful to the Company or its customers if disclosed. Directors, officers and employees may not disclose or distribute the Company's confidential information, except when disclosure is authorized by the Company or required by applicable law, rule or regulation or pursuant to an applicable legal proceeding.

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Directors, officers and employees shall use confidential information solely for legitimate company purposes. Directors, officers and employees must return all of the Company's confidential and/or proprietary information in their possession to the Company when they cease to be employed by or to otherwise serve the Company.

### ***Fair Dealing***

Competing vigorously, yet lawfully, with competitors and establishing advantageous, but fair, business relationships with customers and suppliers is a part of the foundation for long-term success. However, unlawful and unethical conduct, which may lead to short-term gains, may damage a company's reputation and long-term business prospects. Accordingly, it is the Company's policy that directors, officers and employees must endeavor to deal ethically and lawfully with the Company's customers, suppliers, competitors and employees in all business dealings on the Company's behalf. No director, officer or employee should take unfair advantage of another person in business dealings on the Company's behalf through the abuse of privileged or confidential information or through improper manipulation, concealment or misrepresentation of material facts.

### ***Accuracy of Records***

The integrity, reliability and accuracy in all material respects of the Company's books, records and financial statements is fundamental to the Company's continued and future business success. No director, officer or employee may cause the Company to enter into a transaction with the intent to document or record it in a deceptive or unlawful manner. In addition, no director, officer or employee may create any false or artificial documentation or book entry for any transaction entered into by the Company. Similarly, officers and employees who have responsibility for accounting and financial reporting matters have a responsibility to accurately record all funds, assets and transactions on the Company's books and records.

### ***Quality of Public Disclosures***

The Company is committed to providing its stockholders with complete and accurate information about its financial condition and results of operations as required by the securities laws of the United States. It is the Company's policy that the reports and documents it files with or submits to the Securities and Exchange Commission, and its earnings releases and similar public communications made by the Company, include fair, timely and understandable disclosure. Officers and employees who are responsible for these filings and disclosures, including the Company's principal executive, financial and accounting officers, must use reasonable judgment and perform their responsibilities honestly, ethically and objectively in order to ensure that this disclosure policy is fulfilled. The Company's Disclosure Committee, along with senior management, is primarily responsible for monitoring the Company's public disclosure.

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## **Compliance Procedures**

### ***Communication of Code***

All directors, officers and employees will be supplied with a copy of the Code upon the later of the adoption of the Code and beginning service at the Company. Updates of the Code will be provided from time to time. A copy of the Code is also available to all directors, officers and employees by requesting one from the human resources department or by accessing the Company's website at [www.metabolix.com](http://www.metabolix.com).

### ***Monitoring Compliance and Disciplinary Action***

The Company's management, under the supervision of its Nominating and Corporate Governance Committee or, in the case of accounting, internal accounting controls or auditing matters, the Audit Committee, shall take reasonable steps from time to time to (i) monitor and audit compliance with the Code, including the establishment of monitoring and auditing systems that are reasonably designed to investigate and detect conduct in violation of the Code, and (ii) when appropriate, impose and enforce appropriate disciplinary measures for violations of the Code.

Disciplinary measures for violations of the Code may include, but are not limited to, counseling, oral or written reprimands, warnings, probation or suspension with or without pay, demotions, reductions in salary, termination of employment or service and restitution.

The Company's management shall periodically report to the Nominating and Corporate Governance Committee on these compliance efforts including, without limitation, periodic reporting of alleged violations of the Code and the actions taken with respect to any such violation.

### ***Reporting Concerns/Receiving Advice***

#### **Communication Channels**

***Be Proactive.*** Every employee is encouraged to act proactively by asking questions, seeking guidance and reporting suspected violations of the Code and other policies and procedures of the Company, as well as any violation or suspected violation of applicable law, rule or regulation arising in the conduct of the Company's business or occurring on the Company's property. **If any employee believes that actions have taken place, may be taking place, or may be about to take place that violate or would violate the Code, he or she is obligated to bring the matter to the attention of the Compliance Officer.**

***Seeking Guidance.*** The best starting point for an officer or employee seeking advice on ethics-related issues or reporting potential violations of the Code will usually be his or her supervisor. However, if the conduct in question involves his or her supervisor, if the employee has reported the conduct in

question to his or her supervisor and does not believe that he or she has dealt with it properly, or if the officer or employee does not feel that he or she can discuss the matter with his or her supervisor, the employee may raise the matter with the Compliance Officer.

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*Communication Alternatives.* Any officer or employee may communicate with the Compliance Officer by any of the following methods:

- **By writing (which may be anonymous) to the Compliance Officer either by facsimile to 617-583-1767 (Attn: Compliance Officer) or by U.S. mail to Metabolix, Inc., 21 Erie Street, Cambridge, MA 02139, Attn: Compliance Officer;**
- **By e-mail to [complianceofficer@metabolix.com](mailto:complianceofficer@metabolix.com) (anonymity cannot be maintained); or**
- **By phoning an off-site voicemail account which we have established for receipt of questions and reports of potential violations of the Code. The off-site voicemail account may be reached at 866-553-4729 and calls may be made anonymously as set forth below under “Reporting; Anonymity; Retaliation”.**

*Reporting Accounting and Similar Concerns.* Any concerns or questions regarding any potential violations of the Code, any other company policy or procedure or applicable law, rules or regulations involving accounting, internal accounting controls or auditing matters should be directed to the Audit Committee or a designee of the Audit Committee. Officers and employees may communicate with the Audit Committee or its designee:

- **by phoning the Employee Reporting Line at 866-553-4729.**
- **by mail, addressed to “Audit Committee Chairman, Metabolix, Inc., 21 Erie Street, Cambridge, MA 02139.”**

Officers and employees may use the above methods to communicate anonymously with the Audit Committee.

*Misuse of Reporting Channels.* Employees must not use these reporting channels in bad faith or in a false or frivolous manner. **Further, employees should not use the off-site voicemail account to report grievances that do not involve the Code or other ethics-related issues.**

### **Reporting; Anonymity; Retaliation**

When reporting suspected violations of the Code, the Company prefers that officers and employees identify themselves to facilitate the Company’s ability to take appropriate steps to address the report, including conducting any appropriate investigation. However, the Company also recognizes that some people may feel more comfortable reporting a suspected violation anonymously.

If an officer or employee wishes to remain anonymous, he or she may do so, and the Company will use reasonable efforts to protect the confidentiality of the reporting person subject to applicable law, rule or regulation or to any applicable legal proceedings. In the event the report is made anonymously, however, the Company may not have sufficient information to look into or otherwise investigate or evaluate the allegations. Accordingly, persons who make reports

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anonymously should provide as much detail as is reasonably necessary to permit the Company to evaluate the matter(s) set forth in the anonymous report and, if appropriate, commence and conduct an appropriate investigation.

### **No Retaliation**

The Company expressly forbids any retaliation against any officer or employee who, acting in good faith, reports suspected misconduct. Any person who participates in any such retaliation is subject to disciplinary action, including termination.

### **Waivers and Amendments**

No waiver of any provisions of the Code for the benefit of a director or an executive officer (which includes without limitation, for purposes of this Code, the Company’s principal executive, financial and accounting officers) shall be effective unless (i) approved by the Board of Directors or, if permitted, a committee thereof, and (ii) if applicable, such waiver is promptly disclosed to the Company’s stockholders in accordance with applicable U.S. securities laws and/or the rules and regulations of the exchange or system on which the Company’s shares are traded or quoted, as the case may be.

Any waivers of the Code for other employees may be made by the Compliance Officer, the Board of Directors or, if permitted, a committee thereof.

All amendments to the Code must be approved by the Board of Directors or a committee thereof and, if applicable, must be promptly disclosed to the Company’s shareholders in accordance with applicable United States securities laws and/or the rules and regulations of the exchange or system on which the Company’s shares are traded or quoted, as the case may be.

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**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We hereby consent to the incorporation by reference in the Registration Statement on Form S-3 (No. 333-172725) and S-8 (Nos. 333-138631, 333-145232, 333-155115, 333-157869, 333-165305 and 333-172724) of Metabolix, Inc. of our report dated March 12, 2012 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP  
Boston, Massachusetts  
March 12, 2012

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[Exhibit 23.1](#)

[CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM](#)

CERTIFICATIONS

I, Richard P. Eno certify that:

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

Date: March 12, 2012

/s/ RICHARD P. ENO

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Name: Richard P. Eno  
Title: *President and Chief Executive Officer*  
*(Principal Executive Officer)*

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[EXHIBIT 31.1](#)

[CERTIFICATIONS](#)

**CERTIFICATIONS**

I, Joseph D. Hill certify that:

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

Date: March 12, 2012

/s/ JOSEPH D. HILL

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Name: Joseph D. Hill  
Title: Chief Financial Officer  
(Principal Financial and Accounting Officer)

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[EXHIBIT 31.2](#)

[CERTIFICATIONS](#)

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

In connection with the annual report on Form 10-K of Metabolix, Inc. (the "Company") for the year ended December 31, 2011 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Richard P. Eno, President, Chief Executive Officer and Principal Executive Officer of the Company and Joseph D. Hill, Chief Financial Officer and Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to my knowledge that:

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

This certification is being provided pursuant to 18 U.S.C. 1350 and is not to be deemed a part of the Report, nor is it to be deemed to be "filed" for any purpose whatsoever.

METABOLIX, INC.

March 12, 2012

By: /s/ RICHARD P. ENO

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Richard P. Eno  
*President and Chief Executive Officer (Principal Executive Officer)*

March 12, 2012

By: /s/ JOSEPH D. HILL

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Joseph D. Hill  
*Chief Financial Officer (Principal Financial and Accounting Officer)*

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[EXHIBIT 32.1](#)

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