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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-172725

Subject to completion, dated May 18, 2011

The information contained in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

Preliminary prospectus supplement
(To Prospectus dated April 28, 2011)

4,750,000 Shares



Metabolix, Inc.

Common Stock

We are offering 4,750,000 common shares.

Our common shares trade on The NASDAQ Global Market under the symbol "MBLX." On May 17, 2011, the closing price of our common shares on The NASDAQ Global Market was \$7.51 per share.

An existing stockholder who is an affiliate of a director and certain other directors and officers have indicated interest in purchasing up to approximately \$18 million of this offering at the public offering price. Because such indications of interest are not binding agreements or commitments to purchase, any or all of these directors or entities may elect not to purchase any shares in this offering, or the underwriters may elect not to sell any shares in this offering to any or all of these directors or entities.

| | Per Share | Total |
|---|------------------|--------------|
| Public offering price | \$ | \$ |
| Underwriting discounts and commissions(1) | \$ | \$ |
| Proceeds to us, before expenses | \$ | \$ |

(1) The underwriters will not receive any underwriting discount or commission on the sale of up to approximately \$18 million of this offering to an existing stockholder who is an affiliate of a director and certain other directors and officers.

We have granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to 712,500 additional common shares at the public offering price less the underwriting discounts and commissions to cover over-allotments, if any.

Investing in our common shares involves risks. See "Risk factors" beginning on page S-8 of this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares on or about May , 2011.

Sole Book-Running Manager

J.P. Morgan

Co-Manager

Stifel Nicolaus Weisel

May , 2011

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About this prospectus supplement

Unless the context otherwise requires, references in this prospectus supplement to "we," "us" and "our" refer to Metabolix, Inc. and its subsidiaries.

Neither we nor the underwriters have authorized any other person to provide you with different or additional information than that contained or incorporated by reference in this prospectus supplement including the accompanying prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should not assume that the information contained in this prospectus supplement or the accompanying prospectus, or any document incorporated by reference in this prospectus supplement or the accompanying prospectus, is accurate as of any date other than the date on the front cover of the applicable document. Neither the delivery of this prospectus supplement nor any distribution of securities pursuant to this prospectus supplement shall, under any circumstances, create any implication that there has been no change in the information set forth or incorporated by reference into this prospectus supplement or in our affairs since the date of this prospectus supplement. Our business, financial condition, results of operations and prospects may have changed since that date.

This document is in two parts. The first part is the prospectus supplement, which adds to and updates information contained in the accompanying prospectus, and describes our common stock offering. The second part is the accompanying prospectus, which provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus, on the other hand, you should rely on the information in this prospectus supplement.

This prospectus supplement and the accompanying prospectus do not constitute an offer to sell, or a solicitation of an offer to purchase, the securities offered by this prospectus supplement and the accompanying prospectus in any jurisdiction where it is unlawful to make such offer or solicitation.

Before purchasing any securities, you should carefully read both this prospectus supplement and the accompanying prospectus, together with the additional information described under the heading, "Where you can find more information," in this prospectus supplement.

Prospectus supplement summary

This summary highlights information contained elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. This summary does not contain all of the information that you should consider before deciding to invest in our common stock. You should read this entire prospectus supplement and the accompanying prospectus carefully, including the "Risk factors" section and our consolidated financial statements and the related notes and the other documents incorporated by reference in this prospectus supplement and the accompanying prospectus.

About Metabolix, Inc.

Metabolix is an innovation-driven bioscience company which is 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 biotechnology with chemical engineering and industrial production. From these capabilities, we are building a multi-product industrial biotechnology company around our long standing expertise and development of polyhydroxyalkanoate ("PHA") chemistry. We believe that a PHA chemistry platform has the potential to produce both bioplastics, which are attractive end products, and a variety of building blocks used to produce renewable chemicals that can serve large and established markets.

Our first platform, which we are commercializing through Telles, LLC ("Telles"), a joint venture with Archer Daniels Midland Company, or ADM, is a proprietary, large-scale microbial fermentation system for producing a versatile family of PHA polymers, which we have branded under the name Mirel™. Through Telles, we are selling these bioplastics as biobased and biodegradable, but functionally equivalent, alternatives to petroleum-based plastics. Mirel offers superior biodegradability characteristics and can be used in a wide range of commercial applications, including products used in agriculture and horticulture, compost and organic waste diversion bags, marine and aquatic applications, consumer products, business equipment and durable goods, and general packaging materials. Mirel is now being produced in a commercial scale plant located in Clinton, Iowa ("the Commercial Manufacturing Facility") designed for an annual capacity of 110 million pounds. ADM completed construction of the initial phase of the Commercial Manufacturing Facility in 2009 and the facility began manufacturing Mirel in early 2010. The Commercial Manufacturing Facility produces biobased and biodegradable Mirel plastic using corn sugar, an abundant agriculturally-produced renewable resource.

To exploit our first technology platform, we are working closely with ADM to bring the Commercial Manufacturing Facility to the full 110 million pound annual design capacity in advance of customer demand for Mirel. The biodegradable bioplastics that this facility is now producing are superior to other bioplastics in several ways. They are highly versatile and range in properties from hard and stiff to soft and flexible. Mirel can withstand temperatures in excess of 100 °C, i.e., the boiling point of water, an important threshold. Some formulations of Mirel can withstand temperatures up to 130 °C. Mirel can be processed in many types of existing conventional polymer conversion equipment that is currently being used for petroleum-based plastic. While Mirel will biodegrade in marine and fresh water environments,

it is resistant to reacting with cold or hot water over the intended life span of the product. Our current life cycle analysis (LCA) model for Mirel has identified the feasibility of reaching carbon neutrality using renewable energy sources in the manufacturing process. We are working with customers to determine the LCA for specific applications. These properties allow for a wide variety of commercial applications, offering a biobased alternative to petroleum-derived synthetic materials which are not biodegradable. In addition, the use of Mirel will reduce petroleum dependence. Through Telles, we are positioning Mirel as a premium priced specialty material catering to customers who want to match the functionality of petroleum-based plastic with the added dimension of environmental responsibility for their products and brands.

With ADM, we have conducted product and business development activities, including production of pre-commercial amounts of Mirel, working with potential customers, and initiating qualification trials of our material for selected customer applications. In addition, we have established commercial supply agreements with several Telles customers. We expect that our products will initially be sold to companies that are:

- selling products in which biodegradability is a key functional requirement;
- establishing themselves as leaders in responding to consumer demand for environmentally responsible products and services; and/or
- addressing current or anticipated regulatory pressure to shift to more sustainable products.

We have a pipeline of current and prospective customers that reflect each of these traits. The plastics market is a large and global marketplace consisting of a broad range of polymer resins. As of 2008, the global plastics market was approximately 540 billion pounds annually or about \$0.5 trillion in size.

For our second platform, Industrial Chemicals, we intend to apply our core capabilities in microbial and process engineering to develop biological routes to other chemicals and chemical intermediates. Our initial focus is on the four-carbon ("C4") and three-carbon ("C3") chemical families, which, together, offer an addressable worldwide market size of over \$10 billion. 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. C4 chemicals are a large family of chemicals enabling a wide range of end-use applications, including engineering resins, urethanes, solvents, and personal care products. We were able to achieve all of the technical milestones outlined in this grant. In 2010, we scaled up our C4 chemicals technology, producing samples for prospective customers which we began shipping during the first quarter of 2011. We also achieved technical proof of concept for our C3 chemicals products. In 2011, we plan to build upon these technical successes, as well as feedback from our early customers, to further scale the technology and bring our products closer to commercialization. We also anticipate assessing market entry options and potential partnerships.

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 both bioplastics and bioenergy. 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 targets are oilseed crops, specifically camelina, switchgrass and sugarcane. 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 August 2010, we established a research company in Saskatchewan, Canada to further pursue our research with industrial oilseed crops. Also in 2010, we conducted our first successful field trial of engineered camelina.
- *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.
- *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.

We believe that using these crops to co-produce bioplastics or chemicals with bioenergy products can offer superior economic value and productivity as compared to single product systems that produce them individually. Through 2011, we will continue to advance the research and assess alternative commercialization models for our crop programs. We may also seek to establish alliances with partners to commercially exploit this platform.

As demonstrated by our technology platforms, we take an integrated systems approach to our technology development. We are focused on developing entire production systems from gene to end product as opposed to developing specific technologies (for example, gene sequencing, shuffling or directed evolution) or singular aspects of a product's production (for example, providing a key enzyme, catalyst or ingredient). We believe this systems approach optimizes manufacturing productivity and, when and if commercialized, will enable us to capture more economic value from any platform that we pursue.

We have generated revenues primarily from government grants, research and development payments, license fees, and royalty payments. We have funded our operations primarily through the sale of equity securities, government grants, and payments from our collaborative partners.

Recent developments

On May 6, 2011, the Department of Energy's Biomass Program awarded us a \$6 million grant. The grant money will be used to fund a project that will use high temperature conversion to produce denser biomass and other products which we believe 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.

Corporate 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 prospectus supplement and should not be considered to be part of this prospectus supplement.

The offering

The following summary contains basic information about this offering and our common shares. It does not contain all the information that is important to you. For a more complete understanding of our common shares, please refer to the section of the accompanying prospectus entitled "Description of capital stock" and our restated certificate of incorporation and amended and restated bylaws, copies of which have been filed with the Securities and Exchange Commission, or SEC, and are available upon request. See the section entitled "Where you can find more information."

| | |
|--|---|
| Issuer | Metabolix, Inc. |
| Common shares offered by us | 4,750,000 shares |
| Common shares outstanding immediately following this offering(1) | 31,663,074 shares |
| Use of proceeds | We intend to use the proceeds from the sale of these securities for working capital and other general corporate purposes, and possibly acquisitions of other companies, products or technologies, though no such acquisitions are currently contemplated. Working capital and other general corporate purposes may include research and development expenditures, capital expenditures and commercialization expenditures. Examples may include expenditures aimed at accelerating time to market of our Industrial Chemicals platform and further commercialization of Mirel and research and development of our Crop-based Businesses platform. |
| NASDAQ global market symbol | MBLX |
| Risk Factors | Investing in our securities involves risks. See "Risk factors" and other information included in this prospectus supplement and the accompanying prospectus, including information incorporated by reference herein and therein for a discussion of factors you should carefully consider before deciding to invest in our common shares. |

(1) The total shares of common stock outstanding immediately before this offering is based on 26,913,074 shares outstanding as of March 31, 2011 and excludes as of that date:

- 3,623,004 shares of our common stock issuable upon exercise of outstanding stock options;
- 3,094,845 shares available for future grants under our equity incentive and employee compensation plans; and
- 4,086 shares of our common stock issuable upon exercise of outstanding warrants.

Unless the context otherwise requires, all information in this prospectus supplement assumes no exercise of the over-allotment option to purchase additional common shares granted to the underwriters and an offering price of \$7.51 per share which was the closing price of our common shares on The NASDAQ Global Market on May 17, 2011. Furthermore, unless the context otherwise requires, all information in this prospectus supplement assumes \$18 million of this offering will be sold to an existing stockholder who is an affiliate of a director and certain other directors and officers as described in the section entitled "Underwriting."

Summary consolidated financial data

The following summary consolidated financial information as of and for each of the three years in the period ended December 31, 2010, is derived from our audited consolidated financial statements. The summary consolidated financial information as of and for the three months ended March 31, 2011 and 2010, is derived from our unaudited condensed consolidated financial statements. In the opinion of our management, the unaudited financial statements reflect all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of our financial position and results of operations during the periods and as of the dates presented. Operating results for the three months ended March 31, 2011 are not necessarily indicative of results that may be expected for the full fiscal year. The following data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements, related notes and other financial information included in our Quarterly report on Form 10-Q for the three months ended March 31, 2011 and our Annual Report on Form 10-K for the year

ended December 31, 2010, each of which is incorporated herein by reference. See "Where you can find more information."

| (in thousands, except share and per share data) | Three months ended | | | | Year ended |
|---|--------------------|------------|-------------|-------------|--------------|
| | March 31, | | | | December 31, |
| | 2011 | 2010 | 2010 | 2009 | 2008 |
| (unaudited) | | | | | |
| Statement of operations data: | | | | | |
| Total Revenue | \$ 326 | \$ 180 | \$ 448 | \$ 1,425 | \$ 1,555 |
| Operating expenses: | | | | | |
| Research and development expenses, including cost of revenue | 6,199 | 6,168 | 23,673 | 24,471 | 24,667 |
| Selling, general and administrative expenses | 3,787 | 3,869 | 15,714 | 15,683 | 15,780 |
| Total operating expenses | 9,986 | 10,037 | 39,387 | 40,154 | 40,447 |
| Loss from operations | (9,660) | (9,857) | (38,939) | (38,729) | (38,892) |
| Interest income, net | 20 | 55 | 136 | 772 | 2,887 |
| Net loss | \$ (9,640) | \$ (9,802) | \$ (38,803) | \$ (37,957) | \$ (36,005) |
| Net loss per share Basic and Diluted | \$ (0.36) | \$ (0.37) | \$ (1.45) | \$ (1.62) | \$ (1.58) |
| Number of shares used in per share calculations Basic and Diluted | 26,904,606 | 26,536,924 | 26,773,755 | 23,435,264 | 22,839,913 |
| Balance Sheet Information: | | | | | |
| Cash, cash equivalents and short-term investments | \$ 51,947 | \$ 82,839 | \$ 61,574 | \$ 92,202 | \$ 91,096 |
| Total assets | 57,211 | 87,674 | 66,771 | 97,554 | 96,946 |
| Long-term deferred revenue | 36,373 | 37,392 | 36,207 | 37,299 | 32,440 |
| Other long-term obligations | 455 | 611 | 493 | 649 | 805 |
| Total liabilities | 41,751 | 41,021 | 43,095 | 42,510 | 37,855 |
| Accumulated deficit | (216,517) | (177,876) | (206,877) | (168,074) | (130,117) |
| Total stockholders' equity | 15,460 | 46,653 | 23,676 | 55,044 | 59,091 |

Risk factors

An investment in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed below, together with all of the other information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, including in our Annual Report on Form 10-K and any updates described in our Quarterly Reports on Form 10-Q or other documents filed by us with the SEC. It is not possible to predict or identify all such risks. Consequently, we could also be affected by additional factors that are not presently known to us or that we currently consider to be immaterial to our operations.

Risks related to our business

We have incurred net losses since inception. Commercialization of our first and only product, Mirel, is subject to a number of risks and uncertainties and may take longer than currently expected.

We have generated net losses since being founded in 1992 and our first and only product in the market, Mirel, is still in the early stages of commercialization. Our ability to generate revenues in the near-term is highly dependent on the successful commercialization of Mirel through our Telles joint venture. We expect to receive royalties on sales of Telles products and reimbursement of the cost of services provided by us to Telles. However, we will not receive royalties on sales of Mirel or reimbursement for Telles-related expenses until Telles has sold at least one million pounds of Mirel manufactured at the Commercial Manufacturing Facility, meeting certain criteria specified in our agreement with ADM (the "First Commercial Sale"). Achievement of the First Commercial Sale milestone is subject to a number of risks and uncertainties and has taken longer than anticipated. In particular, the expected timing of the First Commercial Sale has been pushed back on several occasions for various reasons. In 2011, we extended the expected timing of meeting the First Commercial Sale milestone as a result of supply disruption of a third-party raw material currently needed to produce one of our Mirel product grades. In addition, we are working with customers to optimize the physical properties of the Mirel film product aimed at a specific segment of the agricultural market, which delayed anticipated sales associated with that product. While we currently anticipate that such supply disruption will be resolved and product optimization will be completed shortly, there is no assurance that we will meet the First Commercial milestone in the second half of 2011. Moreover, this goal is subject to numerous risks, uncertainties and assumptions, including that a significant portion of the sales needed to reach the First Commercial Sale milestone occur in the second half of 2011. Additionally, Telles currently has only limited customer commitments for commercial quantities of Mirel, and many prospective customers are currently evaluating and performing tests on Mirel prior to making large-scale purchase decisions. Moreover, our ability to meet the First Commercial Sale milestone is also dependent on our customers' ability to commercialize their products which use Mirel, which may never gain market acceptance. If these or other factors affect the ramp-up of commercial sales and delay the timing of achievement of our First Commercial Sale milestone, our stock price may be adversely affected.

Even if the First Commercial Sale milestone is achieved, we will not receive any distribution of profits from Telles until ADM has recouped its investment in the joint venture, including the costs of constructing the Commercial Manufacturing Facility. Specifically, ADM's cost of

constructing the Commercial Manufacturing Facility for the production of Mirel, the working capital requirements of the joint venture funded by ADM, and ADM's support payments to us have significantly 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, pursuant to the joint venture agreement, a preferential distribution of cash flow provision provides that all profits, after payment of all royalties, reimbursements and fees, from the joint venture will be distributed to ADM until ADM's disproportionate investment in the joint venture, including the costs of constructing the Commercial Manufacturing Facility, have been returned to ADM. In order to track the disproportionate investments ADM has made, a Ledger Account has been established to record the respective investments made by the parties. As of March 31, 2011, the balance of the ADM Ledger Account was approximately \$412 million and this is expected to increase, at least in the near-term. Even if Telles is successful in marketing and selling Mirel, its ability to generate profits will depend on a number of factors including whether we can successfully reduce manufacturing costs, whether we can expand manufacturing capacity, and the price that Telles can charge for Mirel products. Telles may never earn sufficient profits to pay down the Ledger Account, in which case we will never receive any profits from Telles. If that is the case, the royalty payments and compounding fees will be the only source of revenues from Mirel, which may not be sufficient to sustain our capital requirements.

Without ADM's continued involvement in Telles, we may not have the necessary financial or other resources to pursue the commercialization of Mirel. Under our agreement with ADM, ADM is free to terminate the agreement if a change in circumstances that is not reasonably within the control of ADM makes the anticipated financial return from the project inadequate or too uncertain, including the emergence of a superior technology, an increase in the projected costs of manufacturing, a decrease in the projected sales volume or a decrease in the projected sales price. If ADM terminates the agreement, we may be forced to search for another partner to pursue commercialization of Mirel and we may not be able to do so on commercially reasonable terms or at all.

Outside of Mirel, our 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. 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 our cost of production, the price we are able to charge for these products, and the emergence of competing product.

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. For example, the cities of San Francisco, Manhattan Beach, Malibu and Palo Alto in California, all have imposed bans on single-use non-biodegradable plastic bags. Similar laws have been

proposed or enacted in parts of Europe, China, Taiwan and India. The phasing out or elimination of these or similar laws and regulations may adversely affect the demand for Telles products, which could further delay any distribution of Telles profits to Metabolix.

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 Telles 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.

Risks relating to our Telles joint venture

The success or failure of Telles will materially affect our company's financial results.

We expect to receive payments from Telles for the compounding services we provide to Telles as well as royalty payments on sales of Telles products. The compounding payments and royalty payments are due to us as Telles sells product to its customers. Although Telles is a separate legal entity owned equally by us and ADM, ADM will disproportionately fund the activities of the joint venture. Specifically, ADM's cost of constructing the Commercial Manufacturing Facility for the production of Mirel, the working capital requirements of the joint venture funded by ADM, and ADM's support payments to us will exceed 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 provides that all profits, after payment of all royalties, reimbursements and fees, from the joint venture will be distributed to ADM until ADM's disproportionate investment in the joint venture, including the costs of constructing the Commercial Manufacturing Facility, have been returned to ADM. In order to track the disproportionate investments ADM has made, a Ledger Account has been established to record the respective investments made by the parties. As of March 31, 2011 the balance of the ADM Ledger Account was approximately \$412 million. We will not receive any distribution from the profits of the joint venture until ADM has recovered these amounts. Therefore, any factors that delay or reduce Telles' profits, including manufacturing, compounding or distribution difficulties or delays that affect the ramp-up of commercial sales, will materially impact our Company's financial results.

Additionally, if initial sales of Mirel are slower than anticipated, our financial results will be negatively affected. Telles will not begin to pay us royalties on sales of Mirel or reimburse us for the cost of services provided to Telles until the achievement of a milestone referred to in the Commercial Alliance Agreement as "First Commercial Sale." Achievement of this milestone requires the sale by Telles to third parties of at least one million pounds of Mirel manufactured at the Commercial Manufacturing Facility. Sales must meet certain criteria, including a

minimum order size, product must be accepted by the customers in accordance with the terms of their contracts, and payment must be received from the customer in order for such sales to contribute towards the First Commercial Sale milestone. Generally, new product applications require a long lead time and sufficient quantities of polymer for development and qualification before customers enter into sales commitments. Achievement of the First Commercial Sale milestone is taking longer than anticipated. If there are manufacturing, compounding or distribution difficulties or further delays that affect the ramp-up of commercial sales, our cost of Telles support activities will increase. We will incur additional unreimbursed product development, sales and marketing costs until the Commercial Phase of the alliance begins, and the revenue from sales, if any, of Mirel and the distribution of profits, if any, to us will be delayed.

Telles products may not achieve market success.

Telles currently has only limited customer commitments for commercial quantities of Mirel. Prospective customers are currently evaluating and performing tests on Mirel prior to making large-scale purchase decisions. Market acceptance of Mirel and future Telles 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.

Under the Commercial Alliance Agreement, Metabolix is responsible for providing Telles sales and marketing services. 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 with third parties. If we are unable to develop or obtain access to sales and marketing expertise, sales of Telles products, if any, may be adversely affected.

Telles faces and will face substantial competition.

Telles faces 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 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. Telles competitors include, but are not limited to, Kaneka and Tianan in the PHA plastic segment, NatureWorks, Mitsui Chemical, Toyota, Novamont, and Stanelco in PLA and starch-based biodegradables, as well as all of the producers of petroleum-based plastics. Many of Telles' 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 Telles. 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 Telles will be able to compete successfully against current or new competitors.

Telles manufacturing and compounding capacity may not be sufficient to keep up with demand in a timely or economical manner.

ADM's Commercial Manufacturing Facility for Mirel began operations in late 2009. The current and anticipated methods for manufacturing Mirel are highly complex processes in which a variety of difficulties may arise. We may not be able to resolve any such difficulties in a timely or cost effective fashion, if at all. We cannot assure you that ADM will be able to successfully manufacture Mirel at a scale consistent with customer demand in a timely or economical manner, or that the quality of the commercial product will be acceptable on a consistent basis.

Since commercial manufacturing of Mirel is still in its early stages, Mirel manufacturing costs are uncertain and may ultimately be higher than we expect. While we believe that manufacturing costs will be reduced over time as we and ADM gain manufacturing know-how and improve our technology, we cannot be sure that ADM can manufacture Mirel in an economical manner. If ADM fails to develop adequate manufacturing capacity and expertise or fails 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, we are responsible for the compounding of Telles products. 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.

ADM has completed construction of the initial phase of the Commercial Manufacturing Facility. We cannot assure you that ADM will provide the necessary funds to finance the remaining phases of construction or any improvements to or expansion of the Commercial Manufacturing Facility, or that we will be able to develop this manufacturing infrastructure in a timely or economical manner, or at all. ADM could experience financial or other setbacks unrelated to

our collaboration that could, nevertheless, adversely affect us. If the Commercial Manufacturing Facility is not constructed to its full design capacity of 110 million pounds, or does not achieve that capacity in actual operations, or if construction to full capacity is not completed in a timely manner, Mirel may not reach its full market potential because Telles may not be able to meet market demand for Mirel, and because Mirel manufacturing costs may not be economical. Also, the expansion of a commercial-scale manufacturing facility is complex and expensive. If demand for Mirel increases beyond the scope of the Commercial Manufacturing Facility being built to serve Telles, we may incur significant expenses in the expansion and/or construction of manufacturing facilities and increases in personnel in order to increase manufacturing capacity.

We rely heavily on ADM for the successful implementation of our joint venture.

We rely 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 access to raw materials.

Failure to maintain this arrangement or a failure in ADM's performance under the commercial alliance would have a materially adverse affect on our business and financial condition. ADM is permitted by contract to terminate the Commercial Alliance Agreement with 30 days notice if, based upon a change in circumstances beyond the reasonable control of ADM, the projected financial return from the commercial alliance is deemed by ADM to be either too uncertain or inadequate.

We cannot control ADM's performance or the resources they devote to our programs. We may not always agree with ADM, nor will we have control of their activities on behalf of any alliance. In the event of a disagreement with ADM, Telles performance may be adversely affected, programs may be delayed or terminated, or we may have to use funds, personnel, equipment, facilities and other resources that we have not budgeted to undertake certain activities on our own. It could also result in expensive arbitration or litigation, which may not be resolved in our favor. 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 Telles is unable to obtain raw materials in sufficient quantities or in a timely manner.

We anticipate that the production of Telles products will require large volumes of feedstock, initially corn sugar. ADM is the sole source of the dextrose (corn sugar) that is the primary feedstock for the production of Mirel, and our agreement with ADM limits Telles' ability to require the use of other sources of raw material. We cannot predict the future availability of such feedstock or be sure that ADM will be able to supply it in sufficient quantities or in a timely manner. Weather conditions have historically caused volatility in the corn market by causing crop failures or reduced harvests. Crop disease and pestilence can also occur from time to time and can adversely affect corn harvests. 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 corn sugar production is adversely affected by weather or other conditions, or if other raw materials cannot be obtained in sufficient quantities or at acceptable prices, Telles' ability to produce its products may be impaired, the cost of manufacturing Mirel formulations may increase, and our business will be adversely affected.

Our success will be influenced by the price of petroleum, the primary ingredient in conventional petroleum-based plastics, relative to corn sugar, the primary ingredient in Mirel.

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 is primarily manufactured using corn sugar, an agricultural feedstock. ADM currently supplies all required agricultural feedstock as part of our strategic alliance. If the price of corn or corn sugar were to dramatically increase 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 efforts to produce biobased plastics in crops have focused primarily on the genetic engineering required to cause the crops to aggregate plastic in the plant mass during the life cycle of the plant. We have not yet achieved a high enough concentration of plastic 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. We are currently focused on the genetic and process engineering required in connection with such programs. 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 in plant crops or producing chemicals through biological routes, given the stage of development of these programs. The anticipated methods for manufacturing biobased plastics 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 in plant crops or biosourced chemicals in an economical manner.

We may not be successful in identifying market needs for new technologies and developing new products to meet those needs.

The success of our business model depends on our ability to correctly identify market opportunities for biologically produced plastics, chemicals and energy. 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.

The materials and manufacturing technologies we research and develop are new and are steadily changing and advancing. The products that are derived from these technologies may not be applicable or compatible with the demands in existing markets. Our existing 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. Furthermore, we may not be able to identify new opportunities as they arise for our products since future applications of any given product may not be readily determinable, and we cannot reasonably estimate the size of any markets that may develop. If we are not able to successfully develop new products, we may be unable to increase our product revenues.

We face and will face substantial competition in several different markets that may adversely affect our results of operations.

The plastics and chemicals that we plan to develop will compete with other technologically innovative products as well as conventional petroleum-based plastics and chemicals. 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 we do. 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.

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 March 31, 2011, our accumulated deficit was approximately \$217 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 scale-up and commercialization of Mirel through our strategic alliance with ADM, and other future products through other partnerships or joint ventures, if any, with third parties and separately for our own account. In addition, if we are unable to develop, commercialize and further advance technologies relating to the production of biobased plastics in crops and 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 to perform research and product development and our inability to obtain additional research and development funding in connection with such products. In addition, 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 short-term investments of approximately \$52 million as of March 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, including Dr. Oliver Peoples, our Chief Scientific Officer. Dr. Peoples possesses unique information related to our research and technology. Dr. Peoples is one of our founders and has led and directed many of our scientific research and development programs. Dr. Peoples has such particular knowledge in the research, development and intellectual property aspects in connection with our technology platforms, that in the case of the loss of his services we may be unable to readily find a suitable replacement with comparable knowledge and experience necessary to further our research and development programs. The loss of key personnel with know-how related to our manufacturing technology may also adversely impact the achievement of our objectives. 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 affect on our research and development efforts and our business.

If we are unable to manage our growth effectively, our business could be adversely affected.

While historically we have focused the majority of our efforts on research and development of Mirel, we plan to grow by allocating resources to developing additional marketing and sales expertise, entering into additional collaborations with strategic partners, adding personnel with specific technological experience, and developing and commercializing additional products, such as chemicals and chemical intermediates from renewable resources. Our ability to grow in this manner will require that we manage a diverse range of relationships and projects, expand our personnel resources and facilities, and broaden our geographic presence. Our inability to do any of these could prevent us from successfully implementing our growth strategy, and our business could be adversely affected.

We believe that sustained growth at a higher rate will place a strain on our management, as well as on our other human resources. To manage this growth, we must continue to attract and retain qualified management, professional, scientific, technical and operating personnel. If we are unable to hire at the required rate, we may be unable to staff and manage projects adequately. This may slow the development process, and result in the commercialization of fewer products or compromise the quality of our work.

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 produced by genetically-engineered microbes using corn 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 plastics 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 renewable 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 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 and ADM 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 fines and 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.

Each segment of our operations is currently conducted at a single location, which makes us susceptible to disasters or other disruptions.

All commercial manufacturing of Mirel is being conducted by ADM at the Commercial Manufacturing Facility in Clinton, Iowa, and the majority of compounding services will initially be provided by a single toll compounding facility. A natural disaster or other business interruption at either of these sites could significantly impact Mirel production and sales. Our research and development operations are located at a single facility in Cambridge, Massachusetts. We take precautions to safeguard our facilities, including insurance, health and safety protocols, and off-site storage of critical research results and of computer data. However, a natural disaster, such as a fire, flood or earthquake, or a disruption due to mechanical failure, human error, business failure of a contractor, labor strikes, vandalism, or other causes, could damage or destroy our equipment, inventory, our microbial strains, plants or other biological materials, or result in the loss of data from our information technology systems. This could delay our research and development programs and could cause us to incur additional expenses. The insurance we maintain against natural disasters or business interruptions may not be adequate to cover our losses in any particular case.

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 and products sold by our licensees may involve product liability risks. Although we currently have product liability insurance covering claims up to \$4 million per occurrence and in the aggregate, and Telles has product liability insurance covering claims up to \$2 million per occurrence and \$50 million 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, we may go out of business.

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 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 and Telles' 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 agreement with ADM limits ADM's and our right to work with other parties or alone, in developing or commercializing certain PHAs produced through fermentation. This agreement does not, however, limit our right to develop, manufacture or sell biobased plastics, including PHAs, produced through plants such as switchgrass, sugarcane or oilseeds (rather than through fermentation) independent of the alliance. Complying with the exclusivity provisions of the commercial alliance may delay or limit our ability to negotiate arrangements with third parties for the development of products that are, or may be deemed to be, subject to the terms of the commercial alliance agreement.

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, which are owned by third parties, exist in areas relevant to biobased plastics, chemicals and energy, 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, including ramp up of Telles sales, 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:

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

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.

Risks related to this offering

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

We have not designated any portion of the net proceeds from this offering to be used for any particular purpose. Accordingly, our management will have broad discretion as to the application of the net proceeds from this offering, and could spend the proceeds in ways that do not necessarily improve our operating results or enhance the value of our common stock.

You will experience immediate dilution in the book value per share of the common stock you purchase.

Because the price per share of our common stock being offered is substantially higher than the book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. After giving effect to the sale by us of 4,750,000 shares of common stock in this offering, and based on a public offering price of \$7.51 per share in this offering and a pro forma net tangible book value of our common stock of \$49.9 million, or approximately \$1.57 per share, as of March 31, 2011, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$5.94 per share in the net tangible book value of the common stock. If the underwriters exercise their over-allotment option, you will experience additional dilution. See "Dilution" on page S-30 for a more detailed discussion of the dilution you will incur in connection with this offering.

Forward-looking statements

This prospectus supplement (including any document incorporated by reference herein or therein) contains statements with respect to us which constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the "safe harbor" created by those sections. Forward-looking statements, which are based on certain assumptions and reflect our plans, estimates and beliefs, can generally be identified by the use of forward-looking terms such as "believes," "expects," "may," "will," "should," "could," "seek," "intends," "plans," "estimates," "anticipates" or other comparable terms. 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 performance of those products; shipment and commercialization of current and future products, including expected timing of the commercialization of Mirel through our alliance with ADM and the volume of qualifying Mirel sales in the remainder of 2011; potential customers for current and future products; supply chain problem resolution; and the use of the proceeds of this offering. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed under the caption "Risk factors" in this prospectus supplement and in the documents incorporated by reference herein.

We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in company expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

You should read this prospectus supplement, the accompanying prospectus and the documents that we reference herein and therein completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus supplement and the accompanying prospectus supplement is accurate as of the date on the front cover of this prospectus supplement only. Our business, financial condition, results of operations and prospects may change. We may not update these forward-looking statements, even though our situation may change in the future, unless we have obligations under the Federal securities laws to update and disclose material developments related to previously disclosed information. We qualify all of the information presented in this prospectus supplement and the accompanying prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.

Use of proceeds

We estimate that the net proceeds from this offering will be approximately \$34.4 million (or \$39.4 million if the underwriters' over-allotment option is exercised in full) after deducting the underwriting discounts and commissions and estimated offering expenses.

We currently intend to use the estimated net proceeds from the sale of these securities for working capital and other general corporate purposes. Working capital and other general corporate purposes may include research and development expenditures, capital expenditures and commercialization expenditures. Examples may include expenditures aimed at accelerating time to market of our Industrial Chemicals platform and further commercialization of Mirel and research and development of our Crop-based Businesses platform. We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the sale of these securities. Pending any use, as described above, we intend to invest the net proceeds in high-quality, short-term, interest-bearing securities.

Price range of our common shares and dividends

Our common shares are listed on The NASDAQ Global Market under the symbol "MBLX." The following table sets forth, for the fiscal quarters indicated, the reported high and low intra-day sales prices per share of our common shares as reported by The NASDAQ Global Market.

| | High | Low |
|---------------------------------------|----------|---------|
| Year ended December 31, 2009: | | |
| First quarter | \$ 13.00 | \$ 4.62 |
| Second quarter | 8.61 | 6.20 |
| Third quarter | 12.08 | 7.00 |
| Fourth quarter | 13.45 | 8.63 |
| Year ended December 31, 2010: | | |
| First quarter | \$ 13.13 | \$ 8.83 |
| Second quarter | 17.12 | 10.03 |
| Third quarter | 18.44 | 10.01 |
| Fourth quarter | 15.39 | 9.92 |
| Year ending December 31, 2011: | | |
| First quarter | \$ 12.78 | \$ 7.77 |
| Second quarter (through May 17, 2011) | 10.95 | 7.03 |

On May 17, 2011, the last reported sale price of our common shares on The NASDAQ Global Market was \$7.51 per share.

As of March 4, 2010, the number of record holders of our common shares was approximately 67.

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.

Capitalization

The following table sets forth our consolidated cash, cash equivalents and short-term investments, current position of long-term obligations and capitalization as of March 31, 2011:

- on an actual basis; and
- on an adjusted basis after giving effect to our sale of 4,750,000 shares of common stock offered hereby at a public offering price of \$7.51 per share and after deducting the underwriting discounts and commissions and estimated offering expenses.

You should read this table along with our historical consolidated financial statements and related notes and the other financial information included and incorporated by reference in this prospectus supplement and the accompanying prospectus.

| (In thousands, except share data) | As of March 31, 2011 | |
|---|----------------------|-------------|
| | Actual | As adjusted |
| Cash, cash equivalents, and short-term investments | \$ 51,947 | \$ 86,337 |
| 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; 26,904,606 issued and outstanding, actual and shares issued and outstanding, adjusted | 269 | 317 |
| Additional paid-in capital | 231,710 | 266,053 |
| Accumulated other comprehensive loss | (2) | (2) |
| Accumulated deficit | (216,517) | (216,517) |
| Total stockholders' equity | 15,460 | 49,850 |
| Total capitalization | \$ 15,460 | \$ 49,850 |

Dilution

As of March 31, 2011, our unaudited net tangible book value was \$15,460, or approximately \$0.57 per share. Net tangible book value is total assets minus the sum of liabilities and intangible assets. Net tangible book value per share is net tangible book value divided by the total number of shares of common stock outstanding.

Net tangible book value dilution per share to new investors represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after completion of this offering. After giving effect to the sale of 4,750,000 shares of our common stock in this offering and deducting the underwriting discounts and commissions and our estimated offering expenses, our net tangible book value as of March 31, 2011 would have been \$1.57 per share. This amount represents an immediate increase in net tangible book value of \$1.00 per share to existing stockholders and an immediate dilution in net tangible book value of \$5.94 per share to purchasers of common stock in this offering, as illustrated in the following table:

| | |
|--|---------|
| Public offering price per share of common stock | \$ 7.51 |
| Net tangible book value per share as of March 31, 2011 | \$ 0.57 |
| Increase in net tangible book value per share after giving effect to this offering | \$ 1.00 |
| Pro forma net tangible book value per share as of March 31, 2011 after giving effect to the offering | \$ 1.57 |
| Dilution in net tangible book value per share to new investors | \$ 5.94 |

This table assumes no exercise of the underwriters' over-allotment option to purchase up to 712,500 additional shares of common stock from us. If the underwriters exercise this option in full, the as adjusted net tangible book value as of March 31, 2011 will increase to approximately \$1.70 per share, representing an increase to existing stockholders of approximately \$1.12 per share, and there will be an immediate dilution of approximately \$5.81 per share to new investors.

This table also assumes no exercise of (i) options to purchase 3,623,004 shares of common stock at a weighted average exercise price of \$11.02 per share outstanding as of March 31, 2011 or (ii) warrants to purchase 4,086 shares of our common stock at a weighted average exercise price of \$3.30 per share. To the extent that options or warrants are exercised, there will be further dilution to new investors.

Underwriting

We are offering the shares of common stock described in this prospectus supplement through a number of underwriters. J.P. Morgan Securities LLC is acting as sole book-running manager of the offering and as representative of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus supplement, the number of shares of common stock listed next to its name in the following table:

| Name | Number of shares |
|--|-------------------------|
| J.P. Morgan Securities LLC | |
| Stifel, Nicolaus & Company, Incorporated | |
| Total | 4,750,000 |

The underwriters are committed to purchase all the common shares offered by us if they purchase any shares, other than the over-allotment option shares described below. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the common shares directly to the public at the public offering price set forth on the cover page of this prospectus supplement and to certain dealers at that price less a concession not in excess of \$ per share to certain other brokers or dealers. The underwriters may allow, and such dealers may reallow, a concession not in excess of \$ per share to certain other brokers and dealers. After the public offering of the shares, the offering price and other selling terms may be changed by the underwriters.

The underwriters have an option to buy up to 712,500 additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this over allotment option. If any shares are purchased with this over-allotment option, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriters may sell up to approximately \$18 million of this offering to an existing shareholder who is an affiliate of a director and certain other directors and officers at the public offering price set forth on the cover page of this prospectus supplement. The underwriters will not receive any underwriting discounts or commissions on the sale of such shares. The number of shares that will be sold to these investors will depend on market conditions. We cannot provide any assurance as to the exact number of common shares that will be sold to such investors, if any. Any common shares not sold by the underwriters to such investors may be sold by the underwriters to other investors on the terms set forth in this prospectus supplement.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters (other than in connection with the sale of approximately \$18 million of this offering to directors and entities affiliated with us, for which no discounts or commissions will be paid), assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

| | Without over-allotment exercise | With full over-allotment exercise |
|-----------|--|--|
| Per share | \$ | \$ |
| Total | \$ | \$ |

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately \$0.2 million.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representative to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, sell, contract to sell, pledge or otherwise dispose of, directly or indirectly, or file with the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock, or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC for a period of 90 days after the date of this prospectus. Notwithstanding the foregoing, if (1) during the last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to our company occurs; or (2) prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event.

Our directors and executive officers have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each of these persons or entities, with limited exceptions, for a period of 90 days after the date of this prospectus, may not, without the prior written consent of J.P. Morgan Securities LLC, (1) offer, pledge, announce the intention to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock (including, without limitation, common stock which may be deemed to be beneficially owned by such directors or executive officers in accordance with the rules and regulations of the SEC

and securities which may be issued upon exercise of a stock option or warrant) or (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of common stock or such other securities, in cash or otherwise. Notwithstanding the foregoing, if (1) during the last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to our company occurs; or (2) prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event, unless J. P. Morgan Securities LLC. waives, in writing, such extension, except that such extension will not apply if, (i) within three business days prior to the 15th calendar day before the last day of the 90-day restricted period, we deliver a certificate, signed by our chief financial officer or our chief executive officer, certifying on our behalf that (i) shares of our common stock are "actively traded securities" (as defined in Regulation M of the Securities Act of 1933), (ii) we meet the applicable requirements of paragraph (a)(1) of Rule 139 under the Securities Act of 1933 in the manner contemplated by Financial Industry Regulatory Authority ("FINRA") Conduct Rule 2711(f)(4), and (iii) the provisions of FINRA Conduct Rule 2711(f)(4) are not applicable to any research reports relating to us published or distributed by the underwriters during the 15 days before or after the last day of the 90-day restricted period (before giving effect to such extension).

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

Our common stock is listed on the NASDAQ Global Select Market under the symbol "MBLX".

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of the common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be "covered" shorts, which are short positions in an amount not greater than the underwriters' over-allotment option referred to above, or may be "naked" shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their over-allotment option, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through their over-allotment option. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act of 1933, they may also engage in other activities that stabilize, maintain or otherwise affect the price of

the common stock, including the imposition of penalty bids. This means that if the representative of the underwriters purchases common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on the NASDAQ Global Select Market, in the over-the-counter market or otherwise.

In addition, in connection with this offering the underwriters (and selling group members) may engage in passive market making transactions in our common stock on the Nasdaq Global Select Market prior to the pricing and completion of this offering. Passive market making consists of displaying bids on the Nasdaq Global Select Market no higher than the bid prices of independent market makers and making purchases at prices no higher than these independent bids and effected in response to order flow. Net purchases by a passive market maker on each day are generally limited to a specified percentage of the passive market maker's average daily trading volume in the common stock during a specified period and must be discontinued when such limit is reached. Passive market making may cause the price of our common stock to be higher than the price that otherwise would exist in the open market in the absence of these transactions. If passive market making is commenced, it may be discontinued at any time.

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus supplement in any jurisdiction where action for that purpose is required. The securities offered by this prospectus supplement may not be offered or sold, directly or indirectly, nor may this prospectus supplement or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus supplement comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus supplement. This prospectus supplement does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus supplement in any jurisdiction in which such an offer or a solicitation is unlawful.

The underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, the underwriters and their affiliates may effect transactions for their own accounts or the accounts of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Selling restrictions

European economic area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State") an offer to the public of any shares which are the subject of the offering contemplated by this prospectus supplement may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any shares may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- (a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- (b) to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative for any such offer; or
- (c) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares shall result in a requirement for the publication by us or the representative of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase any shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State, and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

United Kingdom

The representative has represented and agreed that:

- (a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the shares in circumstances in which Section 21(1) of the FSMA does not apply to us; and
- (b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

Legal matters

Certain legal matters will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Davis Polk & Wardwell LLP, New York, New York, is counsel to the underwriters in connection with the offering.

Experts

The consolidated financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the year ended December 31, 2010 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where you can find more information

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act of 1933, as amended, and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement or the accompanying prospectus to any of our contracts, agreements or other documents, the reference may not be complete, and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference in this prospectus supplement and the accompanying prospectus for a copy of such contract, agreement or other document.

Because we are subject to the information and reporting requirements of the Securities Exchange Act of 1934, as amended, we file annual, quarterly and special reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov> or on our website at <http://www.metabolix.com> under the "Investor Relations" link. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

Incorporation of certain documents by reference

The SEC allows us to "incorporate by reference" information from other documents that we file with them, which means that we can disclose important information in this prospectus supplement and the accompanying prospectus by referring to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus, and information that we file later with the SEC will automatically update and supersede the information in this prospectus supplement and the accompanying prospectus. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act, as amended (other than Current Reports on Form 8-K containing information

furnished under Item 2.02 or Item 7.01 of Form 8-K, unless otherwise indicated therein). The documents we are incorporating by reference as of their respective dates of filing are:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, filed with the SEC on March 10, 2011;
- Portions of our Proxy Statement filed with the SEC on April 14, 2011 that have been incorporated by reference into our Annual Report on Form 10-K;
- Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2011, filed with the SEC on April 28, 2011;
- Our Current Report on Form 8-K, filed with the SEC on May 18, 2011; and
- The description of our common stock contained in Item 1 of our Registration Statement on Form 8-A filed with the SEC on November 6, 2006, including any amendments or reports filed for the purpose of updating the description (including the Form 8-A filed on July 8, 2009).

All documents and reports filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than Current Reports on Form 8-K containing information furnished under Item 2.02 or Item 7.01 of Form 8-K, unless otherwise indicated therein) after the date of this prospectus supplement and prior to the termination of the offering made hereby shall be deemed to be incorporated by reference into this prospectus supplement and the accompanying prospectus and to be a part hereof and thereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein or in the accompanying prospectus shall be deemed to be modified or superseded for purposes of this prospectus supplement and the accompanying prospectus to the extent that a statement contained herein or in the accompanying prospectus or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein or in the accompanying prospectus modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement or the accompanying prospectus.

We will provide, without charge to each person, including any beneficial owner, to whom this prospectus supplement is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated herein by reference other than exhibits, unless such exhibits specifically are incorporated by reference into such documents or this document. Requests for such documents should be addressed in writing or by telephone to:

Investor Relations
Metabolix, Inc.
21 Erie Street
Cambridge, MA 02139
(617) 583-1700

METABOLIX, INC.

\$100,000,000

Common Stock

Preferred Stock

Warrants

This prospectus relates to common stock, preferred stock and warrants that we may sell from time to time in one or more offerings up to a total public offering price of \$100,000,000 on terms to be determined at the time of sale. We will provide specific terms of these securities in supplements to this prospectus. You should read this prospectus and any supplement carefully before you invest. This prospectus may not be used to offer and sell securities unless accompanied by a prospectus supplement for those securities.

Our common stock is traded on The NASDAQ Global Market under the symbol "MBLX."

These securities may be sold directly by us, through dealers or agents designated from time to time, to or through underwriters or through a combination of these methods. See "Plan of Distribution" in this prospectus. We may also describe the plan of distribution for any particular offering of these securities in any applicable prospectus supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in a prospectus supplement. The net proceeds we expect to receive from any such sale will also be included in a prospectus supplement.

Investing in our securities involves a high degree of risk. See "Risk Factors" on page 5 of this prospectus. We may include additional risk factors in an applicable prospectus supplement under the heading "Risk Factors." You should review that section of the prospectus supplement for a discussion of matters that investors in our securities should consider.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus or any accompanying prospectus supplement. Any representation to the contrary is a criminal offense.

The date of this prospectus is April 28, 2011.

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YOU SHOULD RELY ONLY ON THE INFORMATION CONTAINED IN THIS PROSPECTUS, ANY PROSPECTUS SUPPLEMENT OR ANY DOCUMENT TO WHICH WE HAVE REFERRED YOU. WE HAVE NOT AUTHORIZED ANYONE ELSE TO PROVIDE YOU WITH INFORMATION THAT IS DIFFERENT. THIS PROSPECTUS AND ANY PROSPECTUS SUPPLEMENT MAY BE USED ONLY WHERE IT IS LEGAL TO SELL THESE SECURITIES. THE INFORMATION IN THIS PROSPECTUS OR ANY PROSPECTUS SUPPLEMENT IS CURRENT ONLY AS OF THE DATE ON THE FRONT OF THESE DOCUMENTS.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a "shelf" registration process. Under this shelf process, we may sell any combination of the securities described in this prospectus in one or more offerings up to a total public offering price of \$100,000,000 (or its equivalent in foreign or composite currencies). This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the securities being offered and the terms of that offering. The prospectus supplement may also add to, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with the additional information described under the heading "Where You Can Find More Information" carefully before making an investment decision.

Unless the context otherwise requires, in this prospectus, "Metabolix," "the Company," "we," "us," "our" and similar names refer to Metabolix, Inc. and its subsidiaries.

ABOUT METABOLIX, INC.

Metabolix is an innovation-driven bioscience company which is 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 biotechnology with chemical engineering and industrial practice.

Our first platform, which we are commercializing through Telles, LLC ("Telles"), a joint venture with Archer Daniels Midland Company, or ADM, is a proprietary, large-scale microbial fermentation system for producing a versatile family of polymers known as polyhydroxyalkanoates ("PHA's"), which we have branded under the name Mirel™. Through Telles, we are selling these bioplastics as biobased and biodegradable, but functionally equivalent, alternatives to petroleum-based plastics. Mirel offers superior biodegradability characteristics and can be used in a wide range of commercial applications, including products used in agriculture and horticulture, compost and organic waste diversion bags, marine and aquatic applications, consumer products, business equipment and durable goods, and general packaging materials. Mirel is now being produced in a commercial scale plant located in Clinton, Iowa (the "Commercial Manufacturing Facility") designed for an annual capacity of 110 million pounds. ADM completed construction of the initial phase of the Commercial Manufacturing Facility in 2009. The Commercial Manufacturing Facility produces biobased and biodegradable Mirel plastic using corn sugar, an abundant agriculturally-produced renewable resource.

To exploit our first technology platform, we are working closely with ADM to bring the Commercial Manufacturing Facility in Clinton, Iowa to the full 110 million pound annual design capacity in advance of customer demand for Mirel. The biodegradable bioplastics that this facility is now producing are superior to other bioplastics in several ways. They are highly versatile and range in properties from hard and stiff to soft and flexible. Mirel can withstand temperatures in excess of 100 oC, i.e., the boiling point of water, an important threshold. Some formulations of Mirel can withstand temperatures up to 130 oC. Mirel can be processed in many types of existing conventional polymer conversion equipment that is currently being used for petroleum-based plastic. While Mirel will biodegrade in marine and fresh water environments, it is resistant to reacting with cold or hot water over the intended life span of the product. Our current life cycle analysis (LCA) model for Mirel has identified the feasibility of reaching carbon neutrality using renewable energy sources in the manufacturing process. We are working with customers to determine the LCA for specific applications. These properties allow for a wide variety of commercial applications, offering a biobased alternative to petroleum-derived synthetic materials which are not biodegradable. In addition the use of Mirel will reduce petroleum dependence. Through Telles, we are positioning Mirel as a premium priced specialty

material catering to customers who want to match the functionality of petroleum-based plastic with the added dimension of environmental responsibility for their products and brands.

With ADM, we have conducted product and business development activities, including production of pre-commercial amounts of Mirel, working with potential customers, and initiating qualification trials of our material for selected customer applications. In addition, we have established commercial supply agreements with several Telles customers. We expect that our products will initially be sold to companies that are:

- establishing themselves as leaders of the emerging market trend toward environmentally responsible products and services;
- addressing current or anticipated regulatory pressure to shift to more sustainable products; and/or
- selling products in which biodegradability is a key functional requirement.

We have a pipeline of current and prospective customers that reflect each of these traits.

For our second platform, Industrial Chemicals, we intend to apply our core capabilities in microbial and process engineering to develop biological routes to other chemicals and chemical intermediates. Our initial focus is on the four-carbon ("C4") and three-carbon ("C3") chemical families, which, together, offer an addressable worldwide market size of over \$10 billion. 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. C4 chemicals are a large family of chemicals enabling a wide range of end use applications, including engineering resins, urethanes, solvents, and personal care products. We were able to achieve all of the technical milestones outlined in this grant. In 2010, we scaled up our C4 chemicals technology, and also achieved technical proof of concept for our C3 chemicals products. In 2011, we are focused on continuing development of the technology and assessing market feedback from potential customers. We also anticipate assessing market entry options and potential partnerships.

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 both bioplastics and bioenergy. 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 targets are oilseed crops, specifically camelina, switchgrass and sugarcane. 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 August 2010, we established a research company in Saskatchewan, Canada to further pursue our research with industrial oilseed crops. Also in 2010, we successfully conducted our first field trial of engineered camelina.
- *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.
- *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.

We believe that using these crops to co-produce bioplastics or chemicals with bioenergy products can offer superior economic value and productivity as compared to single product systems that produce them individually. In 2011, we will continue to advance the research and assess alternative commercialization models for our crop programs. We may also seek to establish alliances with partners to commercially exploit this platform.

As demonstrated by our technology platforms, we take an integrated systems approach to our technology development. We are focused on developing entire production systems from gene to end product as opposed to developing specific technologies (for example, gene sequencing, shuffling or directed evolution) or singular aspects of a product's production (for example, providing a key enzyme, catalyst or ingredient). We believe this systems approach optimizes manufacturing productivity and, when commercialized, will enable us to capture more economic value from any platform that we pursue.

CORPORATE INFORMATION

We were incorporated in Massachusetts in June 1992 under the name of Metabolix, Inc. In September 1998, we reincorporated in Delaware. Our principal executive offices are located at 21 Erie Street, Cambridge, Massachusetts 02139, and our telephone number is (617) 583-1700. Our worldwide web address is www.metabolix.com. The information on our website is not incorporated by reference into this prospectus supplement and should not be considered to be part of this prospectus supplement. 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 well as reports relating to our securities filed by others pursuant to Section 16 of such act, are available through the investor relations page of our Internet website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (the "SEC"). The SEC maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that website is <http://www.sec.gov>.

RISK FACTORS

Investing in our securities involves risk. The prospectus supplement applicable to each type or series of securities we offer will contain a discussion of the risks applicable to an investment in Metabolix and to the particular types of securities that we are offering under that prospectus supplement. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading "Risk Factors" in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under the heading "Risk Factors" included in our most recent annual report on Form 10-K, as revised or supplemented by our most recent quarterly report on Form 10-Q, each of which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and any accompanying prospectus supplement (including any document incorporated by reference herein or therein) contain statements with respect to the Company which constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the "safe harbor" created by those sections. Forward-looking statements, which are based on certain assumptions and reflect our plans, estimates and beliefs, can generally be

identified by the use of forward-looking terms such as "believes," "expects," "may," "will," "should," "could," "seek," "intends," "plans," "estimates," "anticipates" or other comparable terms. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed in "Risk Factors" in any prospectus supplement and in the documents incorporated by reference herein or therein.

We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in company expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

You should read this prospectus and any accompanying prospectus supplement and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus and any accompanying prospectus supplement is accurate as of the date on the front cover of this prospectus or such prospectus supplement only. Our business, financial condition, results of operations and prospects may change. We may not update these forward-looking statements, even though our situation may change in the future, unless we have obligations under the Federal securities laws to update and disclose material developments related to previously disclosed information. We qualify all of the information presented in this prospectus and any accompanying prospectus supplement, and particularly our forward-looking statements, by these cautionary statements.

USE OF PROCEEDS

We currently intend to use the estimated net proceeds from the sale of these securities for working capital and other general corporate purposes, and possibly acquisitions of other companies, products or technologies. Working capital and other general corporate purposes may include research and development expenditures, capital expenditures and any other purpose that we may specify in any prospectus supplement. While we have no current plans for any specific acquisitions at this time, we believe opportunities may exist from time to time to expand our current business through strategic alliances or acquisitions with other companies, products or technologies. We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the sale of these securities. Pending any use, as described above, we intend to invest the net proceeds in high-quality, short-term, interest-bearing securities. Our plans to use the estimated net proceeds from the sale of these securities may change, and if they do, we will update this information in a prospectus supplement.

RATIO OF EARNINGS TO FIXED CHARGES

The following table sets forth our ratio of earnings to fixed charges on a historical basis for the periods indicated. For purposes of this calculation, "earnings" consist of net loss from continuing operations plus fixed charges. "Fixed charges" consist of the sum of interest expense and the component of rental expense believed by management to be representative of the interest factor for those amounts.

| | Year ended December 31, | | | | |
|------------------------------------|-------------------------|---------|---------------|---------|---------|
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Ratio of Earnings to Fixed Charges | — | — | (in millions) | — | — |
| Coverage Deficiency | \$ 16.1 | \$ 27.9 | \$ 36.0 | \$ 38.0 | \$ 38.8 |

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with the additional information included in any applicable prospectus supplements, summarizes the material terms and provisions of these types of securities but is not complete. For the complete terms of our common stock and preferred stock, please refer to our Amended and Restated Certificate of Incorporation, as amended to date, which we refer to as our Certificate of Incorporation, and our Amended and Restated By-laws, which we refer to as our By-laws, each of which is incorporated by reference into the registration statement of which this prospectus is a part and, with respect to any new shares of preferred stock, the certificate of designation which will be filed with the SEC for each new series of preferred stock we may designate, if any.

General

We will describe in a prospectus supplement the specific terms of any common stock or preferred stock we may offer pursuant to this prospectus. If indicated in a prospectus supplement, the terms of such common stock or preferred stock may differ from the terms described below.

We have 105,000,000 shares of capital stock authorized under our Certificate of Incorporation, consisting of 100,000,000 shares of common stock, par value \$0.01 per share and 5,000,000 shares of undesignated preferred stock, par value \$0.01 per share. The authorized shares of common stock and undesignated preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange or automated quotation system on which our securities may be listed or traded. If the approval of our stockholders is not so required, our board of directors may determine not to seek stockholder approval.

Common Stock

As of December 31, 2010, there were 26,895,389 shares of our common stock outstanding held by 67 stockholders of record.

Holders of our common stock are entitled to one vote for each share of common stock held of record for the election of directors and on all matters submitted to a vote of stockholders. Holders of our common stock are entitled to receive dividends ratably, if any, as may be declared by our board of directors out of legally available funds, subject to any preferential dividend rights of any preferred stock then outstanding. Upon our dissolution, liquidation or winding up, holders of our common stock are entitled to share ratably in our net assets legally available after the payment of all our debts and other liabilities, subject to the preferential rights of any preferred stock then outstanding. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. However, each outstanding share of our common stock currently has attached to it one Preferred Stock Purchase

Right issued under the shareholder rights plan, which is summarized below. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future. Except as described below in "Provisions of our Certificate of Incorporation and By-Laws and Delaware Anti-Takeover Law," a majority vote of common stockholders is generally required to take action under our certificate of incorporation and by-laws.

Preferred Stock

Our board of directors is authorized, without action by the stockholders, to designate and issue up to an aggregate of 5,000,000 shares of preferred stock in one or more series of which 45,000 shares have been designated as Series A Junior Participating Cumulative Preferred Stock. The board of directors can fix the rights, preferences and privileges of the shares of each series and any of its qualifications, limitations or restrictions. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of common stock. The issuance of preferred stock, while providing flexibility in connection with possible future financings and acquisitions and other corporate purposes could, under certain circumstances, have the effect of delaying, deferring or preventing a change in control of our company and might harm the market price of our common stock. There are no restrictions on our ability to repurchase or reclaim our preferred shares while there is any arrearage in the payment of dividends on our preferred stock.

Our board of directors will make any determination to issue such shares based on its judgment as to our company's best interests and the best interests of our stockholders.

Provisions of our Certificate of Incorporation and By-Laws and Delaware Anti-Takeover Law

Our certificate of incorporation and by-laws includes a number of provisions that may have the effect of encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Board Composition and Filling Vacancies. In accordance with our certificate of incorporation, our board is divided into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also provides that directors may be removed only for cause and then only by the affirmative vote of the holders of 75% or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum.

No Written Consent of Stockholders. Our certificate of incorporation provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting.

Meetings of Stockholders. Our by-laws provide that only a majority of the members of our board of directors then in office may call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our by-laws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance Notice Requirements. Our by-laws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the

action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. The notice must contain certain information specified in the by-laws.

Amendment to By-Laws and Certificate of Incorporation. As required by the Delaware General Corporation Law, any amendment of our certificate of incorporation must first be approved by a majority of our board of directors and, if required by law or our certificate of incorporation, thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, directors, limitation of liability and the amendment of our by-laws and certificate of incorporation must be approved by not less than 75% of the outstanding shares entitled to vote on the amendment, and not less than 75% of the outstanding shares of each class entitled to vote thereon as a class. Our by-laws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the by-laws; and may also be amended by the affirmative vote of at least 75% of the outstanding shares entitled to vote on the amendment, or, if the board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

Blank Check Preferred Stock. Our certificate of incorporation provides for 5,000,000 authorized shares of preferred stock of which 45,000 shares have been designated as Series A Junior Participating Cumulative Preferred Stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Shareholder Rights Plan; Series A Junior Participating Cumulative Preferred Stock

On July 7, 2009, our board of directors adopted a shareholder rights plan, as set forth in the Shareholder Rights Agreement, dated July 7, 2009, between us and American Stock Transfer & Trust Company, LLC, as Rights Agent (the "Rights Agreement"). The Rights Agreement contains a "TIDE" provision, which requires an independent committee of our board of directors to review once every three years whether maintaining the Rights Agreement continues to be in the best interest of the stockholders. The following description of the terms of the Rights Agreement does not purport to be complete and is qualified in its entirety by reference to the Rights Agreement which is attached as an exhibit to our Current Report on Form 8-K as filed with the SEC on July 8, 2009 and is incorporated herein by reference.

Pursuant to the terms of the Rights Agreement, our board of directors declared a dividend distribution of one Preferred Stock Purchase Right (a "Right") for each outstanding share of our common stock, par value \$0.01 per share, (the "Common Stock") to stockholders of record as of the close of business on July 8, 2009 (the "Record Date"). In addition, one Right will automatically attach to each share of Common Stock issued between the Record Date and the Distribution Date (as hereinafter defined). Each Right entitles the registered holder thereof to purchase from us a unit

consisting of one ten-thousandth of a share (a "Unit") of our Series A Junior Participating Cumulative Preferred Stock, par value \$0.01 per share, (the "Preferred Stock") at a cash exercise price of \$80.00 per Unit (the "Exercise Price"), subject to adjustment, under certain conditions specified in the Rights Agreement and summarized below.

Initially, the Rights are not exercisable and are attached to and trade with all shares of Common Stock outstanding as of, and issued subsequent to, the Record Date. The Rights will separate from the Common Stock and will become exercisable upon the earlier of (i) the close of business on the tenth calendar day following the first public announcement that a person or group of affiliated or associated persons (an "Acquiring Person") has acquired beneficial ownership of 15% or more of the outstanding shares of Common Stock, other than as a result of repurchases of stock by us or certain inadvertent actions by a stockholder (the date of said announcement being referred to as the "Stock Acquisition Date"), or (ii) the close of business on the tenth business day (or such later day as our board of directors may determine) following the commencement of a tender offer or exchange offer that could result upon its consummation in a person or group becoming the beneficial owner of 15% or more of the outstanding shares of Common Stock (the earlier of such dates being herein referred to as the "Distribution Date").

In the event that a Stock Acquisition Date occurs, proper provision will be made so that each holder of a Right (other than an Acquiring Person or its associates or affiliates, whose Rights shall become null and void) will thereafter have the right to receive upon exercise, in lieu of a number of Units of Preferred Stock, that number of shares of our Common Stock (or, in certain circumstances, including if there are insufficient shares of Common Stock to permit the exercise in full of the Rights, Units of Preferred Stock, other securities, cash or property, or any combination of the foregoing) having a market value of two times the Exercise Price of the Right (such right being referred to as the "Subscription Right"). In the event that, at any time following the Stock Acquisition Date, (i) we consolidate with, or merges with and into, any other person, and we are not the continuing or surviving corporation, (ii) any person consolidates with us, or merges with and into us and we are the continuing or surviving corporation of such merger and, in connection with such merger, all or part of the shares of Common Stock are changed into or exchanged for stock or other securities of any other person or cash or any other property, or (iii) 50% or more of our assets or earning power is sold, mortgaged or otherwise transferred, each holder of a Right (other than an Acquiring Person or its associates or affiliates, whose Rights shall become null and void) will thereafter have the right to receive, upon exercise, common stock of the acquiring company having a market value equal to two times the Exercise Price of the Right (such right being referred to as the "Merger Right"). The holder of a Right will continue to have the Merger Right whether or not such holder has exercised the Subscription Right. Rights that are or were beneficially owned by an Acquiring Person may (under certain circumstances specified in the Rights Agreement) become null and void.

The Rights may be redeemed in whole, but not in part, at a price of \$0.001 per Right (payable in cash, Common Stock or other consideration deemed appropriate by our board of directors) by our board of directors only until the earlier of (i) the time at which any person becomes an Acquiring Person or (ii) the expiration date of the Rights Agreement. Immediately upon the action of our board of directors ordering redemption of the Rights, the Rights will terminate and thereafter the only right of the holders of Rights will be to receive the redemption price.

The Rights Agreement may be amended by our board of directors in its sole discretion at any time prior to the time at which any person becomes an Acquiring Person. After such time our board of directors may, subject to certain limitations set forth in the Rights Agreement, amend the Rights Agreement only to cure any ambiguity, defect or inconsistency, to shorten or lengthen any time period, or to make changes that do not adversely affect the interests of Rights holders (excluding the interests of an Acquiring Person or its associates or affiliates). In addition, our board of directors may at any time prior to the time at which any person becomes an Acquiring Person, amend the Rights Agreement

to lower the threshold at which a person becomes an Acquiring Person to not less than the greater of (i) the sum of 0.001% and the largest percentage of the outstanding Common Stock then owned by any person and (ii) 10%.

Until a Right is exercised, the holder will have no rights as a stockholder of the Company (beyond those as an existing stockholder), including the right to vote or to receive dividends. While the distribution of the Rights will not be taxable to stockholders or to us, stockholders may, depending upon the circumstances, recognize taxable income in the event that the Rights become exercisable for Units, other securities of ours, other consideration or for common stock of an acquiring company.

The Rights are not exercisable until the Distribution Date and will expire at the close of business on July 8, 2019, unless previously redeemed or exchanged by us.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of preferred stock or common stock. Warrants may be issued independently or together with preferred stock or common stock and may be attached to or separate from any offered securities. Each series of securities warrants will be issued under a separate warrant agreement to be entered into between us and a warrant agent. The securities warrant agent will act solely as our agent in connection with the securities warrants and will not assume any obligation or relationship of agency or trust for or with any registered holders of securities warrants or beneficial owners of securities warrants. This summary of some provisions of the securities warrants is not complete. You should refer to the securities warrant agreement, including the forms of securities warrant certificate representing the securities warrants, relating to the specific securities warrants being offered for the complete terms of the securities warrant agreement and the securities warrants. That securities warrant agreement, together with the terms of securities warrant certificate and securities warrants, will be filed with the SEC in connection with the offering of the specific securities warrants.

The particular terms of any issue of securities warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the title of such warrants;
- the aggregate number of such warrants;
- the price or prices at which such warrants will be issued;
- the currency or currencies (including composite currencies) in which the price of such warrants may be payable;
- the terms of the securities purchasable upon exercise of such warrants and the procedures and conditions relating to the exercise of such warrants;
- the price at which the securities purchasable upon exercise of such warrants may be purchased;
- the date on which the right to exercise such warrants will commence and the date on which such right shall expire;
- any provisions for adjustment of the number or amount of securities receivable upon exercise of the warrants or the exercise price of the warrants;
- if applicable, the minimum or maximum amount of such warrants that may be exercised at any one time;
- if applicable, the designation and terms of the securities with which such warrants are issued and the number of such warrants issued with each such security;

- if applicable, the date on and after which such warrants and the related securities will be separately transferable;
- information with respect to book-entry procedures, if any; and
- any other terms of such warrants, including terms, procedures and limitations relating to the exchange or exercise of such warrants.

The prospectus supplement relating to any warrants to purchase equity securities may also include, if applicable, a discussion of certain U.S. federal income tax and ERISA considerations.

Securities warrants for the purchase of preferred stock and common stock will be offered and exercisable for U.S. dollars only. Securities warrants will be issued in registered form only.

Each securities warrant will entitle its holder to purchase the number of shares of preferred stock or common stock at the exercise price set forth in, or calculable as set forth in, the applicable prospectus supplement.

After the close of business on the expiration date, unexercised securities warrants will become void. We will specify the place or places where, and the manner in which, securities warrants may be exercised in the applicable prospectus supplement.

Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will, as soon as practicable, forward the purchased securities. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Prior to the exercise of any securities warrants to purchase preferred stock or common stock, holders of the securities warrants will not have any of the rights of holders of preferred stock or common stock purchasable upon exercise, including the right to vote or to receive any payments of dividends on the preferred stock or common stock purchasable upon exercise.

PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus directly to purchasers, to or through underwriters, through dealers or agents, or through a combination of such methods. The prospectus supplement with respect to the securities being offered will set forth the terms of the offering of those securities, including the names of the underwriters, dealers or agents, if any, the purchase price, the net proceeds to us, any underwriting discounts and other items constituting underwriters' compensation, the public offering price, any discounts or concessions allowed or reallocated or paid to dealers and any securities exchanges on which such securities may be listed.

If underwriters are used in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. The securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more investment banking firms or others, as designated. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to

purchase the offered securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the offered securities if any are purchased.

We may grant to the underwriters options to purchase additional securities to cover over-allotments, if any, at the public offering price, with additional underwriting commissions or discounts, as may be set forth in a related prospectus supplement. The terms of any over-allotment option will be set forth in the prospectus supplement for those securities.

If any underwriters are involved in the offer and sale, they will be permitted to engage in transactions that maintain or otherwise affect the price of the securities. These transactions may include over-allotment transactions, purchases to cover short positions created by the underwriter in connection with the offering and the imposition of penalty bids. If an underwriter creates a short position in the securities in connection with the offering by selling more securities than set forth on the cover page of the applicable prospectus supplement, the underwriter may reduce that short position by purchasing the securities in the open market. In general, purchases of a security to reduce a short position could cause the price of the security to be higher than it might be in the absence of such purchases. As noted above, underwriters may also choose to impose penalty bids on other underwriters and/or selling group members. This means that if underwriters purchase securities on the open market to reduce their short position or to stabilize the price of the securities, they may reclaim the amount of the selling concession from those underwriters and/or selling group members who sold such securities as part of the offering.

Neither we nor any underwriter make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of such securities. In addition, neither we nor any underwriter make any representation that such underwriter will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

If dealers are used in an offering, we will sell the securities to the dealers as principals. The dealers then may resell the securities to the public at varying prices which they determine at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

The securities may be sold directly by us or through agents we designate from time to time at a fixed price or prices, which may be changed, or at varying prices determined at the time of sale. If agents are used in an offering, the names of the agents and the terms of the agency will be specified in a prospectus supplement. Unless otherwise indicated in a prospectus supplement, the agents will act on a best-efforts basis for the period of their appointment.

Dealers and agents named in a prospectus supplement may be deemed to be underwriters (within the meaning of the Securities Act of 1933, also referred to in this prospectus as the "Securities Act") of the securities described therein. In addition, we may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any resales thereof.

Underwriters, dealers and agents may be entitled to indemnification by us against specific civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the underwriters or agents may be required to make in respect thereof, under underwriting or other agreements. The terms of any indemnification provisions will be set forth in a prospectus supplement. Certain underwriters, dealers or agents and their associates may engage in transactions with and perform services for us in the ordinary course of business.

If so indicated in a prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by institutional investors to purchase securities pursuant to contracts providing for payment and delivery on a future date. We may enter into contracts with commercial and

savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutional investors. The obligations of any institutional investor will be subject to the condition that its purchase of the offered securities will not be illegal at the time of delivery. The underwriters and other agents will not be responsible for the validity or performance of such contracts.

Any common stock sold pursuant to a prospectus supplement will be eligible for quotation and trading on NASDAQ, subject to official notice of issuance. Any underwriters to whom securities are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In order to comply with the securities laws of some states, if applicable, the securities offered hereby will be sold in those jurisdictions only through registered or licensed brokers or dealers. In addition, in some states securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and complied with.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. If the securities are being distributed in an underwritten offering, certain legal matters will be passed upon for the underwriters by counsel identified in the applicable prospectus supplement.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2010 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are a public company and file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room. Our SEC filings are also available to the public on the SEC's website at <http://www.sec.gov>, or on our website at <http://www.metabolix.com> under the "Investor Relations" link. Information contained on our website is not part of this prospectus.

This prospectus is only part of a Registration Statement on Form S-3 that we have filed with the SEC under the Securities Act of 1933, as amended, and therefore omits certain information contained in the Registration Statement. We have also filed exhibits with the Registration Statement that are excluded from this prospectus, and you should refer to the applicable exhibit for a complete description of any statement referring to any contract or other document. You may:

- inspect a copy of this prospectus, including the exhibits and schedules, without charge at the public reference room;
- obtain a copy of this prospectus from the SEC upon payment of the fees prescribed by the SEC; or
- obtain a copy of this prospectus from the SEC website.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information from other documents that we file with them, which means that we can disclose important information in this prospectus by referring to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended. The documents we are incorporating by reference as of their respective dates of filing are:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, filed with the SEC on March 10, 2011;
- Portions of our Proxy Statement filed with the SEC on April 14, 2011 that have been incorporated by reference into our Annual Report on Form 10-K;
- All other reports filed pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") since December 31, 2010; and
- The description of our common stock contained in Item 1 of our Registration Statement on Form 8-A filed with the SEC on November 6, 2006, including any amendments or reports filed for the purpose of updating the description.

All documents and reports filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than Current Reports on Form 8-K containing only information furnished under Item 2.02 or Item 7.01 of Form 8-K, unless otherwise indicated therein) after the date of this prospectus and prior to the termination of the offering made hereby shall be deemed to be incorporated by reference into this prospectus and to be a part hereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein or in any prospectus supplement modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide, without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated herein by reference other than exhibits, unless such exhibits are specifically incorporated by reference into such documents or this document. Requests for such documents should be addressed in writing or by telephone to:

Investor Relations
Metabolix, Inc.
21 Erie Street
Cambridge, MA 02139
(617) 583-1700

You should rely only on the information contained in this prospectus, any prospectus supplement or any document to which we have referred you. We have not authorized anyone else to provide you with information that is different. This prospectus and any prospectus supplement may be used only where it is legal to sell these securities. The information in this prospectus or any prospectus supplement is current only as of the date on the front of these documents.

4,750,000 shares



Metabolix, Inc.

Common Stock

Prospectus

Sole Book-Running Manager

J.P. Morgan

Co-Manager

Stifel Nicolaus Weisel
