

# YIELD10 BIOSCIENCE, INC.

## FORM 10-K (Annual Report)

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
FORM 10-K**

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

For the fiscal year ended December 31, 2016 ;

or

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

Commission File Number 001-33133

**YIELD10 BIOSCIENCE, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**

(State or other jurisdiction of  
incorporation or organization)

**04-3158289**

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

**19 Presidential Way, Woburn, MA**  
(Address of principal executive offices)

**01801**  
(Zip Code)

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

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

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

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

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

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

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

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a  
smaller reporting company)

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold on the NASDAQ Capital Market on June 30, 2016 was \$7,869,303.

The number of shares outstanding of the registrant's common stock as of March 17, 2017 was 28,402,471.

**DOCUMENTS INCORPORATED BY REFERENCE**

None

**YIELD10 BIOSCIENCE, INC.**  
**ANNUAL REPORT ON FORM 10-K**  
**For the Year Ended December 31, 2016**  
**INDEX**

	<u>Page</u>	
<b><u>PART I.</u></b>		
<a href="#">Item 1</a>	<a href="#">Business</a>	3
<a href="#">Item 1A</a>	<a href="#">Risk Factors</a>	19
<a href="#">Item 1B</a>	<a href="#">Unresolved Staff Comments</a>	29
<a href="#">Item 2</a>	<a href="#">Properties</a>	29
<a href="#">Item 3</a>	<a href="#">Legal Proceedings</a>	30
<a href="#">Item 4</a>	<a href="#">Mine Safety Disclosures</a>	30
<b><u>PART II.</u></b>		
<a href="#">Item 5</a>	<a href="#">Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</a>	30
<a href="#">Item 6</a>	<a href="#">Selected Financial Data</a>	32
<a href="#">Item 7</a>	<a href="#">Management's Discussion and Analysis of Financial Condition and Results of Operations</a>	32
<a href="#">Item 7A</a>	<a href="#">Quantitative and Qualitative Disclosures About Market Risk</a>	38
<a href="#">Item 8</a>	<a href="#">Financial Statements and Supplementary Data</a>	38
<a href="#">Item 9</a>	<a href="#">Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</a>	38
<a href="#">Item 9A</a>	<a href="#">Controls and Procedures</a>	38
<a href="#">Item 9B</a>	<a href="#">Other Information</a>	39
<b><u>PART III.</u></b>		
<a href="#">Item 10</a>	<a href="#">Directors, Executive Officers and Corporate Governance</a>	40
<a href="#">Item 11</a>	<a href="#">Executive Compensation</a>	44
<a href="#">Item 12</a>	<a href="#">Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</a>	50
<a href="#">Item 13</a>	<a href="#">Certain Relationships and Related Transactions, and Director Independence</a>	52
<a href="#">Item 14</a>	<a href="#">Principal Accounting Fees and Services</a>	52
<b><u>PART IV.</u></b>		
<a href="#">Item 15</a>	<a href="#">Exhibits and Financial Statement Schedules</a>	53
<a href="#">Item 16</a>	<a href="#">Form 10-K Summary</a>	57
	<a href="#">SIGNATURES</a>	57

## **Forward Looking Statements**

This annual report on Form 10-K contains "forward-looking statements" within the meaning of 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements relate to our future plans, objectives, expectations and intentions and may be identified by words such as "may," "will," "should," "expects," "plans," "anticipate," "intends," "target," "projects," "contemplates," "believe," "estimates," "predicts," "potential," and "continue," or similar words.

Although we believe that our expectations are based on reasonable assumptions within the limits of our knowledge of our business and operations, the forward-looking statements contained in this document are neither promises nor guarantees. Our business is subject to significant risks and uncertainties and there can be no assurance that our actual results will not differ materially from our expectations. These forward looking statements include, but are not limited to, statements concerning our business plans and strategies; the expected results of our strategic restructuring to focus on Yield10 Bioscience as our core business; expected future financial results and cash requirements; plans for obtaining additional funding; plans and expectations that depend on our ability to continue as a going concern; and plans for development and commercialization of our Yield10 technologies. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated including, without limitation, risks related to our limited cash resources, uncertainty about our ability to secure additional funding, risks and uncertainties associated with our restructuring plans, risks related to the execution of our business plans and strategies, risks associated with the protection and enforcement of our intellectual property rights, as well as other risks and uncertainties set forth below under the caption "Risk Factors" in Part I, Item 1A, of this report.

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

Unless the context otherwise requires, all references in this Annual Report on Form 10-K to "Yield10 Bioscience," "we," "our," "us," "our company" or "the company" refer to Yield10 Bioscience, Inc., a Delaware corporation and its subsidiaries.

## **PART I**

### **ITEM 1. BUSINESS**

#### **Overview**

Yield10 Bioscience, Inc. is an agricultural bioscience company focusing on the development of new technologies to enable step-change increases in crop yield to enhance global food security. We consider 10-20 percent increases in crop yield to be step-change increases. According to a United Nations report, food production must be increased by over 70 percent in the next 35 years to feed the growing global population, which is expected to increase from 7 billion to more than 9.6 billion by 2050. During that time period, there will be a reduction in available arable land as a result of infrastructure growth and increased pressure on scarce water resources. Harvestable food production per acre and per growing season must be increased to meet this demand.

Yield10 is using two proprietary advanced biotechnology trait gene discovery platforms to improve fundamental crop yield through enhanced photosynthetic carbon capture and increased carbon utilization efficiency to increase seed yield. These platforms are based on the principle that plants which capture and utilize carbon more efficiently will enable more robust crops capable of increased seed yield. Yield10 is working to develop, translate and demonstrate the commercial value of new genetically engineered yield trait genes, identified in our discovery platforms, in major crops and to identify additional genome editing targets for improved crop performance in several key food and feed crops, including canola, soybean, rice and corn. Yield10 Bioscience is headquartered in Woburn, Massachusetts and has an additional agricultural science facility with greenhouses in Saskatoon, Saskatchewan, Canada.

Yield10 Bioscience was founded as Metabolix, Inc. in 1992 and originally focused on redirecting carbon flow in living systems to produce bioplastics and biobased chemicals. In 1997, Metabolix started a crop science research program with the intent to produce the microbial bioplastic polyhydroxybutyrate ("PHB") in high concentration in the seeds of oilseed crops or in the leaves of biomass crops where it acts as an additional carbon sink or carbon store. As we made progress on our crop program, we learned that the rate of carbon supply from photosynthesis was a bottleneck to the effective utilization of

carbon, and we initiated a series of exploratory programs to develop new technologies to fundamentally increase the plants' ability to fix and capture more carbon. These early research programs resulted in the establishment of our crop yield trait gene discovery platforms and the identification of a series of promising proprietary yield trait genes.

Based on encouraging early results from these gene discovery programs, we refocused our crop science efforts to yield improvement in major food and feed crops in 2015 and rebranded the effort as Yield10 Bioscience. In 2016, we sold our biopolymers assets and restructured the Company around our crop science mission. In January 2017, we completed this transition and changed the name of the company to Yield10 Bioscience, Inc. We are developing proprietary, breakthrough plant biotechnologies to improve crop productivity and seed yield based on two proprietary discovery platforms:

- the “Smart Carbon Grid for Crops Platform,” — in which we are working to eliminate bottlenecks in plant photosynthesis and carbon metabolism by harnessing new metabolic capabilities from non-plant systems including microbes and algae, and;
- the “T3 Platform,” — in which we have identified three powerful global regulator genes in plants which control complex regulatory networks and gene cascades resulting in step-change increases in photosynthetic carbon fixation and biomass yields. Molecular genomic analysis of high yielding plants developed using these genes has identified a series of additional crop trait gene targets. Genetic engineering of this new series of crop trait gene targets can be accomplished using only DNA sequences from the crop target species or through genome editing, potentially reducing regulatory costs and timelines.

In our work to date, our team has demonstrated step-change yield increases in Camelina seed production and in switchgrass biomass production. We are currently progressing the development of our lead yield trait genes in canola, soybean, rice and corn to provide step-change crop yield solutions for enhancing global food security.

With these two platforms, we have established a series of proprietary trait genes to enhance carbon dioxide capture and fixation in both C3 and C4 photosynthetic plants for yield improvement. C3 photosynthesis, the simplest type of plant photosynthetic system, exists in most agricultural crops used for human consumption, and includes canola, soybean, rice, wheat and potato. C4 photosynthesis is a more complex system. Plants using the C4 system have evolved an additional distinctive cellular structure, in which carbon dioxide is concentrated for the main photosynthesis enzyme RUBISCO through a series of metabolic and metabolite transports known as the C4 pathway. Corn and sugarcane are part of the C4 photosynthetic plant family. In general, C4 photosynthetic plants have up to five times inherently higher plant yield than plants in the C3 photosynthetic family. This difference in plant yield is a result of evolution, which has led plant scientists to consider the possibility that new genetic enhancements can be created to fundamentally improve the photosynthetic system in C3 plants.

Over the last 18 months, we have consolidated our crop science intellectual property position with approximately ten patent filings in prosecution, identified additional novel gene targets for improving crop performance and yield through genetic engineering or genome editing, formed a scientific advisory board with leaders in plant science, conducted several greenhouse studies and conducted our first Fast Field Testing of traits from our “Smart Carbon Grid for Crops” discovery platform. We have reported encouraging data for our lead yield trait gene, C3003 in Camelina from greenhouse and field tests and are conducting additional studies in Camelina, canola, soybean and rice.

Crop yield is the primary driver of the agriculture value chain. Yield can make the difference between a profitable season and losses for growers. As such, technologies to protect crop yield or increase it are the primary determinant of the seed buying decision by growers at the start of the season. This in turn determines both revenue and market share for the major seed players. Yield10's goal is to discover, optimize and translate our yield trait gene innovations into major food and feed crops and demonstrate the economic value to growers and seed companies. In all cases our trait genes will be introduced using genetic engineering technologies either to introduce new genes, to introduce additional copies of genes from the same crop species with modified regulatory sequences from that crop species or by using genome editing technologies to reduce or eliminate the function of specific plant gene targets in individual crops. The method by which we deploy our yield trait genes has significant regulatory implications, which, in turn can affect the timelines and cost of their commercialization. We intend to create high-value assets in the form of proprietary yield gene technologies and to de-risk these assets by progressing them along the path to commercial development with increasingly larger scale field tests and multi-site field trials in major crops. We are deploying our yield trait genes into canola, soybean and corn. We are engineering these traits into the major crops with the goal that they will be suitable for the regulatory approval process and in crop varieties (germplasm) such that our traits can be readily introduced into the industry's elite crop lines by plant breeding.

## **The Unmet Need: Global Population Growth Outpacing Anticipated Global Food Supply**

Yield10 is targeting a critical unmet need in agriculture based on the future disconnect between agricultural supply and the growing global population. According to a United Nations study, the global population is expected to exceed 9.6 billion people by 2050 and therefore there is a need to increase global food production to meet this demand. This will need to be achieved in the face of increased pressure on land and water resources in addition to increasingly variable weather patterns. Solving this problem is a major global challenge requiring new crop innovation and technologies to fundamentally enhance crop productivity.

### **The Yield Gap**

According to several studies described in an article published in the Public Library of Science in 2013, crop yields may no longer be increasing in different regions of the globe, and current rates of crop yield increase are expected to fall significantly behind the levels needed to meet the demand for global food production. The researchers found that the top four global crops - maize (corn), rice, wheat and soybean - are currently witnessing average yield improvements of only between 0.9 to 1.6 percent per year, far slower than the required rates to double their production by 2050 solely from incremental yield gains. At these rates, global production of maize, rice, wheat and soybean crops may be required to increase by about 67 percent, 42 percent, 38 percent and 55 percent, respectively, by 2050, in order to meet the anticipated increase in demand for food production caused by population growth. For corn and soybean, the benefits of currently available Genetic Modification ("GM") traits were already factored into the data cited in the studies referenced above. The yield increases needed to meet the demands of the growing global population show that a significant "yield gap" exists for each of the crops evaluated in the study.

Yield10 is focused on addressing the yield gap for major crops by utilizing modern biotechnology strategies, including metabolic engineering (synthetic biology approaches) to "build better plants," in which technology is deployed to make the process of photosynthesis within plants more efficient at capturing atmospheric carbon and depositing that carbon in seed or biomass, with the effect of improving the overall yield of important food crops. Enhancement of the photosynthetic capacity of major crops is fundamentally important to crop science and an essential first step to increase the seed and/or biomass yield of plants and, therefore, food production. We have been working on the area of increasing photosynthetic carbon capture and crop yield technologies since 2012. As a result, we have identified a number of exciting genes for increasing yield or improving crop performance.

### **Business Strategy**

Our goal is to build a successful agricultural biotechnology company centered on demonstrating the value of our yield traits in major food and feed crops. We have identified and are evaluating novel yield trait genes that we have discovered using our two technology platforms. We believe we have extensive and unique metabolic engineering capabilities that can be deployed to help address the growing global yield gap in food and feed crops. As the primary driver of financial returns each season, crop yield is the key decision variable for farmers in making seed buying decisions, and as a result is critical to the seed industry. Improvements in yield to the levels targeted by Yield10, for example 10-20 percent increases, can be expected to generate significant value to the seed and crop industry. For example, Yield10 is targeting an approximately 20 percent increase in canola and soybean yields, which, if successfully deployed across North American acreage, would result in annual incremental crop value of \$10 billion. By ultimately increasing the output of major food and feed crops and potentially reducing strains on scarce natural resources, we believe that Yield10's technologies will also contribute to addressing global food security.

Recognizing the highly concentrated nature of the seed business, the prevalence of cross-licensing of traits, and the need to stack multiple crop traits in elite seed germplasm to provide the best options for farmers, Yield10 does not expect to become an integrated seed company. The current major seed players dominate the GM crop space based largely on the early technology innovations that resulted in herbicide and pest resistance traits and have a very successful operating track record in the sector. Therefore, rather than replicating the downstream elements of these operations and developing our own regulatory, crop breeding or seed production capabilities, we intend to seek industry collaborations and partnerships to leverage these existing core competencies of the current seed industry. Yield10 will focus on its core competency, which is breakthrough science and technology innovation.

Yield10 plans to build on its core strengths bringing new technology approaches to exploit an innovation gap in the agricultural biotechnology space due to reduced investment in basic research and development resulting from the ongoing consolidation and restructuring in the agricultural sector. Yield10's mission is to translate and optimize our step-change yield

trait innovations into the major food and feed crops, and demonstrate their economic value to farmers and seed companies. We intend to create high-value assets in the form of proprietary yield trait gene technologies and to de-risk these assets by progressing them along the path to commercial development with increasingly larger scale field tests and multi-site field trials in major crops. We are currently deploying our yield trait genes into canola, soybean and corn, by designing and progressing genetically engineered events suitable for the regulatory approval process which can be readily bred into the industry's elite crop lines by plant breeding. We expect the customers for Yield10's innovations to be the large and mid-size agricultural companies that would either license or acquire rights to Yield10's yield trait genes and incorporate them into their proprietary commercial crop lines for subsequent commercialization.

***We are focused on identifying and developing technologies that will enable us to produce step-change improvements to crop yield.***

Yield10 is targeting a critical unmet need in agriculture based on the anticipated disconnect between agricultural supply and the growing global population. Food production must be increased by over 70 percent in the next 35 years to feed the growing global population, which is expected to increase from 7 billion to more than 9.6 billion by 2050. Global climate change is also resulting in regional shifts to historical growing conditions. Given the projection for population growth, recent studies show a "yield gap" for major food and feed crops that studies show cannot be addressed by incremental improvements to yield brought about by traditional plant breeding and existing GM traits. Current GM traits in the industry are based primarily on using microbial-sourced genes to impart yield protection through herbicide, pest, disease and even drought resistance, whereas Yield10 is focused on increasing fundamental crop yield through enhanced carbon capture and utilization.

Yield10 is fundamentally focused on "building better plants" based on using genetic engineering technologies to deploy new yield trait genes that improve the efficiency of photosynthesis and the efficiency of converting fixed carbon to seed and/or introducing targeted genetic changes in the plant genome that allow the plant to make more seed or biomass.

### ***Our History***

***We have a significant track record and expertise in the metabolic engineering of microbes and have made significant progress translating this capability to plants.***

As part of the legacy biopolymers and biobased chemicals business of our predecessor company Metabolix, our research team developed an advanced metabolic engineering capability to alter key biochemical pathways and redirect the flow of carbon metabolic intermediates in microbes resulting in the production of the biomaterial polyhydroxyalkanoate or PHA, at a level of more than 80 to 90 percent by weight of microbial cells that normally did not produce any PHA. Through our experience producing PHA in plants we have demonstrated that our experience with re-engineering the metabolism of microbes can be translated to "building better plants." In 1997, Metabolix initiated a crop science research program to produce renewable bioplastics and chemicals from agricultural crops. Historically, these efforts were focused on producing PHB, a microbial carbon storage biopolymer, in high concentration in the seeds of oilseed crops or in the leaves of biomass crops such as switchgrass.

As we made progress on producing PHB in plants, we learned that basic carbon supply from photosynthesis was a bottleneck. To address this carbon shortfall, we began developing new metabolic engineering and bioinformatics approaches to enhancing basic crop photosynthetic carbon capture. Discoveries from these two approaches became the foundation of our "Smart Carbon Grid for Crops" and "T3 Platform" crop trait discovery platforms, respectively. We also began building intellectual property on novel yield trait gene technologies discovered in these programs. Photosynthesis is the most important biological process responsible for global food production. For example, according to the USDA, the output of U.S. farms contributed \$177 billion, or one percent, to GDP in 2014. Improving the photosynthetic capacity of plants is an essential first step to increase the performance of crops to increase seed and/or biomass yield and, therefore, food production. We must develop plants which on a per acre basis during the growing season fix more carbon and ultimately target that additional fixed carbon to seed. Key to achieving this is increasing the rate of net photosynthetic carbon capture. Once a plant has fixed carbon, that fixed carbon can be directed to three different places: it can be used to make roots, leaf and stem tissue of biomass, used for seed or it can be released again as CO<sub>2</sub> through normal metabolic processes.

In 2015 and 2016, we made significant progress applying our "Smart Carbon Grid for Crops" platform to plants. Using this technology platform, which we established as a result of a series of government funded internal programs and external academic collaborations, we have developed metabolic engineering strategies using microbial genes to introduce new functionality into plants to increase photosynthesis by making key metabolic pathways in plants more efficient, and to

eliminate bottlenecks to efficient carbon usage. This approach is similar to what has been the bedrock of the agricultural biotech seed industry, the introduction of genes from non-plant systems to enable new functionality in the form of herbicide, pest resistance and drought tolerance. Our approaches led not only to the identification of novel yield trait genes but also encouraging early yield data from field studies with our lead yield trait gene in the industrial oilseed Camelina.

### ***Our Approach***

***We have two unique, proprietary technology platforms for identifying novel yield trait genes.***

Our unique approach consists of two core technology platforms. The first is based on our 30 years of experience optimizing the flow of carbon intermediates in living systems and is called the “Smart Carbon Grid for Crops.” Using this approach and working with our partners in academia, Yield10 has demonstrated major step-changes in seed yield in the industrial oilseed Camelina. We currently have four novel trait genes impacting seed yield, which we refer to as: C3003 through C3006, and we are progressing our lead yield trait gene C3003 in our key crop targets canola, soybean and corn. Recently, we reported seed yield increases of up to 23 percent in early field tests conducted in 2016 with Camelina.

In our second platform, the “T3 Platform,” we developed a proprietary computational process to identify global transcription factor (GTF) genes, or master switches, which algorithms predicted could both up-regulate or down-regulate multiple gene cascades with the potential for increasing photosynthesis, reducing bottlenecks in central metabolism and positively impacting plant and biomass yield. We have tested the three lead gene targets experimentally and have shown that they produced average increases of over 40 percent in photosynthetic carbon fixation, flow of carbon through central metabolism and biomass levels in our experiments with switchgrass. In some cases the biomass yield has been increased up to 70 percent in preliminary greenhouse tests, a notable finding given that switchgrass is a high yielding C4 photosynthetic crop. Although it is a very useful model for C4 photosynthesis plants, switchgrass is not a food crop, so we identified the corresponding genes in major food crops including our key targets, soybean, rice and corn, and we are currently progressing these trait genes in those crops.

***Our work with the Smart Carbon Grid for Crops and the T3 Platform has identified promising potential targets for genome editing. We believe that these approaches may be subject to less regulatory complexity in the U.S. during development and along the path to commercialization, and may provide opportunities for licensing.***

Genome editing techniques, including CRISPR/Cas9, which involve making small targeted changes to the DNA of a target organism, have been of interest to the agricultural biotechnology industry because this approach is believed to have the potential to significantly reduce development costs and regulatory timelines for crop trait development and market introduction. Announcements from Dupont and the United States Department of Agriculture - Animal and Plant Health Inspection Service (“USDA-APHIS”) regarding a clarification on the regulatory path for a genetically edited corn line indicated that this line will not be subject to regulations typically used for genetically modified crops on the basis that while the plant DNA was edited, the final plant did not contain any remaining foreign DNA (i.e. DNA sequences not from the plant being engineered) from the procedure used to edit the plant. This industry example suggests that crops that are genome edited may not be subject to certain GMO regulations in the U.S., an outcome supported by recent developments in the USDA APHIS review of the current regulatory process for crops made using genetic engineering. This has opened the potential for Yield10 to exploit a second tier of novel traits addressable with genome editing. The challenge now for the agricultural biotechnology sector will be to identify gene targets for genome editing which can generate economic value.

Yield10 has identified from its internal discovery platforms and in-licensed through academic collaborations a number of gene targets for genome editing in crops. In the course of our work, we have introduced genes coding for new metabolic pathway enzymes or global transcription factors producing high yield lines with higher rates of photosynthetic carbon fixation. We are studying our high yield plants at the molecular level using advances in high throughput analytical systems at the whole genome level to look at what happens to every other gene in the plant as a result of the changes we have engineered in, focused specifically on which native plant genes are turned on or off. Genes whose activity is turned on in the high yield lines are worth further study on their own and genes whose activity is turned off are interesting candidates for genome editing. This type of molecular analysis of the high yielding lines where the flow of carbon is higher has given us insights into key steps to target for further improvement. We have recently made progress deploying genome editing technology against the first of these additional targets in Camelina. We expect to increase our level of effort in this area in other crops, particularly canola, over the course of 2017, eventually expanding into soybean, rice and corn. We believe our genome editing targets as well as the improved crops we develop using this approach may enable us to form collaborations or license arrangements with a broader set of commercial partners and bring these forward into development in the near-term.



We plan to use any revenues we generate from license agreements around our genome editing targets to support our ongoing research and development efforts to enable step-changes in crop yield.

***We are developing the Camelina Fast Field Test model system to evaluate and de-risk novel yield trait genes.***

One of the challenges the agricultural industry has faced over the years is translating early crop science discovery into value generating traits. In part this is because results from greenhouse studies in model plants have not translated well into field results in major crops. This is also in part because the plants used for discovery research have not been suitable for studies in the field and are not representative of the advanced seed or crop varieties (germplasm) used in commercial production, which have been subject to decades of intensive breeding to improve yield. Translating success when introducing non-plant genes into major crops has been very successful and the current biotech seed sector, which accounted for 444 million acres of crops worldwide in 2015 is based on using microbial genes in plants. The long timelines to progress early discoveries successfully into major crops and generate field data adds to the challenge.

For these reasons, Yield10 has put in place a process we call “Fast Field Testing” based on our Camelina oilseed platform. We believe that over time this will become a valuable tool in the trait discovery to translation effort. Camelina is an industrial oilseed well-suited to field trials, and we believe it is a good model for identifying promising new yield traits for canola and soybean. It is also very fast to modify and develop genetically stable seed sufficient for planting. Ideally, we hope to be able to progress from trait identification to field planting in about 12 months. Our process is to identify trait genes of interest in Camelina and immediately begin putting them into canola and soybean, where the timelines to transform plant lines and generate field data are much longer. We can then progress the Fast Field Testing in Camelina and generate field data and a complete molecular analysis of plant material from the field. These results and data can then be used to inform how we progress the previously transformed canola and soybean.

We believe that this will provide the opportunity for go-no-go decisions in some cases and in other cases allow us to update our approach based on the results of our Fast Field Testing in Camelina. For example with the longer development timelines needed to get canola and soybean ready for field testing, we expect to initiate additional modifications earlier in these crops, having identified the potential to further improve the outcome based on the results of our Fast Field Testing in Camelina. We have started deploying this process with our first trait C3003, in which we conducted Fast Field Testing in 2016, and plan to conduct additional studies in both Camelina and canola in 2017.

We are using this process to de-risk and accelerate the demonstration of the trait gene value in major crops through the use of Fast Field Testing in a model system. As a particular trait is de-risked there is the potential for inflection points in value. If we can establish a strong correlation between the results from the Camelina system with future field data first from canola and then with soybean, then we may be able to leverage this to enter partnership and licensing discussions earlier while preserving the opportunity to capture a meaningful share of the upside value.

***If results of testing new yield traits in our Camelina Fast Field Testing model are shown to be predictive of results that can be obtained in other C3 crops, we may be able to accelerate translation of new traits into important food and feed crops.***

We developed our Camelina Fast Field Testing model as a system to develop and optimize yield traits based on novel metabolic pathways. We have significant expertise in the genetic transformation and breeding of Camelina. We believe that if we can show that the results we obtain for potential yield traits are directionally predictive for the results we obtain in oilseed crops and other C3 crops, then we will be able to use the system to effectively screen for novel traits and accelerate their deployment into additional crops having the C3 photosynthetic system, including canola, soybean, rice and wheat. For this reason, our Camelina Fast Field testing system may prove to be a valuable tool for novel yield trait discovery facilitating translation into commercially important crops.

***Our Oilseed Operation based in Canada provides us with unique capabilities in the development of oilseed crops.***

We established our oilseeds subsidiary in Canada in 2010 to produce robust oilseed germplasm with engineered value-added traits for commercial crop production in western North America. Our oilseeds team is based in Saskatoon, Saskatchewan, with laboratories in the NRC Plant Biotechnology Institute ("PBI") and commercial greenhouse and laboratory facilities at nearby Innovation Place. Our team has developed and implemented technology to improve and accelerate engineering, trait evaluation and breeding of Camelina and canola. The team also plays a key role in designing and conducting greenhouse and field tests required to effectively evaluate novel yield traits.

***We have established a lean organizational footprint which is capable of evaluating our initial novel yield traits in greenhouse and field tests while maintaining efficient use of cash resources.***

As of December 31, 2016, we had 20 full-time employees, with the majority directly involved with our research and development activities. We believe that our organizational capabilities are aligned with our research priorities and are complemented by our use of third party infrastructure and certain service providers. With this approach we can leverage third party infrastructure and capability without having to spend the time and capital needed to recreate them in-house. This will allow us to focus our limited resources on deploying our core strengths against our key development goals. We expect to grow our research and development operations over time commensurate with building value in our business and advancing our traits through development while at the same time tightly managing overhead costs.

***We have established academic collaborations which provide us with opportunities to access government grant revenue to support our research as well as key intellectual property.***

Yield10 has pursued academic collaborations that have led to the discovery of novel yield trait genes. Researcher Danny Schnell, Ph.D. discovered the C3003 trait in an ARPA-e funded collaborative project at the University of Massachusetts in which Yield10 was a partner. In 2015, Prof. Schnell moved to Michigan State University where he is Chairperson, Department of Plant Biology and remains a collaborator. Heike Sederoff, Ph.D. Professor, Department of Plant and Microbial Biology at North Carolina State University developed the C3004 and C3005 traits with ARPA-e funding which Yield10 is now progressing under a license agreement. Both Dr. Schnell and Dr. Sederoff are members of our Scientific Advisory Board. In early 2017, Yield10 announced taking an option to a global license agreement from the University of Missouri. This license covers a genome editing target based on the recent discovery of a key regulatory mechanism controlling oil production in oilseed crops which can be used to increase the oil content. Oil content is the key economic driver in crops such as canola, sunflower and safflower. We plan to exercise this option later in 2017.

***We plan to seek U.S. and Canadian government grants to support our research and development goals.***

Yield10 has been awarded grants over the last several years supporting research on strategies to improve the efficiency of photosynthesis, identify novel yield traits and test novel yield traits in Camelina. This work is valuable because traits developed in Camelina have the potential to be developed and deployed in other oilseed crops. We plan to continue to pursue government grants to defray research costs associated with our research and development activities.

***We plan to deploy our novel yield trait genes to generate proof points across a range of crops.***

Current biotech-generated crop protection traits such as “Roundup Ready” and insect resistance are deployed broadly in the Americas in the canola, soybean and corn crops. For novel yield trait genes, such as C3003, we envision deployment of the trait in C3 photosynthetic oilseed crops such as Camelina, canola and soybean and potentially in other C3 crops such as rice, alfalfa, cotton, potato and wheat. We are currently testing C3003 and C4003 in rice where genetically modified plants have not yet been widely introduced commercially. We also believe there is an opportunity to deploy our novel yield traits into existing GM crops as “stacked traits” included in branded seeds marketed and sold to farmers. “Stacked traits” refers to the practice of adding multiple biotech traits to an elite plant line as a strategy to further increase value.

In addition we view our genome editing targets as a complement to plant breeding techniques and plan to test our genome editing targets in oilseed crops, as well as in rice, corn and forage crops as a way to improve seed yield and/or biomass and generate opportunities for licensing or collaboration with established industry partners.

***We believe our business model will allow us to capture value for our discoveries and provide a path to commercialization for important new yield traits for major crops.***

We are positioning Yield10 as a discovery company whereby we will work to advance our own developments as well as form business alliances to progress our traits through development and early commercialization. Our goal is to capture an attractive share of the added economic value resulting from the deployment of our trait genes and technologies in key crops. We are currently working on the development and deployment of our trait genes into canola, soybean, rice and corn, an approach facilitated by the expiration of much of the early foundation patents in the agricultural biotechnology sector, and one of our key objectives in that regard is to demonstrate commercial proof points through multi-site field tests. Yield10 has a number of opportunities and models for value capture including partnering or licensing with established agricultural industry players. Key to our strategy is to retain, where practical, control of timelines and maximize, where possible, the opportunity for value creation and optionality around future exit strategies.

## Technology Platforms

In the last decade there has been a dramatic expansion of new genetic engineering and systems biology tools: genomics data; metabolic engineering; high-throughput analytical tools, including whole organism gene expression analysis and metabolomics, and powerful genome editing technologies. At Yield10 we plan to build value by leveraging genome editing targets for revenue generation in the near-term while we independently work to demonstrate the economic value of our transformative genetic engineering based yield breakthroughs in the longer term. The recent expiration of early blocking patents on plant genetic engineering means we can now be more effective in research and development, leverage third party service providers and independently drive key proof points in major commercial crops such as canola, soybean and corn while focusing our resources on our core strengths. Yield10 is focused on increasing the inherent yield of major food and feed crops. With regard to forming collaborations, we recognize there are considerable headwinds to overcome in this sector, including industry skepticism based on disappointing outcomes from major investments made screening large numbers of single crop genes. This has resulted in a challenging environment for early crop innovations prior to demonstration of key proof points in commercial crops. Our goal is to “build better plants” which requires new approaches and innovation and in our view will most likely involve gene combinations and/or multi-gene systems.

Increasing crop yield is a complex two-step carbon optimization problem. Harvested seed is mostly carbon fixed from carbon dioxide in the air by photosynthesis with oxygen coming from water in the soil and smaller amounts of nitrogen and phosphate both of which are applied as fertilizer. To achieve increased yield, the rate at which crops can fix carbon has to be increased. Based on our experience optimizing carbon flow in living systems, we know that increasing seed yield will likely require multiple trait genes to increase carbon fixation by photosynthesis at the front-end and direct the increased fixed carbon to the seed. One analogy would be the fact that simply filling the gas tank in a car does not make it go faster. If successful in increasing photosynthesis, we expect to reach metabolic bottlenecks downstream, some of which will likely prevent some of the additional fixed carbon from reaching the seed. However, with new analytical tools available we expect to be able to identify bottlenecks and develop solutions to achieve our targeted outcomes, step-change increases in seed yield. This leads to our theme of enhanced carbon capture from photosynthesis and targeted carbon deposition to seed.

Plants can be categorized generally into two different groups based on their system of photosynthesis. C3 photosynthesis, the simplest type of plant photosynthetic system, exists in most agricultural crops used for human consumption, and includes canola, soybean, rice, wheat and potato. C4 photosynthesis is a more complex system. Plants using the C4 system have evolved an additional distinctive cellular structure, in which carbon dioxide is concentrated for the main photosynthesis enzyme RUBISCO through a series of metabolic and metabolite transports known as the C4 pathway. Corn and sugarcane are part of the C4 photosynthetic plant family. In general, C4 photosynthetic plants have up to five times inherently higher plant yield than plants in the C3 photosynthetic family. This difference in plant yield is a result of evolution, which has led plant scientists to consider the possibility that new genetic enhancements can be created to fundamentally improve the photosynthetic system in C3 plants.

### ***Smart Carbon Grid for Crops Technology Platform***

Yield10 is leveraging over a decade of metabolic engineering experience to optimize photosynthetic carbon capture and utilization in plant systems, which is critical to increasing seed yield. The “Smart Carbon Grid for Crops” is an advanced metabolic engineering platform that we believe has the potential to address well known metabolic limitations in crops and in C3 crops in particular. Similar to the electric grid where much of the investment made to generate the power is lost in the distribution system, plants having the C3 photosynthetic system are similar in that they lose over half the carbon the grower has paid to fix in input costs due to metabolic inefficiencies. We plan to mirror an approach taken by many of the current herbicide and pest resistance GM traits where genes from non-plant sources were used successfully to impart new functionality to crops. In our case, we are exploiting non-plant genes such as genes from microbial or algal sources to fix or reduce the impact of well-understood carbon capture metabolic pathway limitations in C3 crops. For example, photorespiration is a wasteful side reaction or carbon capture inefficiency in crops having the C3 photosynthetic system which represent approximately 70 percent of the food consumed by humans and include wheat, rice, soybean, canola and potato. We believe reducing photorespiration should lead to improved net carbon fixation from photosynthesis and as a result, we would expect to see step-change increases in seed yield.

To illustrate the value creation potential, yield loss in C3 crops due to photorespiration was recently quantified in a paper published in the Annual Reviews of Plant Biology. The authors estimated that yield in U.S. soybean crops is reduced by 36 percent and the yield in U.S. wheat crops is reduced by 20 percent due to photorespiration. They also estimated that achieving a five percent reduction of photorespiration in soybean and wheat in the U.S. would add approximately \$500 million per year of value. Some models suggest that photosynthesis could improve by 12 to 55 percent in the absence of

photorespiration. Therefore, photorespiration has been a major topic in plant science and researchers have employed multiple strategies in attempts to reduce photorespiration in C3 plants as a means to improve yield.

Reducing photorespiration is one of the key targets of our Smart Carbon Grid for Crops technology platform. This platform is an innovative, systems based approach to boost yield by increasing the amount of carbon fixed by photosynthesis and targeting the increased carbon to harvestable seed. Our lead trait, C3003, has been shown to enhance carbon fixation and seed yield in the oilseed Camelina where it impacts photorespiration. C3003 is a scientific discovery made in one of our academic collaborations and Yield10 has exclusive rights to this technology. While our collaborator continues to work on characterizing the mechanism of this yield trait gene, current data suggests C3003 is a very unique gene that reduces photorespiration in an unexpected manner. New science also represents a key aspect of de-risking our technologies. If the science provides new insights or addresses a well-defined bottleneck in a key limiting pathway common to a large number of crops, then the expectations for broadly translating initial results should be higher. We are excited about the prospects of C3003 in reducing the well-known yield losses that occur through photorespiration in C3 crops. We are currently studying C3003's effect in the food crops canola, soybean and rice. We know C3003 has increased the rate of photosynthetic carbon fixation in our Camelina plants and we have been able to study these plants at the molecular level. Consistent with our initial hypothesis that downstream bottlenecks can be identified, we have found that in high yielding plants expressing C3003, the expression of other genes, including our C3004 trait gene is changed. We believe the C3004 trait gene is involved in controlling the flow of fixed carbon to seed as part of the plants natural regulatory system. It is well known that the flow of carbon in plants is tightly controlled and we believe our approach to engineering the C3004 gene using genome editing has the potential to remove one of these control points and can be combined with the C3003 trait gene to further increase yield beyond what can be achieved with C3003 alone.

### ***T3 Platform and Plant Targets for Genome Editing***

In crops having the evolutionary advanced, more efficient C4 photosynthetic system, including corn, sugarcane and sorghum, the yield is already several-fold higher than in C3 crops. In this case, the hurdle to accomplish step-change increases in seed yield is higher as these crops are already more metabolically efficient. Leveraging the industry's significant investment in crop genomics research over the last 20 years, we developed the "T3 platform," which is an algorithm-based approach to "big data" mining of publicly available genomics data sets. We focused not on individual genes but on specific gene expression patterns. Gene expression patterns tell the researcher which genes are turned on and off under different growth conditions. With the T3 platform we wanted to identify and focus our activities on a small number of very important plant genes. Using this approach we were able to identify and select novel genes, which could function as global regulators or master switches to control cascades of other genes and metabolic systems. The strategy was to use the T3 platform to significantly narrow the number of candidate genes to be tested and then test them experimentally in our high throughput gene transformation platform in our C4 photosynthetic crop model system, switchgrass. We validated the T3 platform approach by verifying with experimental results the positive yield impact of the three gene targets we identified computationally, an exceptional hit rate. These three yield genes, C4001, C4002 and C4003, increased photosynthetic carbon capture and biomass production by over 40 percent in our switchgrass plants. In this case our early experiments have been successful in demonstrating the potential to increase the rate of carbon fixation even in a high yielding C4 crop.

We believe Yield10 is in a unique position to expand our learning and discover additional gene targets, or genes that need to be modulated, to optimize the flow of carbon to seed in these plants and have made considerable progress in this regard. Molecular analysis of high yielding plants expressing the global transcription factors has allowed the identification of 71 downstream transcription factors that are differentially expressed in the high yielding lines and thus are themselves targets for genetic manipulation. The expression of some of these genes is down regulated in the high yielding plants making them exciting targets for genome editing through well-known approaches such as CRISPR/Cas9. We are beginning to validate these second generation gene targets in switchgrass and have thus far validated the predicted role of the first three genes. These trait genes have been named C4004, C4005 and C4006. We know the industry has struggled to deploy downstream transcription factors to improve crops particularly in hybrid corn. However, we are optimistic that we will be more successful introducing our global regulator genes given the impact we saw in our experiments, and we believe genome edited traits, particularly simple gene deletions, will be significantly easier to implement and translate across all varieties of a crop.

## **Fast Field Testing System in Camelina**

One of the challenges the agricultural industry has faced over the years is translating early crop science discoveries into value generating traits. This is in part because most of the plants used for discovery research have not been suitable for studies in the field. In addition, the plant systems used for discovery are not representative of the advanced seed or germplasm used in commercial production which have been subject to decades of intensive breeding to improve yield. The long timelines to progress early discoveries successfully into major crops and generate field data adds to the challenge.

In 2010, we established a research and development operation in Saskatoon, Canada staffed with leading oilseed researchers. Our team established a model for testing novel trait genes called the “Fast Field Testing” system based on our Camelina oilseed platform. We believe that this system has the potential to become a valuable tool for our yield trait discovery and translation effort. Camelina is an industrial oilseed, with reasonable field performance providing a robust model for canola and soybean and is well suited to large scale multi-site field tests and larger scale trials. Camelina is a plant that can be readily genetically modified and bred through the efforts of our skilled staff to deliver genetically stable seed sufficient for planting in field tests. We have shown that we can go from the identification of a potential yield trait gene or combinations of genes to field planting in about 12 months. In our Fast Field Tests, we collect and analyze a broad set of data on our transgenic plants including parameters such as stand establishment, flowering, maturity, seed weight, seed size, oil content and oil composition. We also perform molecular analysis on plants of interest. We are using our Camelina Fast Field Test system to identify and screen trait genes of interest while deploying them in parallel into canola, soybean and rice where the timelines to obtain stable plant lines and field data are longer.

## **Traits in Development**

With the benefit of more than five years of investment, the Company has been able to launch itself as Yield10 Bioscience with ownership or licensed rights to several crop trait genes in hand and with the lead yield trait gene C3003 well-positioned in terms of translation and demonstration in key crops. Yield10 has exclusive rights through ownership or licensing or is preparing to file patent applications covering the trait genes listed in Table 1 below.

Under our “Smart Carbon Grid for Crops” technology platform we have identified the C3000 series of novel yield traits based on establishing new metabolic pathways in crops. We have tested our lead yield trait gene, C3003 in Camelina in both greenhouse and initial field tests and have reported results from these initial tests. We are moving this promising trait forward in additional crops including canola, soybean and rice and expect to report data once additional greenhouse tests and/or field tests have been completed and analyzed.

Under our “T3 Platform” we have identified the C4000 series of novel yield traits and gene editing targets. We expect to progress in our C4 monocot model a select few of the C4000 series traits, global regulatory genes discovered through our T3 Platform research program which we have shown to significantly enhance photosynthesis and carbon capture in switchgrass. We are also progressing the C4003 trait gene in rice using our internal resources and we expect to report initial rice data once greenhouse tests have been completed and analyzed.

Table 1: Summary of our crop yield traits currently in development.

	Trait	Biological Mechanism	Value Add	GMO	Editing	Current Activity Next Steps
Smart Carbon Grid	C3003 1st Gen	Impact photorespiration	Seed yield Water use	+	No	Camelina field test results encouraging, field testing expanding to canola, deploying in soybean and rice
	C3003 2 <sup>nd</sup> Gen	Impact photorespiration	Seed yield Water use	+	No	Camelina greenhouse results encouraging, deploying in canola, soybean and rice
	C3004	Carbon partitioning	Seed yield	+	+	Camelina field testing, editing underway
	C3005/6	Increased carbon conversion efficient	Oil content, Seed yield	+	No	Camelina field testing
	C3007	Carbon partitioning	Oil content	+	+	Laboratory work in progress
T3 Platform	C4001	Global regulator gene Photosynthesis	Yield	+	+ / -	Rice ongoing, corn in planning
	C4002	Global regulator gene Photosynthesis	Yield	+	+ / -	Planning for corn transformation studies
	C4003	Global regulator gene Photosynthesis	Yield	+	+ / -	Rice ongoing, corn in planning
	C4004	Regulator gene	Yield	+	+	Planning for corn transformation studies
	C4005	Regulator gene	Drought	+	+ / -	Planning for corn transformation studies
	C4006	Regulator gene	Drought	+	+ / -	Planning for corn transformation studies

**Novel Yield Trait Gene C3003**

C3003 represents the lead novel yield trait gene in our “Smart Carbon Grid for Plants” technology platform. C3003 is a scientific discovery made in one of our academic collaborations funded by ARPA-e, a division of the Department of Energy. Our academic collaborator is continuing work to characterize C3003. C3003 appears to be a very unique gene that impacts photorespiration, a biochemical pathway in C3 plants, which is responsible for significant losses in yield. Yield10 is progressing the introduction of the C3003 trait gene as well as improvements to the C3003 trait in Camelina, canola, soybean and rice, and we expect to disclose additional results from a number of these activities throughout 2017.

In the 2016 growing season, we conducted a small scale field test which was designed primarily to establish our Camelina Fast Field Testing platform and accelerate the generation of field data for crop trait discovery and improvement. As part of this study, we planted stable Camelina seed lines expressing C3003. In early 2017, we reported field test results showing that C3003 produced significant improvements in seed yield where the best C3003 line produced a 23 percent increase as measured by average seed weight per hectare. This result was statistically significant (p<0.05) as compared to control plants. In addition, the highest yielding line expressing the C3003 gene matured an average of six days earlier than the control plants. Expression of C3003 did not change the percentage of oil content in the seed as measured by the weight of the oil in relation to the weight of the seed.

While expression of C3003 enabled some of the Camelina lines we tested to produce higher seed yields by weight per hectare, the individual seed size in these lines was decreased as compared to controls, likely due to a change in carbon partitioning in the plant. This reduction in seed size was expected based on data from prior greenhouse trials and Yield10 is addressing this finding with our second generation C3003 trait which is expressed specifically in the seed tissue of plants.

We believe that the results of our 2016 field tests in Camelina are encouraging and suggest that our approach to engineering new metabolic pathways in plants has the potential to produce step-changes in crop yield. These results also illustrate that our Fast Field Testing system in Camelina may be a valuable tool for effectively screening novel yield trait

genes and dynamically adapting our approach to trait development as we translate these improvements into commercially important crops.

Based on prior greenhouse data suggesting that constitutive expression of C3003 in Camelina could increase overall seed yield, but produce this increase with the production of smaller, lighter weight seeds, we produced a second generation C3003 where the C3003 gene is expressed only in seed tissue. We believe that the reason for the smaller seeds is that the added influx of carbon produced by C3003 produces a “bottleneck” in plant metabolism that results in the production of more, but smaller seeds. In 2016, we tested second generation C3003 in Camelina in greenhouse studies. In early 2017, we reported preliminary greenhouse data showing that the second generation C3003 produced an increase in seed yield, while maintaining typical seed weight.

Based on encouraging data produced in Camelina with first and second generation C3003, we are continuing to progress the evaluation of the C3003 gene trait in parallel in canola, soybean and rice, key target crops where step-change increases in seed yield would improve the prospects for global food security and we believe create considerable economic value.

We are planning to conduct additional field tests of C3003 in the 2017 growing season. In these studies, we plan to evaluate Camelina lines transformed with each of our first and second generation C3003 trait as well as canola lines containing the first generation C3003 trait. Preparation and logistics for this study, including seed bulk up, contracts with service providers and regulatory permitting were underway in early 2017. We plan to report preliminary data from this field test in fourth quarter 2017 once the field tests have been completed and resulting data analyzed.

Prior to that, we expect to report results from greenhouse studies in 2017 with the first generation C3003 trait in canola. We also recently introduced the second generation C3003 trait into canola, and greenhouse data on seed yield and seed size may be available by the end of 2017 or early 2018. If the data meet our expectations, we may test second generation C3003 in canola in field tests in spring 2018.

We are expanding our research into soybean by leveraging the capabilities and technical resources of a collaborator under an agreement in which Yield10 retains all commercial rights. This activity is underway for both the first and second generation versions of the C3003 trait. Assuming the research plan remains on track, we expect to be able to report results from initial greenhouse studies in late 2017 or early 2018.

We have also initiated the introduction of the first and second generation versions of the C3003 yield trait gene in rice and expect to report our observations from those studies when testing has been completed and results have been analyzed.

We plan to leverage third party services where the resources and infrastructure are already in place to transform and test novel traits in corn lines. We believe this will enable Yield10 to cost effectively expand its capabilities and enable us to progress our corn targets at least to the stage of initial corn hybrid field results.

We also plan to selectively partner with others for the development of different crops and/or traits. In particular we expect to progress a select few of the C4000 series traits, global regulatory genes discovered in our T3 Platform which we have shown to significantly enhance photosynthesis and carbon capture in our C4 monocot model plant switchgrass. In the meantime, we have been able to progress the C4003 trait gene in rice using our internal resources and we expect to report initial rice data as soon as it is available.

## **Target Crops**

Our initial work in our C3000 and C4000 series traits suggests that our technology may be applicable to a wide range of crops harvested for food and animal feed uses. We believe that if novel yield traits could be successfully developed and commercialized in any of these crops, farmers would be able to improve the productivity of their land to meet rising demand for food and feed, and significant economic value would be created

In considering our strategy to develop our technologies we segregate our trait genes into two classes: trait genes based on using non-plant genes to add new functionality to crops which are by definition GM; and trait genes which we may be able to deploy outside of the GM regulations, which encompasses our trait genes which are based exclusively on plant genes. We see the opportunity to deploy our trait technology in a broader set of food and feed crops many of which are not currently GM. We plan to pursue our GM trait genes in crops which are currently GM and where the economics can sustain



the cost and timelines for deregulation. We are aware of the current USDA-APHIS GM crop regulation review and the reality that GM likely will remain an issue for some NGO groups regardless of the science. For our GM yield trait genes, we are targeting seed yield increases of the order of 10 to 20 percent over the current elite seed lines, increases which reflect the order of magnitude step-changes necessary to address global food security.

The crops we are targeting for development are described below.

Camelina or *Camelina sativa* is an oilseed crop in limited cultivation in North America and Europe. Camelina has received recent attention as an industrial oilseed for the production of biofuels, novel industrial lipids, and oleochemicals. In addition, its meal has been identified for development as an animal and fish feed supplement. While it is not currently a commercially significant crop, research suggests that efforts to improve seed yield, oil content and fatty acid composition, and tolerance to heat stress may expand the commercial adoption and cultivation of Camelina.

Canola or *Brassica napus* is a cultivar of rapeseed which produces a higher value edible oil favored by consumers because it has a healthier fatty acid profile than corn or soybean oil. The canola crop was developed in Canada where it is primarily grown today with additional acreage grown in the U.S. Currently the vast majority of the canola grown in North America contains two seed enhancement technologies, herbicide tolerance and hybrid seed. Both Roundup Ready (Monsanto) and Liberty-Link (Bayer) varieties of canola are grown and were introduced to the market in 1990s. Approximately 22 million acres were planted in Canada and the U.S. in the 2016 growing season. Yield10 is targeting a 20 percent or greater increase in canola seed yield. With a 2016 harvest of 812 million bushels of canola (Statistics Canada) and an average farm gate price of \$10.00 per bushel, a 20 percent yield increase in canola represents a total potential added annual value of \$1.6 billion that could be shared among the players in the canola value chain.

Soybean or *Glycine max* is an oilseed crop used for food, food ingredients, food additives and animal feed. The soybean can be harvested for oil used in food and industrial applications, and soybean meal is a significant source of protein for use mostly in animal feed but also for direct human consumption. Fermented soy foods include soy sauce and tempeh, and non-fermented food uses include soy milk and tofu. Soybeans are widely cultivated in North and South America, where a majority of the seed planted is genetically modified. Approximately 88 million acres of soybean were planted in the U.S. and Canada in the 2016 growing season. According to the USDA, the U.S., Brazil and Argentina grow approximately 80 percent of global soybean production. Yield10 is targeting a 20 percent or greater increase in soybean seed yield. With a 2016 U.S. harvest of 4.36 billion bushels (USDA) and an average farm gate price of \$10.00 per bushel, a 20 percent yield increase in soybean represents a total potential added annual value of \$8.7 billion that could be shared among the players in the soybean value chain.

Corn is a crop grown globally and used for animal feed and for producing starch which can be used as a raw material for producing food ingredients and food additives, as well as for use in the production of paper, packaging materials and other items. GM maize was grown for the first time in the U.S. and Canada in 1997. Currently, about 80 percent of maize/corn production in the U.S. is genetically modified. It was estimated that more than 90 million acres of corn were planted in North America in the 2016 growing season. The traits commonly used in today's corn cultivars provide insect resistance and herbicide tolerance. In many GM seeds sold today, both of these traits are expressed (or "stacked" which refers to the practice of adding multiple traits to an elite plant line as a strategy to protect yield). Europe has limited production of GM corn, where Spain is a leading producer of GM corn. In this case, the most widely used GM trait (Bt) protects against the corn borer insect. Special protocols must be followed in Europe to avoid mixing of GM corn with conventional corn. Corn has the more efficient C4 photosynthesis system and Yield10 is targeting a 10 percent yield increase in corn. With a 2016 U.S. harvest of 15.2 billion bushels and an average per bushel price of \$3.50, a 10 percent yield increase in corn represents a total potential added annual value of \$5.32 billion that could be shared among the players in the corn value chain.

Rice is the staple food for over 50 percent of the global population. World crop production of rice was estimated at approximately 480 million metric tons in 2016. Rice is grown in tropical and subtropical regions around the world. Rice cultivation takes place primarily in China, India and Southeast Asia. Typically, improvements to rice yield have been achieved through traditional plant breeding approaches. Genetic engineering approaches are being investigated to protect rice from weeds and insect pests. Additional biotechnology approaches are being taken to improve the nutritional value of rice. While Yield10 has not established a target for yield improvement in rice, early work is underway to evaluate the potential of our technologies in this globally important food crop.

Forage crops are grown expressly for biomass used for feeding livestock. Typical forage crops include both annual and perennial crops such as various grasses, silage corn, alfalfa and sorghum. Biotechnology traits have been previously introduced into silage corn and alfalfa. Other forage crops could be amenable to gene editing strategies to increase biomass yield per acre. We believe that our technology and traits that increase biomass may have application to forage crops.



## Regulatory Requirements

Since the first successful commercialization of a biotechnology-derived crop in the 1990s, many new GM crop varieties have been developed and made available to U.S. farmers and farmers worldwide. U.S. farmers have rapidly adopted many of these new GM varieties, so that in 2016, 92 percent of the corn, 93 percent of the cotton, and 94 percent of the soybeans planted in the U.S. were varieties produced through genetic engineering. A significant percentage of the production of other crops, such as alfalfa, papaya and sugar beet, are also biotech-derived.

Genetically modified crops are subject to a significant amount of regulation in the U.S. and around the world. Field tests and field trials of GM crops need to ensure that traits in development do not escape or mix with native plants. The U.S. Government agencies responsible for oversight of the products of modern agricultural biotechnology are the United States Department of Agriculture, the U.S. Environmental Protection Agency (EPA), and the U.S. Food and Drug Administration (FDA). Depending on its characteristics, a product may be subject to the jurisdiction of one or more of these agencies under the federal government's 1986 Coordinated Framework for the Regulation of Biotechnology (most recently updated in January 2017). Regulatory officials from the three agencies regularly communicate and exchange information to ensure that any safety or regulatory issues that may arise are appropriately resolved within the scope of authority afforded to each agency under their respective statutes. Other environmental laws or regulations also may be implicated, depending on the specific product.

Within USDA, the Animal and Plant Health Inspection Service (APHIS) is responsible for protecting agricultural plants from pests, diseases and noxious weeds. Under the Plant Protection Act, USDA-APHIS has regulatory oversight over products of modern biotechnology that could pose such a risk. Accordingly, USDA-APHIS regulates organisms and products that are known or suspected to be plant pests or to pose a plant pest risk, including those that have been altered or produced through genetic engineering. These are called "regulated articles." USDA-APHIS regulates the import, handling, interstate movement, and release into the environment of regulated organisms that are products of biotechnology, including organisms undergoing confined experimental use or field trials. Regulated articles are reviewed to ensure that, under the proposed conditions of use, they do not present a plant pest risk through ensuring appropriate handling, confinement and disposal. The developer may then petition USDA-APHIS for a determination of non-regulated status for the article. If the agency determines that the GE plant is unlikely to present a greater plant pest risk than its unmodified counterpart, the new crop will no longer be subject to the permitting and other regulatory processes that are overseen by USDA-APHIS (*i.e.*, it will no longer be treated as a potential plant pest).

Subsequently, depending on the intended use of the non-regulated genetically engineered plant, the developer may need to work within separate EPA or FDA oversight rules before commercial introduction of the final product. EPA primarily regulates products of biotechnology that are intended for use as pesticides, under the authorities granted to EPA by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FDA is the agency responsible for overseeing the safety of biotechnology-derived products that are intended to be used as human or animal food, or that may end up in the food supply. Since 1992, FDA has had in place a voluntary consultation process for developers of bioengineered food, and final agency decisions and other information from these Biotechnology Consultations are made publicly available by FDA. Consultations are data-intensive and examine the new food product's safety and nutritional profile, among other issues. Generally, FDA has found that such food products do not pose unique health risks to humans or animals, but if a novel allergen or other distinction from the conventional food is present in the new plant variety, the agency may require specific label statements on the product to ensure that consumers are made aware of material differences between GE and conventional versions.

In Canada, the largest producer of GM canola, GM crops and the food products into which they are incorporated also are regulated by multiple government agencies under a federal framework for the regulation of biotechnology products that is similar to the U.S. system. First, the Canadian Food Inspection Agency (CFIA) is the lead agency for ensuring that a new agricultural biotechnology crop will not pose new risks to Canadian plants, animals and other agricultural commodities. The CFIA's Plant Biosafety Office (PBO) is responsible for conducting environmental assessments of biotechnology-derived plants. Authority for the PBO includes both approving confined field trials with the GM crop through permits and authorizing their "unconfined release" as a first step towards commercialization.

Second, under the Food and Drugs Act and related regulations, Health Canada is responsible for reviewing a pre-market safety assessment that must be submitted by the manufacturer or importer of a "novel food," a term of art which includes GM or biotechnology-derived foods. The safety assessment should provide assurances that the novel food is safe when prepared or consumed according to its intended use. A multi-disciplinary team of experts from Health Canada will evaluate the data and information about the novel food and make a determination regarding whether it can be sold in Canada,

and whether any restrictions are warranted under applicable law or the product's safety profile. Health Canada's final decision documents regarding the safety of these novel foods are made publicly available by the government.

As the lead agency for public health and safety, Health Canada also works in conjunction with the CFIA on food labeling oversight when it has identified a potential health or safety issues with a food that could be mitigated through labeling or other disclosures. For example, if the biotechnology-derived food contains a new allergen that is otherwise not present in the conventional version of the food, then specific label statements will be required to alert consumers to that important health information. However, the CFIA has primary oversight over non-health issues related to food labeling, packaging and advertising. Accordingly, the CFIA is the lead agency for ensuring that food labeling and advertising meet the legal requirements of the Food and Drugs Act, and that labeling representations do not create a potential risk of fraud or consumer confusion and are compliant with Canada's voluntary disclosure standard for genetically engineered food ingredients.

Finally, Environment Canada is available to serve as a regulatory "safety net" if a novel product does not naturally fall within the jurisdiction of the CFIA, Health Canada, or the Pest Management Regulatory Agency that oversees pesticide products.

Our work involving the development, greenhouse testing and field testing of novel yield trait genes in crop plants requires certain government and municipal permits and we must ensure compliance with all applicable regulations including regulations relating to GM crops. With laboratories and greenhouse in both the U.S. and Canada, we are subject to regulations governing the shipment of seeds and other plant material (including GM seeds and GM plant material) between our facilities in the U.S. and Canada, including USDA-APHIS permits for the import and export of plant materials that could pose a risk to domestic agriculture.

### **License Agreement with the University of Massachusetts**

Pursuant to a license agreement with the University of Massachusetts ("UMASS") dated as of June 30, 2015, we have an exclusive, worldwide license under certain patents and patent applications to make, have made, use, offer for sale, sell, have sold and import any transgenic plant seed or plant grown there from or transgenic plant material developed for sale to a farmer or grower for planting in the field, which transgenic plant seed or plant grown therefrom or transgenic plant material is covered by, embodies or is derived from (in whole or in part) one or more issued or pending claims of the licensed patents or patent applications. The licensed patent rights include issued patents covering our yield trait gene C3003.

We are required to use diligent efforts to develop licensed products throughout the field of use and to introduce licensed products into the commercial market. In that regard, we are obligated to fulfill certain development and regulatory milestones relating to C3003, including completion of multi-site field demonstrations of a crop species in which C3003 has been introduced, and filing for regulatory approval of a crop species in which C3003 has been introduced within a specified period. Our failure to achieve any milestone provided for under the agreement would, if we are unable to reach agreement with UMASS as to a potential adjustment of the applicable milestone, give UMASS the right to terminate the agreement, following a notice period.

We are obligated to pay UMASS milestone payments relating to any regulatory filings and approvals covered by the agreement, royalties on any sales of licensed products following regulatory approval, as well as a percentage of any sublicense income related to the licensed products.

We may terminate the agreement at any time upon 90 days prior written notice to UMASS. Either party may terminate for material breach immediately upon written notice for a breach that is not cured within 60 days after receiving written notice of the breach. In addition, UMASS may terminate this agreement with respect to certain patent rights immediately upon written notice in the event we contest the validity or enforceability of such patent rights.

### **Agricultural Industry Landscape**

Following advances in biotechnology in the 1970s through early 1990s, the first genetically modified crops were commercially introduced in the U.S. in the years 1994 and 1995. Today, the U.S. leads the world in the adoption of GM crops in terms of crop value and acreage planted. GM crops have had both their supporters and their detractors over the years. Consumer sentiment including concerns about the safety of GM crops have limited the introduction and adoption of

GM crops in Europe. However, recent studies by the National Academy of Science continue to support the 20 year history of safe use of GM crops.

The International Service for the Acquisition of Agri-Biotech Applications (ISAAA), an industry research group, reported that 444 million acres worldwide were planted with GM crops in 2015, the most recent year where data is available. The planting of GM crops is centered in the Americas with North America at approximately 45.5 percent of the acres and Latin America at approximately 43 percent. China and India follow with approximately 8 percent and the balance of the total worldwide GM crop acreage in 2015 was planted in European Union and the rest of world. The primary GM crops in the U.S. are corn, soybean, cotton and sugar beet. In Canada, the oilseed crop canola is the primary GM crop. Cotton is the primary GM crop grown in India and China.

In contrast to the Americas, the European Union has been relatively slow to adopt GM crops and has relied heavily on plant breeding programs for capturing crop yield improvements over the last 20 years. In 2013, Spain was the largest producer of GM crops in Europe, based on cultivation of GM corn representing approximately 20 percent of the country's crop that year. Certain GM crops have been approved for cultivation in some European countries, while other countries have imposed outright bans on cultivation of GM crops.

According to the market research firm, Research and Markets, the total global seed business was estimated at \$53 billion in 2014 and is projected to grow to more than \$100 billion by 2022. According to an ISAAA report, the global GM seed business represented a \$15.3 billion market in 2015. The traits being commercialized today by the agricultural industry mainly address crop protection, which involves preventing crop damage by weeds, insects and other pests that lower expected crop yield. As technology has advanced, "trait stacking," or the practice of adding multiple traits to an elite plant line, has become commonplace as a strategy to protect yield. As the industry has developed, the practice of inter-licensing traits between research and development driven seed companies has led to a proliferation of branded seed products on the market today.

The GM seed business is dominated by large multinational companies and their subsidiaries including BASF, Bayer, Dow, DuPont Pioneer, Monsanto, Syngenta and AgReliant. These companies have significant resources, experience and track records of successfully developing, testing and commercializing high performing seed lines as well as new traits for GM crops. They offer farmers conventional and biotechnology seeds as well as crop protection chemicals, biologicals, fertilizers and other products and technologies aimed at supporting the on-farm efficiency of managing crops in the field as well as managing the overall cost of crop production to successful harvest. Many of these companies are involved in the current sector consolidation with the Dow/ Dupont merger and the acquisition of Syngenta by ChemChina nearing completion and the acquisition of Monsanto by Bayer ongoing.

Privately owned, U.S. retail seed companies play a key role in the industry by developing, marketing and selling high performing seed to U.S. farmers. These companies include Beck's Hybrids and Stine Seed. These companies have capabilities in both biotechnology and plant breeding. They source traits from the multinational companies and input these traits into elite plant germplasm to produce seeds optimized for a variety of soil, climate and field conditions. Both companies offer a broad arrange of GM corn and soybean products to their customers.

Recent advances in biotechnology including gene editing have led to the formation of companies focusing on yield trait discovery, biologicals for pest control, agbiome strategies and precision agriculture. There are startups, privately held and publicly traded companies involved in this space. Such companies include AgBiome, Arcadia Biosciences, Benson Hill Biosystems, Cibus, Evogene, Indigo, Kaiima, and Marrone Bio Innovation, many of which have greater resources and experience than we have.

## **Intellectual Property**

Our continued success depends in large part on our proprietary technology. As of December 31, 2016, we owned or held exclusive rights to 10 pending patent applications worldwide related to advanced technologies for increasing yield in crops. Our portfolio of patent applications includes plant science technologies we have in-licensed globally and exclusively from The University of Massachusetts and North Carolina State University related to the yield trait gene C3003 and other advanced technologies based on advanced metabolic engineering methods to improve carbon capture and selectively control carbon partitioning in plants.

We continue to seek, develop and evaluate new technologies and related intellectual property that might enhance our Company's business strategy, industry position or deployment options.

## Employees

As of December 31, 2016, we had 20 full-time employees. Of those employees, 15 were in research and development. Among our staff, 7 hold Ph.D.'s and 11 hold masters' or bachelors' degrees in their respective disciplines. Our technical staff has expertise in the following areas: plant genetics, plant biology, microbial genetics, bioinformatics, metabolic engineering and systems biology. Our headquarters are located in Massachusetts, and we maintain a research and development facility, including greenhouse facilities, in Saskatoon, Canada. None of our employees are subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

## Corporate History and Investor Information

We changed our name to Yield10 Bioscience, Inc. in January 2017 to reflect our change in mission around innovations in agricultural biotechnology focused on developing disruptive technologies for step-change improvements in crop yield. In 1992, our Company was incorporated in Massachusetts under the name Metabolix, Inc. In September 1998, we reincorporated in Delaware. Financial and other information about our Company is available on our website at [www.yield10bio.com](http://www.yield10bio.com).

The information on our website is not incorporated by reference into this annual report on Form 10-K and should not be considered to be part of this annual report on Form 10-K. We make available on our website, free of charge, copies of our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the Securities and Exchange Commission (the "SEC").

Investors should note that we announce material information to our investors using our website, SEC filings, press releases, public conference calls and webcasts. We use these channels, as well as social media, to communicate with our shareholders and the public about our Company, our products and other matters. It is possible that the information we post on social media could be deemed to be material information. Therefore, we encourage investors, the media, and others interested in our Company to review the information we post on the social media channels listed at the top of our website.

In addition, the public may read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Also, our filings with the SEC may be accessed through the SEC's website at [www.sec.gov](http://www.sec.gov).

## ITEM 1A. RISK FACTORS

*Our business is subject to numerous risks. We caution you that the following important factors, among others, could cause our actual results to differ materially from those expressed in forward-looking statements made by us or on our behalf in filings with the SEC, press releases, communications with investors and oral statements. Any or all of our forward-looking statements in this Annual Report on Form 10-K and in any other public statements we make may turn out to be wrong. They can be affected by inaccurate assumptions we might make or by known or unknown risks and uncertainties. Many factors mentioned in the discussion below will be important in determining future results. Consequently, no forward-looking statement can be guaranteed. Actual future results may differ materially from those anticipated in forward-looking statements. We undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosure we make in our reports filed with the SEC.*

*All dollar amounts, except per share amounts, are stated in thousands.*

## Risks Relating to our Financial Position

***We will be required to raise additional funds to finance our operations and remain a going concern; we may not be able to do so when necessary, and/or the terms of any financings may not be advantageous to us.***

As of December 31, 2016, we held unrestricted cash and cash equivalents of \$7,309. Although we have \$20,000 of availability under our equity facility with Aspire Capital, market conditions likely will limit the extent to which we can draw on this facility. Our present capital resources may not be sufficient to fund our planned operations for a twelve month period, and therefore, raise substantial doubt about our ability to continue as a going concern.

In 2016, we completed a strategic restructuring under which Yield10 Bioscience has become our core business, with a focus on developing disruptive technologies for step-change improvements in crop yield to enhance global food security.

We will require additional capital resources to support the implementation of this new strategy and we may pursue one or more of a variety of financing options, including public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, as well as licensing or other collaborative arrangements. There can be no assurance that our financing efforts will be successful. If we are not able to secure such additional capital resources or otherwise fund our operations, we may be forced to explore strategic alternatives and/or wind down our operations and pursue options for liquidating our remaining assets, including intellectual property and equipment.

We continue to face significant challenges and uncertainties. Our future revenues, expenses and cash usage will depend on the successful execution of our strategic plans related to Yield10 Bioscience. Adequate financing to implement our new strategy may not be available. Available capital resources may be consumed more rapidly than currently expected due to any or all of the following:

- higher restructuring costs than anticipated;
- lower than expected revenues from grants, licenses, and service fees related to our Yield10 Bioscience technologies;
- changes we may make to the business that affect ongoing operating expenses;
- further changes we may make to our business strategy;
- changes in our research and development spending plans; and
- other items affecting our forecasted level of expenditures and use of cash resources.

If we issue equity or debt securities to raise additional funds, we may incur fees associated with such issuances, our existing stockholders may experience dilution from the issuance of new equity securities, we may incur ongoing interest expense and be required to grant a security interest in our assets in connection with any debt issuance, and the new equity or debt securities may have rights, preferences and privileges senior to those of our existing stockholders. In addition, utilization of our net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code of 1986 due to ownership changes resulting from equity financing transactions. If we raise additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to our potential products or proprietary technologies, or grant licenses on terms that are not favorable to us.

***We have a history of net losses and our future profitability is uncertain.***

With the exception of 2012, when we recognized \$38,885 of deferred revenue from a terminated joint venture, we have recorded losses since our inception. At December 31, 2016, our accumulated deficit was \$333,357. Since 1992, we have been engaged primarily in research and development and early-stage commercial activities. Because our crop science technology is at an early stage of development, we cannot be certain that the Yield10 Bioscience business will generate sufficient revenue to become profitable. We expect to have significant losses and negative cash flow for at least the next several years, as we incur additional costs and expenses for the continued development of our technology, including the ongoing expenses of research, development, commercialization and administration. The amount we spend will impact our need for capital resources as well as our ability to become profitable and this will depend, in part, on the number of new technologies 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 have recently changed our corporate strategy to focus on the crop science industry, and our technologies in this area are at a very early stage of development. We may never commercialize a technology or product that will generate meaningful, or any, revenues.***

In July 2016, our Board of Directors approved a plan to implement a strategic restructuring under which Yield10 Bioscience has become our core business. As part of the restructuring, we discontinued our biopolymer operations, eliminated positions in our biopolymer operations and corporate organization, and sold certain of our biopolymer business assets. We currently anticipate that our annual net cash used in operations, including anticipated payments for restructuring costs, will be approximately \$7,500 - \$8,000, compared to approximately \$25,000 prior to the restructuring.

The remaining cash restructuring costs associated with our strategic repositioning are estimated at approximately \$2,048, which have various payment due dates through May 2018. However, the reduction in cash used in operations resulting from the restructuring may be less than expected. If we are not successful in reducing our cash used in operations, we may require more financing than anticipated or we may be forced to wind down our remaining operations.

The products and technologies we are currently developing as a result of our strategic repositioning are at a very early stage of development, and the process of developing them is lengthy and uncertain. In addition, our current management has limited experience in developing technologies for the crop science industry, and has never commercialized a product or technology in this industry. We may never reach a point at which our efforts result in products that allow us to achieve revenue from their license or sale.

***We currently do not meet the continued listing standards of The NASDAQ Capital Market, which require a minimum closing bid price of \$1.00 per share. Our failure to meet NASDAQ's continued listing standards could result in the delisting of our common stock, negatively impact the price of our common stock and negatively impact our ability to raise additional capital.***

Our common stock is listed on The NASDAQ Capital Market. NASDAQ provides various continued listing requirements that a company must meet in order for its stock to continue trading on The NASDAQ Capital Market. Among these requirements is the requirement that the Company's stock trades at a minimum closing bid price of \$1.00 per share. Our stock has recently and consistently traded below \$1.00 per share, including closing bid prices below \$1.00 per share. On June 30, 2016, we received a deficiency letter from The NASDAQ Stock Market which provided us a grace period of 180 calendar days, or until December 27, 2016, to regain compliance with the minimum bid price requirement, which would have required a closing bid price of at least \$1.00 per share for a minimum of ten consecutive business days. We did not meet the minimum bid requirement prior to the expiration of the grace period on December 27, 2016, and on December 28, 2016, we received notice that NASDAQ granted us an additional 180-day grace period (until June 26, 2017) to regain compliance with the minimum bid price requirement. We may achieve compliance during this additional 180-day period if the closing bid price of our common stock is at least \$1.00 per share for a minimum of 10 consecutive business days before June 26, 2017. If we fail to regain compliance on or prior to June 26, 2017, our stock will be subject to delisting by NASDAQ. Additionally, if we fail to comply with any other continued listing standards of NASDAQ, our common stock will also be subject to delisting. If that were to occur, our common stock would be subject to rules that impose additional sales practice requirements on broker-dealers who sell our securities. The additional burdens imposed upon broker-dealers by these requirements could discourage broker-dealers from effecting transactions in our common stock. This would significantly and negatively affect the ability of investors to trade our securities and would significantly and negatively affect the value and liquidity of our common stock. These factors could contribute to lower prices and larger spreads in the bid and ask prices for our common stock. If we seek to implement a reverse stock split in order to remain listed on The NASDAQ Capital Market, the announcement and/or implementation of a reverse stock split could significantly negatively affect the price of our common stock.

***A portion of our revenue to date has been generated from government grants; continued availability of government grant funding is uncertain and contingent on compliance with the requirements of the grant.***

Historically, a portion of our revenue has been generated from payments to us from government entities in the form of government grants whereby we are reimbursed for certain expenses incurred in connection with our research and development activities, subject to our compliance with the specific requirements of the applicable grant, including rigorous documentation requirements. To the extent that we do not comply with these requirements, our expenses incurred may not be reimbursed. Any of our existing grants or new grants that we may obtain in the future may be terminated or modified.

Our ability to obtain grants or incentives from government entities in the future is subject to the availability of funds under applicable government programs and approval of our applications to participate in such programs. The application process for these grants and other incentives is highly competitive. We may not be successful in obtaining any additional grants, loans or other incentives. Recent political focus on reducing spending at the U.S. federal and state levels may continue to reduce the scope and amount of funds dedicated to crop science products, if such funds will continue to be available at all. To the extent that we are unsuccessful in being awarded any additional government grants in the future, we would lose a potential source of revenue.

***Our government grants may subject us to government audits, which could expose us to penalties.***

We may be subject to audits by government agencies as part of routine audits of our activities funded by our government grants. As part of an audit, these agencies may review our performance, cost structures and compliance with applicable laws, regulations and standards and the terms and conditions of the grant. If any of our costs are found to be allocated improperly, the costs may not be reimbursed and any costs already reimbursed for such contract may have to be refunded. Accordingly, an audit could result in a material adjustment to our results of operations and financial condition. Moreover, if an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions.

### **Risks Relating to our Yield10 Bioscience Crop Science Program**

***Our crop science product development cycle is lengthy and uncertain and will depend heavily on future collaborative partners.***

The technology and processes used in our crop science program and the application of our technology to enhance photosynthetic efficiency of crops are at an early stage of development. Research and development in the seed, agricultural biotechnology, and larger agriculture industries is expensive and prolonged and entails considerable uncertainty. Completion of our development work will require a significant investment of both time and money, if it can be completed at all. We expect that collaborations with established agricultural industry companies will be required to successfully develop and commercialize our innovations. The industry is highly concentrated and dominated by a small number of large players, which could impact efforts to form such collaborations. We may not be successful in establishing or maintaining suitable partnerships, and may not be able to negotiate collaboration agreements having terms satisfactory to us or at all. In addition, industry collaborators have significant resources and development capabilities and may develop products and technologies that compete with or negatively impact the development and commercialization of our technologies.

***Our crop science program may not be successful in developing commercial products.***

We and our potential future collaborators may spend many years and dedicate significant financial and other resources developing traits that will never be commercialized. Seeds containing the traits that we develop may never become commercialized for any of the following reasons:

- our traits may not be successfully validated in the target crops;
- our traits may not achieve our targeted yield improvements;
- we may not be able to secure sufficient funding to progress our traits through development and commercial validation;
- our traits may not have the desired effect sought by future collaborators for the relevant crops;
- development and validation of traits, particularly during field trials, may be adversely affected by environmental or other circumstances beyond our control;
- we or our future collaborators may be unable to obtain the requisite regulatory approvals for the seeds containing our traits;
- competitors may launch competing or more effective seed traits or seeds;
- a market may not exist for seeds containing our traits or such seeds may not be commercially successful;
- future collaborators may be unable to fully develop and commercialize products containing our seed traits or may decide, for whatever reason, not to commercialize such products; and
- we may be unable to patent our traits in the necessary jurisdictions.

If any of these things were to occur, it could have a material adverse effect on our business and our results of operations. Research and development in the crop science industry is expensive and prolonged, and entails considerable



uncertainty. Because of the stringent product performance and safety criteria applied in development of crop science products, products currently under development may neither survive the development process nor ultimately receive the requisite regulatory approvals needed to market such products. Even when such approvals are obtained, there can be no assurance that a new product will be commercially successful. In addition, research undertaken by competitors may lead to the launch of competing or improved products, which may affect sales of any products that we are able to develop.

***Even if we or our collaborators are successful in developing commercial products that incorporate our traits, such products may not achieve commercial success.***

Our strategy depends upon our or our collaborators' ability to incorporate our traits into a wide range of crops in significant markets and geographies. Even if we or our collaborators are able to develop commercial products that incorporate our traits, any such products may not achieve commercial success for one or more of the following reasons, among others:

- products may fail to be effective in particular crops, geographies, or circumstances, limiting their commercialization potential;
- our competitors may launch competing or more effective traits or products;
- significant fluctuations in market prices for agricultural inputs and crops could have an adverse effect on the value of our traits;
- farmers are generally cautious in their adoption of new products and technologies, with conservative initial purchases and proof of product required prior to widespread deployment, and accordingly, it may take several growing seasons for farmers to adopt our or our collaborators' products on a large scale; and
- we may not be able to produce high-quality seeds in sufficient amounts to meet demand.

Our financial condition and results of operations could be materially and adversely affected if any of the above were to occur.

***Consumer and government resistance to genetically modified organisms may negatively affect the ability to commercialize crops containing our traits, as well as our public image.***

Food and feed made from genetically modified seeds are not accepted by many consumers and in certain countries production of certain genetically modified crops is effectively prohibited, including throughout the European Union, due to concerns over such products' effects on food safety and the environment. The high public profile of the biotechnology industry in food and feed production, and a lack of consumer acceptance of products to which we have devoted substantial resources, could have a negative impact on the commercial success of products that incorporate our traits and could materially and adversely affect our ability to obtain collaborations and to finance our crop science program. Further, we could incur substantial liability and/or legal expenses if there are claims that genetically-engineered crops damage the environment or contaminate other farm crops. This could distract our management and cause us to spend resources defending against such claims.

Actions by consumer groups and others may disrupt research and development or production of genetically modified seeds. In addition, some government authorities have enacted, and others in the future might enact, regulations regarding genetically modified organisms, which may delay and limit or even prohibit the development and sale of such products.

***We may not be able to obtain or maintain the necessary regulatory approvals for our products, which could restrict our ability to sell those products in some markets.***

Seeds containing the traits that we develop must receive regulatory approval before they can be marketed, but we may not be able to obtain such approvals. Regulatory standards and procedures in the crop science industry are continuously changing, and responding to these changes and meeting existing and new requirements will be costly and burdensome. Even if we are able to obtain approvals for the seeds containing the traits that we develop, changing regulatory standards may affect our ability to maintain compliance with such regulatory standards.

***If ongoing or future field trials conducted by us or our collaborators are unsuccessful, we may be unable to complete the regulatory process for, or commercialize, our products in development on a timely basis.***

The successful completion of multi-year, multi-site field trials is critical to the success of product development and marketing efforts for products containing our traits. If our ongoing or future field trials, or those of our collaborators, are unsuccessful or produce inconsistent results or unanticipated adverse effects on crops, or if we or our collaborators are unable



to collect reliable data, regulatory review of products in development containing our traits could be delayed or commercialization of products in development containing our traits may not be possible. In addition, more than one growing season may be required to collect sufficient data to develop or market a product containing our traits, and it may be necessary to collect data from different geographies to prove performance for customer adoption. Even in cases where field trials are successful, we cannot be certain that additional field trials conducted on a greater number of acres, or in different crops or geographies, will be successful. Generally, our collaborators conduct these field trials or we pay third parties, such as farmers, consultants, contractors, and universities, to conduct field trials on our behalf. Poor trial execution or data collection, failure to follow required agronomic practices, regulatory requirements, or mishandling of products in development by our collaborators or these third parties could impair the success of these field trials.

Many factors that may adversely affect the success of our field trials are beyond our control, including weather and climatic variations, such as drought or floods, severe heat or frost, hail, tornadoes and hurricanes, uncommon pests and diseases, or acts of protest or vandalism. For example, if there was prolonged or permanent disruption to the electricity, climate control, or water supply operating systems in our greenhouses or laboratories, the crops in which we or our collaborators are testing our traits and the samples we or our collaborators store in freezers, both of which are essential to our research and development activities including field tests, could be severely damaged or destroyed, adversely affecting these activities and thereby our business and results of operations. Unfavorable weather conditions including drought or excessive rain, or fluctuations in temperature, can also reduce both acreage planted and incidence, or timing of, certain crop diseases or pest infestations, each of which may halt or delay our field trials. Any field test failure we may experience may not be covered by insurance and, therefore, could result in increased cost for the field trials and development of our traits, which may negatively impact our business, results of operations, and ability to secure financing. Such factors outside of our control can create substantial volatility relating to our business and results of operations.

***Competition in traits and seeds is intense and requires continuous technological development, and, if we are unable to compete effectively, our financial results will suffer.***

We face significant competition in the markets in which we operate. The markets for traits and agricultural biotechnology products are intensely competitive and rapidly changing. In most segments of the seed and agricultural biotechnology market, the number of products available to consumers is steadily increasing as new products are introduced. At the same time, the expiration of patents covering existing products reduces the barriers to entry for competitors. We may be unable to compete successfully against our current and future competitors, which may result in price reductions, reduced margins and the inability to achieve market acceptance for products containing our traits. In addition, most of our competitors have substantially greater financial, marketing, sales, distribution, research and development, and technical resources than us, and some of our collaborators have more experience in research and development, regulatory matters, manufacturing, and marketing. We anticipate increased competition in the future as new companies enter the market and new technologies become available. Our technologies may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors, which will prevent or limit our ability to generate revenues from the commercialization of our traits being developed.

***Our business is subject to various government regulations and if we or our collaborators are unable to timely complete the regulatory process for our products in development, our or our collaborators' ability to market our traits could be delayed, prevented or limited.***

Our business is generally subject to two types of regulations: regulations that apply to how we and our collaborators operate and regulations that apply to products containing our traits. We apply for and maintain the regulatory permits necessary for our operations, particularly those covering our field trials, which we or our collaborators apply for and maintain regulatory approvals necessary for the commercialization of products containing our seed traits. Even if we and our collaborators make timely and appropriate applications for regulatory permits for our field trials, government delays in issuing such permits can significantly affect the development timelines for our traits, particularly if the planting period for a crop growing season expires before the necessary permits are obtained. In most of our key target markets, regulatory approvals must be received prior to the importation of genetically modified products. These regulatory processes are complex. For example, the U.S. federal government's regulation of biotechnology includes, but is not limited to, the USDA, which regulates the import, field testing, and interstate movement of genetically modified plants, and the FDA, which regulates foods derived from new plant varieties.

In addition to regulation by the U.S. government, products containing our traits may be subject to regulation in each country in which such products are tested or sold. International regulations may vary from country to country and from those of the United States. The difference in regulations under U.S. law and the laws of foreign countries may be significant and, in

order to comply with the laws of foreign countries, we may have to implement global changes to our products or business practices. Such changes may result in additional expense to us and either reduce or delay product development or sales. Additionally, we or our collaborators may be required to obtain certifications or approvals by foreign governments to test and sell the products in foreign countries.

The regulatory process is expensive and time-consuming, and the time required to complete the process is difficult to predict and depends upon numerous factors, including the substantial discretion of the regulatory authorities. We have not completed all phases of the regulatory process for any of our traits in development. Our traits could require a significantly longer time to complete the regulatory process than expected, or may never gain approval, even if we and our collaborators expend substantial time and resources seeking such approval. The time required for regulatory approval, or any delay or denial of such approval, could negatively impact our ability to generate revenues and to achieve profitability and finance our ongoing operations. In addition, changes in regulatory review policies during the development period of any of our traits, changes in, or the enactment of, additional regulations or statutes, or changes in regulatory review practices for a submitted product application may cause a delay in obtaining approval or result in the rejection of an application for regulatory approval. Regulatory approval, if obtained, may be made subject to limitations on the intended uses for which we or our collaborators may market a product. These limitations could adversely affect our potential revenues. Failure to comply with applicable regulatory requirements may, among other things, result in fines, suspensions of regulatory approvals, product recalls, product seizures, operating restrictions, and criminal prosecution.

Our work with the Smart Carbon Grid for Crops and the T3 Platform has identified promising potential targets for gene editing, and we believe that these approaches may be subject to less regulatory complexity in the U.S. during development and along the path to commercialization. Gene editing techniques, including CRISPR/Cas9, which involve making small targeted changes to the DNA of a target organism, have been of interest to the agricultural biotech industry because this approach is believed to have the potential to significantly reduce development costs and regulatory timelines for crop trait development and market introduction. Recent statements by the United States Department of Agriculture - Animal and Plant Health Inspection Service ("USDA-APHIS") regarding the regulatory path for genetically edited plants and mushrooms indicate that they will not be subject to regulations typically used for genetically modified crops (i.e., they will not be considered "regulated articles") if the modified organisms do not contain any remaining genetic elements from the procedure used for gene editing. While we believe that these industry examples suggest that crops that are gene edited may not be subject to certain GMO regulations in the U.S., we cannot assure you that this regulatory path will be found to apply to any of our seed yield traits or that the regulatory agencies will not change this approach to the regulation of genome editing or introduce new regulatory procedures applicable to such technologies.

***The products of third parties or the environment may be negatively affected by the unintended appearance of our yield trait genes.***

The potential for unintended but unavoidable trace amounts, sometimes called "adventitious presence," of yield trait genes in conventional seed, or in the grain or products produced from conventional or organic crops, could affect general public acceptance of these traits. Trace amounts of yield trait genes may unintentionally be found outside our containment area in the products of third parties, which may result in negative publicity and claims of liability brought by such third parties against us. Furthermore, in the event of an unintended dissemination of our genetically engineered materials to the environment, we could be subject to claims by multiple parties, including environmental advocacy groups, as well as governmental actions such as mandated crop destruction, product recalls or additional stewardship practices and environmental cleanup or monitoring. The occurrence of any of these events could have a material adverse effect on our business and results of operations.

***We rely on third parties to conduct, monitor, support, and oversee field trials and, in some cases, to maintain regulatory files for those products in development, and any performance issues by third parties, or our inability to engage third parties on acceptable terms, may impact our or our collaborators' ability to complete the regulatory process for or commercialize such products.***

We rely on third parties to conduct, monitor, support, and oversee field trials. As a result, we have less control over the timing and cost of these trials than if we conducted these trials with our own personnel. If we are unable to maintain or enter into agreements with these third parties on acceptable terms, or if any such engagement is terminated prematurely, we may be unable to conduct and complete our trials in the manner we anticipate. In addition, there is no guarantee that these third parties will devote adequate time and resources to our studies or perform as required by our contract or in accordance with regulatory requirements, including maintenance of field trial information regarding our products in development. If any of these third parties fail to meet expected deadlines, fail to transfer to us any regulatory information in a timely manner, fail

to adhere to protocols, or fail to act in accordance with regulatory requirements or our agreements with them, or if they otherwise perform in a substandard manner or in a way that compromises the quality or accuracy of their activities or the data they obtain, then field trials of our traits in development may be extended or delayed with additional costs incurred, or our data may be rejected by the applicable regulatory agencies. Ultimately, we are responsible for ensuring that each of our field trials is conducted in accordance with the applicable protocol and with legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our responsibilities.

If our relationship with any of these third parties is terminated, we may be unable to enter into arrangements with alternative parties on commercially reasonable terms, or at all. Switching or adding service providers can involve substantial cost and require extensive management time and focus. Delays may occur, which can materially impact our ability to meet our desired development timelines. If we are required to seek alternative service arrangements, the resulting delays and potential inability to find a suitable replacement could materially and adversely impact our business.

In addition, recently there has been an increasing trend towards consolidation in the agricultural biotechnology industry. Consolidation among our competitors and third parties upon whom we rely could lead to a changing competitive landscape, capabilities, and strategic priorities among potential service providers, which could have an adverse effect on our business and operations.

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

We are highly dependent on our key technical and scientific personnel, who possess unique knowledge and skills related to our research and technology. If we were to lose the services of these individuals, we may be unable to readily find suitable replacements with comparable knowledge and the experience necessary to advance the research and development of our products. Because of the unique talents and experience of many of our scientific and technical staff, competition for our personnel is intense. Our ability to attract and retain qualified employees may be affected by our efforts to manage cash usage, including reductions in total cash compensation. The loss of key personnel or our inability to hire and retain personnel who have the required expertise and skills could have a material adverse effect on our research and development efforts, our business, and our ability to secure additional required financing.

**Risks Relating to Intellectual Property**

***Patent protection for our technologies is both important and uncertain.***

Our commercial success may depend in part on our obtaining and maintaining patent protection for our technologies in the United States and other jurisdictions, as well as successfully enforcing and defending this intellectual property against third-party challenges. If we are not able to obtain or defend patent protection for our technologies, then we will not be able to exclude competitors from developing or marketing such technologies, and this could negatively impact our ability to generate sufficient revenues or profits from product sales and/or licensing to justify the cost of development of our technologies and to achieve or maintain profitability. Our currently issued patents relate to our historical business and have expiration dates ranging from 2020 through 2030. New outstanding patent applications owned by or licensed to us, relating to crop yield improvements have filing dates ranging from 2013 through 2017.

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. There will be many countries in which we will choose not to file or maintain patents because of the costs involved. Competitors may also design around our patents or develop competing technologies.

Additionally, any issued patents owned by or licensed to us now or in the future may be challenged, invalidated, or circumvented. We could incur substantial costs to bring suits or other proceedings in which we may assert or defend our patent rights or challenge the patent rights of third parties. An unfavorable outcome of any such litigation could have a material adverse effect on our business and results of operations.

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

Various U.S. and foreign issued patents and pending patent applications owned by third parties exist in areas relevant to our products and processes. We could incur substantial costs to challenge third party patents. If third parties assert claims against us or our customers alleging infringement of 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 material adverse effect on our business. In addition, if 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 technologies and services based on our technologies in the United States or abroad. Alternatively, we may seek licenses to such third party intellectual property. However, we may be unable to obtain these licenses on acceptable terms, if at all. Our failure to obtain the necessary licenses or other rights could prevent the sale, manufacture, or distribution of some of our products based on our technologies and, therefore, could have a material adverse effect on our business.

***Portions of our crop science technology are owned by or subject to retained rights of third parties.***

We have licensed and optioned from academic institutions certain patent rights that may be necessary or important to the development and commercialization of our crop science technology. These licenses and options may not provide exclusive rights to use such intellectual property in all fields of use in which we may wish to develop or commercialize our technology. If we fail to timely exercise our option rights and/or we are unable to negotiate license agreements for optioned patent rights on acceptable terms, the academic institutions may offer such patent rights to third parties. If we fail to comply with our obligations under these license agreements, or if we are subject to a bankruptcy or insolvency proceeding, the licensor may have the right to terminate the license. In some circumstances, we may not have the right to control the preparation, filing and prosecution of licensed patent applications or the maintenance of the licensed patents. Therefore, we cannot be certain that these patents and applications will be prosecuted, maintained and enforced in a manner consistent with the best interests of our business. Furthermore, the research resulting in certain of our licensed and optioned patent rights was funded by the U.S. government. As a result, the government may have certain rights, or march-in rights, to such patent rights and technology.

***We may not be successful in obtaining necessary rights to additional technologies for the development of our products through acquisitions and in-licenses.***

We may be unable to acquire or in-license additional technologies from third parties that we decide we need in order to develop our business. A number of more established companies may also pursue strategies to license or acquire crop science technologies that we may consider attractive. These established companies may have a competitive advantage over us due to their size, cash resources and greater development and commercialization capabilities. Any failure on our part to reach an agreement for any applicable intellectual property could result in a third party acquiring the related rights and thereby harm our business.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire relevant crop science technologies on terms that would allow us to make an appropriate return on our investment.

We expect that competition for acquiring and in-licensing crop science technologies that are attractive to us may increase in the future, which may mean fewer suitable opportunities for us as well as higher acquisition or licensing costs. If we are unable to successfully obtain rights to suitable crop science technologies on reasonable terms, or at all, our business and financial condition could suffer.

***The intellectual property landscape around genome editing technology, such as CRISPR/Cas9, is highly dynamic and uncertain, and any resolution of this uncertainty could have a material adverse effect on our business.***

The field of genome editing, especially in the area of CRISPR/Cas9 technology, is still in its infancy, and no products using this technology have reached the market. We are currently negotiating a license for work in the CRISPR/Cas9 field in order to demonstrate the utility of our yield trait genes in this field. Due to the intense research and development that is taking place by several companies, including us and our competitors, in this field, the intellectual property landscape is in flux, and it may remain uncertain for the coming years. There has been, and may continue to be, significant intellectual property related litigation and proceedings relating to this area in the future. If we obtain a license to certain patent rights

using the CRISPR/Cas9 technology, and it is later determined that such patent rights are invalid or owned by other parties, this 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 harm our business.***

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. Litigating a claim that a third party had illegally obtained and was using our trade secrets would be expensive and time consuming, and the outcome would be unpredictable. Moreover, if our competitors independently develop similar knowledge, methods and know-how, it will be difficult for us to enforce our rights and our business could be harmed.

**Risks Relating to Owning our Common Stock**

***Raising additional funds may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies.***

If we raise additional funds through equity offerings or offerings of equity-linked securities, including warrants or convertible debt securities, we expect that our existing stockholders will experience significant dilution, and the terms of such securities may include liquidation or other preferences that adversely affect your rights as a stockholder. Debt financing, if available, may subject us to restrictive covenants that could limit our flexibility in conducting future business activities, including covenants limiting or restricting our ability to incur additional debt, dispose of assets or make capital expenditures. We may also incur ongoing interest expense and be required to grant a security interest in our assets in connection with any debt issuance. If we raise additional funds through strategic partnerships or licensing agreements with third parties, we may have to relinquish valuable rights to our technologies or grant licenses on terms that are not favorable to us.

***A material weakness was identified in our internal control over financial reporting, which could impact our business and financial results.***

Our internal control over financial reporting may not prevent or detect misstatements because of its inherent limitations, including the possibility of human error, the circumvention or overriding of controls, or fraud. Even effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements. If we fail to maintain the adequacy of our internal controls, including any failure to implement required new or improved controls, or if we experience difficulties in their implementation, our business and financial results could be harmed and we could fail to meet our financial reporting obligations. For example, in connection with the evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2016, we determined that our controls over accounting for stock based compensation expense did not operate effectively. Specifically, our procedures did not operate as designed to validate the calculation for stock based compensation expense resulting from an option award modification. We determined that this constitutes a material weakness.

***Trading volume in our stock is low and 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.***

Trading volume in our stock is low and 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:

- any change in the status of our NASDAQ listing;
- the need for near term financing to continue operations;
- reported progress in our efforts to develop crop related technologies, 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 issuances and/or sales of our securities;

- announcements or the absence of announcements by us, or our competitors, regarding 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, or limited, or negative industry or security analyst coverage;
- uncertainty regarding our ability to secure additional cash resources with which to operate our business;
- short-selling or similar activities by third parties; and
- 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. Any negative change in the public's perception of the prospects of industrial or agricultural biotechnology companies could depress our stock price regardless of our results of operations. These factors may have a material adverse effect on the market price of our common stock.

***Provisions in our certificate of incorporation and by-laws and Delaware law 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.

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, which generally refers to a person which together with its affiliates owns, or within the last three years has owned, 15% or more 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.

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

Based on the number of shares outstanding as of March 17, 2017, our officers, directors and stockholders who hold at least 5% of our stock beneficially own a combined total of approximately 69.7% of our outstanding common stock, including shares of common stock subject to stock options and warrants that are currently exercisable or are exercisable within 60 days after March 17, 2017. If these officers, directors, and principal stockholders or a group of our principal stockholders act together, they will be able to exert a significant degree of influence over our management and affairs and control matters requiring stockholder approval, including the election of directors and approval of mergers, business combinations or other significant transactions. The interests of one or more of these stockholders may not always coincide with our interests or the interests of other stockholders. For instance, officers, directors, and principal stockholders, acting together, could cause us to enter into transactions or agreements that we would not otherwise consider. Similarly, this concentration of ownership may have the effect of delaying or preventing a change in control of our company otherwise favored by our other stockholders. As of March 17, 2017, Jack W. Schuler and William P. Scully beneficially owned approximately 47.7% and approximately 10.3% of our common stock, respectively.

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

None.

**ITEM 2. PROPERTIES**

We do not own any real property. On January 20, 2016, we entered into a lease agreement pursuant to which we lease approximately 30,000 square feet of office and research and development space located at 19 Presidential Way, Woburn, Massachusetts. The lease began on June 1, 2016 and will end on November 30, 2026. Under the terms of the lease agreement, the landlord paid \$889 for tenant improvements to the facility and paid an additional \$444 for tenant improvements that result in increased rental payments by the Company. Current and non-current portions of the lease incentive obligations related to the landlord's contributions toward the cost of tenant improvements are recorded within accrued expenses and long-term lease incentive obligation, respectively, in the Company's consolidated balance sheet contained herein. The lease incentive obligation will be amortized to rent expense over the lease term. As of December 31, 2016, the Company has a total remaining lease incentive obligation of \$1,259. Pursuant to the lease, the Company also pays certain taxes and operating costs associated with the premises during the term of the lease. To secure the lease, the Company provided the landlord with a deposit in the form of a letter of credit in the amount of \$307.

On October 10, 2016, the Company entered into a sublease agreement with a subsidiary of CJ CheilJedang Corporation ("CJ") for CJ's sublease of approximately 10,000 square feet of the Company's Woburn facility. The subleased space was determined to be in excess of the Company's needs as a result of its recent strategic shift and the related restructuring of its operations. The sublease is coterminous with the Company's master lease. CJ will pay rent and operating expenses equal to approximately one-third of the amounts payable to the landlord by the Company, as adjusted from time-to-time in accordance with the terms of the master lease. In October 2016, CJ provided the Company with a security deposit of \$103 in the form of an irrevocable letter of credit.

We also lease approximately 13,700 square feet of office and laboratory space at 650 Suffolk Street, Lowell, Massachusetts. Our lease for this facility expires in May 2020, with an option to renew for one five-year period. We are currently working with a commercial real estate broker to locate a subtenant for this space. Our wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada, leases approximately 4,100 square feet of office, laboratory and greenhouse space. MOI's leases for these facilities expire on July 31, 2017 and September 30, 2017. We expect to renew these leases prior to their expiration.

**ITEM 3. LEGAL PROCEEDINGS**

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. We are not currently aware of any such proceedings or claims that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

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

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

	Common Stock Price			
	2016		2015	
	High	Low	High	Low
First Quarter	\$ 2.29	\$ 0.86	\$ 7.68	\$ 2.22
Second Quarter	1.92	0.54	5.10	2.93
Third Quarter	0.88	0.26	4.07	1.07
Fourth Quarter	0.67	0.25	3.98	1.25



The closing price of our common stock, as reported by the NASDAQ Capital Market, was \$0.42 on March 17, 2017.

### **Stockholders**

As of March 17, 2017, there were 28,402,471 shares of our common stock outstanding held by 44 stockholders of record.

### **Dividends**

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

### **Equity Compensation Plan Information**

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

### **Unregistered Sales of Securities**

On October 5, 2016, the Company issued 121,195 shares of common stock to participants in its Yield10 Bioscience, Inc. 401(k) Plan as a matching contribution. The issuance of these securities is exempt from registration pursuant to Section 3(a)(2) of the Securities Act of 1933 as amended.

### **Issuer Purchases of Equity Securities**

During the quarter ended December 31, 2016, there were no repurchases made by us or on our behalf, or by any "affiliated purchasers," of shares of our common stock.



**ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA****Not applicable****ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

*The following discussion and analysis should be read in conjunction with the Consolidated Financial Statements and Notes thereto included in this Annual Report on Form 10-K. All dollar amounts are stated in thousands.*

**Overview**

Yield10 Bioscience, Inc. is an agricultural bioscience company focusing on the development of step-change increases in food and feed crop yield to enhance global food security. According to a United Nations report, food production must be increased by over 70 percent in the next 35 years to feed the growing global population, which is expected to increase from 7 billion to more than 9.6 billion by 2050. Yield10 is focused on new agricultural biotechnology approaches, using two proprietary discovery platforms, to improve fundamental crop yield through enhanced photosynthetic carbon capture and increased carbon utilization efficiency where the additional captured carbon is targeted to increase seed yield. These platforms are based on the principle that plants which capture and utilize carbon more efficiently generate benefits in the form of more robust crops with increased seed yield. Yield10 is working to develop, translate and demonstrate the commercial value of new genetically engineered yield trait genes and to identify genome editing targets for improved crop performance in several key food and feed crops, including canola, soybean, rice and corn. Yield10 Bioscience is headquartered in Woburn, Massachusetts and has an additional agricultural science facility with greenhouses in Saskatoon, Saskatchewan, Canada.

**Collaborative Arrangements**

We are not currently participating in any collaborative arrangements. Our historical strategy for collaborative arrangements has been to retain substantial participation in the future economic value of our technology while receiving current cash payments to offset research and development costs and working capital needs. By their nature, our collaborative agreements have been complex, containing multiple elements covering a variety of present and future activities. Our near-term strategic business plan includes the identification of third parties who will enter into collaborative arrangements with us to further research and development of new agricultural biotechnology to advance increases in crop yield.

**Government Grants**

As of December 31, 2016, proceeds of \$1,268 remain available under our U.S. government grants. This includes amounts for reimbursement to our subcontractors, as well as reimbursement for our employees' time, benefits and other expenses related to future performance.

The status of our government grants is as follows:

<b>Program Title</b>	<b>Funding Agency</b>	<b>Total Government Funds</b>	<b>Total received through December 31, 2016</b>	<b>Remaining amount available as of December 31, 2016</b>	<b>Contract/Grant Expiration</b>
Production of High Oil, Transgene Free Camelina Sativa Plants through Genome Editing	Department of Energy	\$ 1,997	\$ 841	\$ 1,156	September 2017
Subcontract from NC State University (NCSU) project funded by DOE ARPA-E entitled "Jet Fuel from Camelina Sativa: A Systems Approach"	Department of Energy	276	164	112	March 2017
Renewable Enhanced Feedstocks For Advanced Biofuels And Bioproducts ("REFABB")	Department of Energy	6,000	6,000	—	February 2016
Subcontract from University of Massachusetts (Amherst) project funded by ARPA-E entitled "Development of a Dedicated High Value Biofuels Crop"	Department of Energy	663	663	—	December 2015
<b>Total</b>		<b>\$ 8,936</b>	<b>\$ 7,668</b>	<b>\$ 1,268</b>	

## **Critical Accounting Estimates and Judgments**

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

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

### **Revenue Recognition**

We recognize revenue in accordance with accounting standards on revenue recognition. Our principal sources of revenue are government research grants and research and development payments that are primarily derived from collaborative agreements with other companies.

We recognize government grants as revenue because the grants are central to the Company's ongoing crop science program. Revenue is earned as research expenses related to the grants are incurred. Revenue earned on government grants, but not yet invoiced as of the balance sheet date, are recorded as unbilled receivables in the accompanying consolidated balance sheets for the years ended December 31, 2016 and December 31, 2015. Funds received from government grants in advance of work being performed are recorded as deferred revenue until earned.

### **Stock-Based Compensation**

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

Determining the appropriate fair value model and calculating the fair value of stock-based payment awards requires the use of highly subjective assumptions, including the expected life of the stock-based payment awards and stock price volatility. We use the Black-Scholes option-pricing model to value our service-based option grants and determine the related compensation expense. When we issue restricted stock units containing market and performance vesting conditions, we estimate the fair value and derived service period of these awards using a Monte Carlo valuation model. Generally, we recognize the fair value of stock awards evenly over their vesting periods provided the employee, director or non-employee receiving the award continues to meet continuing service conditions. The assumptions used in calculating the fair value of stock-based awards represent management's best estimates, but the estimates involve inherent uncertainties and the application of management judgment. See Note 10 to the consolidated financial statements for further discussion on the key assumptions used to determine the fair values of option grants pursuant to the Black-Scholes option pricing model.

### **Discontinued Operations**

A discontinued operation is a component of an entity that has either been disposed of, or that is classified as held for sale, which represents a separate major line of business or geographical area of operations and is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations. In accordance with the accounting guidance regarding the presentation of discontinued operations, the activity of our biopolymers component has been reclassified as a discontinued operation for the years ended December 31, 2016 and 2015. In July 2016, the Company announced a strategic restructuring plan in which Yield10 Bioscience became its core business which resulted in the sale of its biopolymer operations in September 2016.

### **Results of Operations**

The consolidated financial statements for the two years ending December 31, 2016, have been presented to reflect the former biopolymer operations of Yield10 Bioscience as a discontinued operation.

**Comparison of the Years Ended December 31, 2016 and 2015****Revenue**

	<b>Year ended December 31,</b>		<b>Change</b>
	<b>2016</b>	<b>2015</b>	
Grant revenue	\$ 1,159	\$ 1,350	\$ (191)

Total revenue from continuing operations was \$1,159 and \$1,350 for the years ended December 31, 2016 and 2015, respectively, and was derived solely from our research grants. The \$191 decrease in grant revenue for the year ended December 31, 2016, is primarily the result of the REFABB grant that ended in February 2016. During the year ended December 31, 2016, we did not recognize any further revenue from the REFABB grant. During the year ended December 31, 2015, \$1,028 was recognized from this grant. No revenue was recognized from the REFABB grant during 2016. Partially offsetting this decrease were increased grant revenues of \$1,126 recognized from our two Camelina grants.

We anticipate that grant revenue will increase over the next twelve months as we continue to make progress on our current outstanding grants while seeking to obtain and apply resources to additional government grants during 2017.

**Expenses**

	<b>Year ended December 31,</b>		<b>Change</b>
	<b>2016</b>	<b>2015</b>	
Research and development expenses	\$ 5,670	\$ 6,602	\$ (932)
General and administrative expenses	5,737	7,217	(1,480)
Total costs and expense	\$ 11,407	\$ 13,819	\$ (2,412)

***Research and Development Expenses***

Research and development expenses from continuing operations were \$5,670 and \$6,602 for the years ended December 31, 2016 and 2015, respectively. The decrease of \$932 was primarily due to a decrease in employee compensation and related benefit expenses. Employee compensation and related benefit expenses were \$2,624 and \$3,247 for the years ended December 31, 2016 and 2015, respectively. The decrease of \$623 is primarily attributable to decreases in headcount and the elimination of the 2016 bonuses as a result of our strategic restructuring and ongoing efforts to conserve cash. Research facility expenses also decreased by \$586 from \$2,421 during the year ended December 31, 2015 to \$1,835 for the year ended December 31, 2016, primarily as a result of the Company's move to its new Woburn, Massachusetts facility. Partially offsetting these expense reductions was a \$209 increase in sponsored research expense as a result of the Company's Camelina field test and payments made to a third party for its work in support of one of the Camelina government grants.

We expect research and development expenses from continuing operations to decrease during 2017 as a result of our receiving the full-year benefit from our restructuring efforts completed during the second half of 2016 and our close monitoring of available cash resources.

***General and Administrative Expenses***

General and administrative expenses from continuing operations were \$5,737 and \$7,217 for the fiscal years ended December 31, 2016 and 2015, respectively. The decrease of \$1,480 was primarily attributable to decreases in employee compensation and related benefits expenses. Employee compensation and related benefits expenses decreased by \$1,169 from \$3,830 for the year ended December 31, 2015 to \$2,661 for the year ended December 31, 2016. The decrease was primarily attributable to the Company's elimination of its 2016 bonuses and a net \$810 decrease in stock compensation expense arising out of our restructuring activities and management changes completed during the second half of 2016. In addition, professional fees decreased by \$154 from \$1,387 during the year ended December 31, 2015 to \$1,233 during the year ended December 31, 2016, primarily as a result of our receiving the current year benefit of lower auditing fees resulting from the Company's change in auditing firms.

We expect our general and administrative expenses from continuing operations to decrease during 2017 as a result of our restructuring efforts completed during the second half of 2016 and our close monitoring of available cash resources.

### Other Income (Net)

	Year ended December 31,		
	2016	2015	Change
Total other income (expense), net	\$ (38)	\$ 29	\$ (67)

Other income (expense), net, reflects net expense of \$38 and net income of \$29 for the years ended December 31, 2016 and 2015, respectively. The net expense for 2016 is the result of imputed interest charges recorded in connection with the Company's early termination of a manufacturing agreement with a third party, partially offset by investment income. Other income, net, shown for 2015, is primarily the result of income from the Company's investment in money market funds and realized net gains from foreign currency translation.

### Income (Loss) from Discontinued Operations, before income tax

In July 2016, our Board of Directors approved a restructuring plan under which Yield10 Bioscience became the Company's core business with a focus on developing disruptive technologies for step-change improvements in crop yield to enhance global food security. As a result of this strategic shift, during 2016, we completed the sale of certain biopolymer intellectual property, equipment and inventory to an affiliate of CJ CheilJedang Corporation ("CJ"). The \$10,000 purchase price paid by CJ was primarily for the acquisition of intellectual property, including the Company's PHA strains, patent rights, know-how and its rights, title and interest in certain license agreements. None of this intellectual property was previously capitalized on the Company's balance sheet, resulting in a gain on the sale of approximately \$9,868, net of equipment sold. The sale of our biopolymer assets generated income before income tax of \$2,682 from discontinued operations for the year ended December 31, 2016, compared to a loss from discontinued operations before income tax of \$11,241 for the year ended December 31, 2015. The year-over-year change of \$13,923 is the result of recognizing a net gain on the sale of biopolymer assets of \$9,833 to CJ during the year ended December 31, 2016 and the 2016 reduction in biopolymer operating costs as a result of the Company's discontinuation of its biopolymer operations.

### Income Tax Benefit

For the year ended December 31, 2016, the Company recognized an income tax benefit within continuing operations of \$1,097 and tax expense in discontinued operations of \$1,097 related to taxable income generated during the year as a result of the sale of biopolymer assets to CJ as discussed above. For the year ended December 31, 2015, the Company did not recognize any tax benefit or expense due to its loss position and valuation allowance.

### Liquidity and Capital Resources

Currently, we require cash to fund our working capital needs, to purchase capital assets, to pay our operating lease obligations and other operating costs. The primary sources of our liquidity have historically included equity financings, government research grants and income earned on cash and short-term investments.

Since our inception, we have incurred significant expenses related to our research, development and commercialization efforts. With the exception of 2012, when we recognized \$38,885 of deferred revenue from a terminated joint venture, the Company has recorded losses since its initial founding, including its fiscal year ended December 31, 2016. As of December 31, 2016, we had an accumulated deficit of \$333,357. Our total unrestricted cash and cash equivalents as of December 31, 2016, were \$7,309 as compared to \$12,269 at December 31, 2015. As of December 31, 2016, we had no outstanding debt.

Our cash and cash equivalents at December 31, 2016, were held for working capital purposes. As of December 31, 2016, we had restricted cash of \$432. Restricted cash consists of \$307 held in connection with the lease agreement for our Woburn, Massachusetts facility and \$125 held in connection with our corporate credit card program.

Investments are made in accordance with our corporate investment policy, as approved by our Board of Directors. The primary objective of this policy is to preserve principal and investments are limited to high quality corporate debt, U.S. Treasury bills and notes, money market funds, bank debt obligations, municipal debt obligations and asset-backed securities. The policy establishes maturity limits, concentration limits, and liquidity requirements. As of December 31, 2016, we were in compliance with this policy.

We anticipate that our current cash resources will be sufficient to fund operations and meet our obligations, including our restructuring obligations, when due, into the fourth quarter of 2017. This forecast of cash resources is forward-looking information that involves risks and uncertainties, and the actual amount of expenses could vary materially and adversely as a result of a number of factors. We have adopted the new guidance of ASU 2014-15, *Presentation of Financial Statements-Going Concern (Subtopic 205-40)* in order to determine whether there is substantial doubt about the Company's ability to continue as a going concern for one year after the date its financial statements are issued. The Company's ability to continue operations after its current cash resources are exhausted depends on its ability to obtain additional financing through, among other sources, public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, additional government research grants or collaborative arrangements with third parties, as to which no assurances can be given. We do not know whether additional financing will be available on terms favorable or acceptable to the Company when needed, if at all. If adequate additional funds are not available when required, or if we are unsuccessful in entering collaborative arrangements for further research, we may be forced to curtail our research efforts, explore strategic alternatives and/or wind down our operations and pursue options for liquidating our remaining assets, including intellectual property and equipment. Based on our cash forecast, we have determined that the Company's present capital resources are not sufficient to fund our planned operations for a twelve month period, and therefore, raise substantial doubt about its ability to continue as a going concern.

Although we have \$20,000 of availability under our equity facility with Aspire, market conditions likely will limit the extent to which the Company can draw on this facility. We continue to face significant challenges and uncertainties and, as a result, our available capital resources may be consumed more rapidly than currently expected due to (a) changes we may make to the business that affect ongoing operating expenses; (b) changes we may make to our business strategy; (c) changes in our research and development spending plans; and (d) other items affecting our forecasted level of expenditures and use of cash resources. Our present capital resources will not be sufficient to fund our planned operations for a twelve month period, and therefore, raise substantial doubt about our ability to continue as a going concern.

During 2016, we completed a strategic restructuring of our operations to focus on the Yield10 Bioscience business. We reduce staffing levels to twenty full-time employees and incurred restructuring costs for contract termination and employee post-termination benefits of approximately \$3,525 which are primarily reflected in discontinued operations within the Company's statement of operations. At December 31, 2016, \$2,048 of these restructuring charges remain outstanding and are required to be paid out through May 2018. We currently anticipate that we will use approximately \$7,500 - \$8,000 of cash during 2017, including anticipated payments for restructuring costs. This estimated cash usage for operations is significantly less than cash used for operations of \$14,700 and \$21,863 during the years ended December 31, 2016 and 2015, respectively, and the reduction is primarily the result of our restructuring efforts.

On October 7, 2015, we entered into a common stock purchase agreement with Aspire under which Aspire is committed to purchase, at our direction, up to an aggregate of \$20,000 of shares of our common stock over a 30 month period that will end on May 8, 2018. Common stock may be sold from time to time at the Company's option under pricing formulas based on prevailing market prices around the time of each sale. The extent to which we utilize the facility with Aspire as a source of funding will depend on a number of factors, including the prevailing market price of our common stock, the volume of trading in our common stock and the extent to which we are able to secure funds from other sources. The purchase agreement contains limitations on the number of shares that we may issue to Aspire. Additionally, we and Aspire may not effect any sales of shares of our common stock under the purchase agreement during the continuance of an event of default or on any trading day that the closing sale price of our common stock is less than \$0.50 per share. At December 31, 2016, the market price for the Company's common stock was below \$0.50 and the full \$20,000 remained available under the purchase agreement with Aspire. On December 30, 2016, the market price for our common stock closed at \$0.35 per share.

We will need additional capital to fully implement our business, operating and development plans and to support our capital needs. The timing, structure and vehicles for obtaining future financing are under consideration, but there can be no assurance that such financing efforts will be successful. If we do not receive additional funding during 2017, we may be forced to wind down our business, or have to delay, scale back or otherwise modify our business plans, research and development activities and other operations, and/or seek strategic alternatives.

If we issue equity or debt securities to raise additional funds, (i) the Company may incur fees associated with such issuance, (ii) our existing stockholders will experience dilution from the issuance of new equity securities, (iii) the Company may incur ongoing interest expense and be required to grant a security interest in Company assets in connection with any debt issuance, and (iv) the new equity or debt securities may have rights, preferences and privileges senior to those of our existing stockholders. In addition, utilization of our net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code of 1986 due to ownership changes resulting from future equity financing transactions. If we raise additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to our potential products or proprietary technologies, or grant licenses on terms that are not favorable to the Company.

Net cash used for operating activities was \$14,700 during the year ended December 31, 2016, compared to net cash used by operating activities during 2015 of \$21,863. Net cash used by operations during the year ended December 31, 2016, primarily reflects the net loss of \$7,604, the add-back of the gain on the sale of the Company's discontinued biopolymer assets, including certain property and equipment, totaling \$9,833 that is shown within cash proceeds under investing activities, the payment of 2015 performance bonuses during early 2016 of \$1,665, partially offset by non-cash expenses, including stock-based compensation expense of \$848, depreciation expense of \$515, inventory impairment write-downs totaling \$199, the Company's 401(k) stock matching contribution expense of \$281 and the settlement of certain restructuring costs through transfers of manufacturing equipment and the issuance of Yield10 Bioscience common stock.

The following are the non-cash operating items and investing items related to discontinued operations for the years ended December 31, 2016 and December 31, 2015.

	Year Ended December 31,	
	2016	2015
Non-cash operating items:		
Depreciation	\$ 326	\$ 147
Charge for 401(k) company common stock match	\$ 118	\$ 167
Stock-based compensation	\$ 217	\$ 663
Inventory impairment	\$ 199	\$ 209
Non-cash restructuring expense paid through stock and equipment	\$ 196	\$ —
Gain on sale of discontinued operation and property and equipment	\$ (9,833)	\$ (33)

Net cash of \$9,752 was provided by investing activities during the year ended December 31, 2016, compared to net cash used by investing activities during 2015 of \$614. Net cash provided by investing activities during the year ended December 31, 2016, was primarily the result of proceeds received from the sale of biopolymer assets of \$10,317 and a net decrease in restricted cash of \$187, partially offset by purchases of property and equipment to outfit the new Woburn, Massachusetts facility of \$752.

No cash was used or provided by financing activities during the year ended December 31, 2016. During the year ended December 31, 2015, the Company completed a \$15,000 financing from a private placement of equity securities and received \$14,703, net of issuance costs of \$297.

#### Off-Balance Sheet Arrangements

As of December 31, 2016, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of the Securities and Exchange Commission's Regulation S-K.

#### Related Party Transactions

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

## Recent Accounting Standards Changes

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

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

Not applicable.

## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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

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

Based upon the recommendation of our Audit Committee, PricewaterhouseCoopers LLP was dismissed as the Company's independent registered public accounting firm and RSM US LLP was appointed as its independent registered public accounting firm for the fiscal year ending December 31, 2016. That change was reported by the Company in a Current Report on Form 8-K dated January 3, 2017, filed with the SEC on January 5, 2017.

## ITEM 9A. CONTROLS AND PROCEDURES

### Effectiveness of Disclosure Controls and Procedures

We have established controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Act of 1934, as amended (the "Exchange Act")) that are designed to ensure that information required to be disclosed in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC and to ensure that information required to be disclosed is accumulated and communicated to management, including our Chief Executive Officer (principal executive officer) and Chief Accounting Officer (principal financial officer), to allow timely decisions regarding disclosure. Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Accounting Officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2016. Based on this evaluation, our Chief Executive Officer and Chief Accounting Officer have concluded that our disclosure controls and procedures were not effective at a reasonable assurance level as of December 31, 2016 due to a material weakness in internal control over financial reporting, as further described below.

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

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Accounting Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2016, based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control—Integrated Framework* (2013). Based on this evaluation, management concluded that the material weakness in internal control over financial reporting described below existed as of December 31, 2016.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

We did not maintain effective internal control over the accounting for stock based compensation expense. Specifically, our control over validating the accuracy of stock based compensation expense resulting from an option award

modification that occurred during the Company's fourth fiscal quarter did not operate as designed, and this resulted in an audit adjustment reflected as a reduction in general and administrative operating expense within continuing operations within our consolidated financial statements as of and for the year ended December 31, 2016. This level of adjustment is material to the Company's financial statements. Accordingly, our management determined that this control deficiency constitutes a material weakness.

We have concluded that the material weakness described above existed as of December 31, 2016. As a result, management has concluded that the Company did not maintain effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria described above.

#### **Remediation Plans**

The Company will undertake steps during its first quarter of 2017 to remediate the causes of the internal control failure related to the Company's accounting for the stock award modification. Specifically, we will perform the following steps:

- Our accounting staff responsible for preparing and reviewing stock based compensation will complete renewed training in the accounting for stock award modifications as provided by current accounting standards, including ASC Topic 718, *Compensation – Stock Compensation*;
- We will assess whether our licensed stock compensation software, as used by us, was a contributing cause of the error, and if limitations exist in the calculation stock compensation expense for stock award modifications, we will develop alternative procedures to ensure the accuracy of our calculations;
- We will undertake additional staff training to ensure that we correctly utilize the software application for future stock award modifications is appropriate;
- We will develop and implement enhanced policies, procedures and controls related to the calculation of stock based compensation when a stock award modification occurs.

We are committed to maintaining a strong internal control environment, and believe that these remediation efforts will represent significant improvements in our control environment. In the history of the company, stock award modifications have rarely occurred, if at all, before the ones that were recorded this past quarter. In the event Company modifies other stock awards, we will apply our enhanced procedures and controls to ensure a similar error does not occur.

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

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

#### **ITEM 9B. OTHER INFORMATION**

On March 27, 2017, the Company entered into new executive employment agreements with Dr. Oliver Peoples, as President and Chief Executive Officer; Dr. Kristi D. Snell, Chief Science Officer; Lynne H. Brum, Vice President, Planning and Communications; and Charles B. Haaser, Vice President Finance and Chief Accounting Officer. The terms of such agreements are set forth in Item 11 of this Form 10-K, Executive Compensation – Executive Employment Agreements. The forms of such agreements are filed as exhibits to this Form 10-K.



**PART III****ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE**

The following table sets forth the directors of the Company, the year each such director was first elected a director, the positions with the Company currently held by each such director, the year each director's current term will expire, and each director's current class:

Nominee's or Director's Name	Year First Became Director	Position(s) with the Company	Year Current Term Will Expire	Current Director Class
Oliver P. Peoples, Ph.D.	1992	Chief Executive Officer, Director	2017	II
Richard W. Hamilton, Ph.D.	2017	Director	2018	III
Peter N. Kellogg	2007	Director	2019	I
Joseph Shaulson	2013	Director	2017	II
Anthony J. Sinskey, Sc.D.	1992	Director	2018	III
Robert L. Van Nostrand	2006	Chairman of the Board, Director	2019	I

**DIRECTORS AND EXECUTIVE OFFICERS**

The Company's executive officers are appointed on an annual basis by, and serve at the discretion of the Board. Each executive officer is a full-time employee of Yield10 Bioscience. The following table sets forth the directors and executive officers of the Company, their ages, and the positions currently held by each such person with the Company:

Name	Age	Position
Oliver P. Peoples, Ph.D.	59	President and Chief Executive Officer, Director
Richard W. Hamilton, Ph.D. (1)(2)	54	Director
Peter N. Kellogg (1)	61	Director
Joseph Shaulson	51	Director
Anthony J. Sinskey, Sc.D. (2)(3)	77	Director
Robert L. Van Nostrand (1)(2)	59	Chairman of the Board, Director
Lynne H. Brum	53	Vice President, Planning and Communications
Charles B. Haaser	61	Vice President, Finance, Chief Accounting Officer and Treasurer
Kristi D. Snell, Ph.D.	49	Chief Science Officer

- 
- (1) Member of the Audit Committee
  - (2) Member of the Compensation Committee
  - (3) Member of the Nominating and Corporate Governance Committee

**BIOGRAPHICAL INFORMATION**

*Oliver P. Peoples, Ph.D.*, has served as our President and Chief Executive Officer since October 2016. He was co-founder of Yield10 Bioscience. He served as our Chief Scientific Officer starting in January 2000 and was previously our Vice President of Research and Development. Dr. Peoples has served as a Director since June 1992. Before founding the Company, Dr. Peoples was a research scientist with the Department of Biology at MIT. The research carried out by Dr. Peoples at MIT established the fundamental tools and methods for engineering bacteria and plants to produce polyhydroxyalkanoates. Dr. Peoples received a Ph.D. in Molecular Biology from the University of Aberdeen, Scotland. The Board believes that Dr. Peoples provides important technical and scientific understanding to the Board's analysis of Company strategy. As Chief Executive Officer and a founder of the Company, Dr. Peoples has unique information related to the Company's research and technology and has led and directed many of our scientific research and development programs. Dr. Peoples also contributes to the Board's understanding of the intellectual property aspects of the Company's technology platforms.

*Richard W. Hamilton, Ph.D.*, joined Yield10 Bioscience as a Director during March 2017. From 2002 to 2016, he served as Chief Executive Officer and as a member of the board of directors at Ceres, Inc., after previously serving as Ceres' Chief Financial Officer from 1998 to 2002. In addition to his leadership role at Ceres, Dr. Hamilton has sat on the Keck Graduate Institute Advisory Council and he was a founding member of the Council for Sustainable Biomass Production. He has served on the U.S. Department of Energy's Biomass Research and Development Technical Advisory Committee and has been active in the Biotechnology Industry Organization where he has served as Vice Chairman of the organization, chaired its Food and Agriculture Governing Board and served in other leadership roles. From 1992 to 1997, Dr. Hamilton was a Principal at Oxford Bioscience Partners and from 1993 to 1996 he was an Associate at Boston-based MVP Ventures. From 1990 to 1991, Dr. Hamilton was a Howard Hughes Medical Institute Research Fellow at Harvard Medical School. Dr. Hamilton received a B.S. in biology from St. Lawrence University and holds a Ph.D. in molecular biology from Vanderbilt University. The Board believes that Dr. Hamilton brings extensive management, biotechnology and financial experience that will contribute to his role on the Board.

*Peter N. Kellogg* has served as a Director of Yield10 Bioscience since March 2007. He was named Executive Vice President and Chief Financial Officer of Celgene Corporation in August 2014. Previously, Mr. Kellogg was Chief Financial Officer and Executive Vice President of Merck & Co. Inc. since August 2007. From 2000 to 2007, Mr. Kellogg served as Chief Financial Officer and Executive Vice President of Finance (since 2003) at Biogen Idec Inc. and the former Biogen, Inc. Before that, he served as Senior Vice President, PepsiCo E-Commerce at PepsiCo Inc. from March to July 2000 and as Senior Vice President and Chief Financial Officer, Frito-Lay International, from March 1998 to March 2000. From 1987 to 1998, he served in a variety of senior financial, international and general management positions at PepsiCo and the Pepsi-Cola International, Pepsi-Cola North America, and Frito-Lay International divisions. Prior to joining PepsiCo, Mr. Kellogg was a senior consultant with Arthur Andersen & Co. and Booz Allen & Hamilton. He received a BSE from Princeton University in 1978 and an MBA from The Wharton School in 1982. The Board of Directors has concluded that Mr. Kellogg should serve as a director because his experience in finance and biotechnology will be valuable to Yield10 Bioscience. Mr. Kellogg brings valuable insights from his current and prior positions that contribute to his role on the Board. He also serves as an important resource on the Audit Committee.

*Joseph Shaulson* has served as a Director since December 2013. He was previously our President and Chief Executive Officer from January 2014 until October 2016. Mr. Shaulson was previously Executive Vice President of Arch Chemicals with responsibility for a variety of global businesses, including Personal Care and Industrial Biocides, Wood Protection, Performance Products and Industrial Coatings. He also led Arch's strategic planning and corporate development functions when he joined the company as Vice President, Strategic Development in 2008. Prior to Arch, Mr. Shaulson served in various leadership positions at Hexcel Corporation, an advanced composites company, including President of the Reinforcements Business Unit. Prior to Hexcel, Mr. Shaulson served as a corporate associate at the law firm of Skadden, Arps, Slate, Meagher & Flom. Mr. Shaulson received a Bachelor of Science degree in Economics and a Master of Business Administration degree from the Wharton School at the University of Pennsylvania, as well as a Juris Doctor degree from the University of Pennsylvania Law School. The Board of Directors has concluded that Mr. Shaulson should serve as a Director because he is a proven executive who has successfully led and developed global specialties businesses and he has valuable knowledge and experience related to the Company's agricultural biotechnology gained during his tenure as the Company's President and Chief Executive Officer.

*Anthony J. Sinskey, Sc.D.*, has served as a Director since June 1992 and was a co-founder of Metabolix. From 1968 to present, Dr. Sinskey has been on the faculty of MIT. Currently at MIT, he serves as Professor of Microbiology in the Department of Biology and Professor of Health Sciences and Technology in the Harvard-MIT Health Sciences and Technology Program Engineering Systems Division, as well as faculty director of the Center for Biomedical Innovation. Dr. Sinskey serves on the board of directors of Tephra, Inc. (see "Certain Relationships and Related Person Transactions"). Dr. Sinskey received a B.S. from the University of Illinois and a Sc.D. from MIT. The Board believes that, as a faculty member of an academic institution with significant research activity in areas related to the Company's own research, Dr. Sinskey contributes to the Board his scientific knowledge and his awareness of new developments in these fields. Dr. Sinskey's involvement with other start-up and developing enterprises also makes him a valuable Board member.

*Robert L. Van Nostrand* is a consultant who has served as a Director since October 2006. From January 2010 to July 2010, he was Executive Vice President and Chief Financial Officer of Aureon Laboratories, Inc. From July 2007 until September 2008, Mr. Van Nostrand served as Executive Vice President and Chief Financial Officer of AGI Dermatics, Inc. Mr. Van Nostrand was with OSI Pharmaceuticals, Inc. from 1986 to 2007, serving as Senior Vice President and Chief Compliance Officer from May 2005 until July 2007, and as the Vice President and Chief Financial Officer from 1996 through 2005. Prior to joining OSI, Mr. Van Nostrand was in a managerial position with Touche Ross & Co. (currently Deloitte and Touche). Mr. Van Nostrand serves on the board of directors and is Chairman of the audit committee and a

member of the compensation committee of Achillion Pharmaceuticals, Inc. (since 2007), serves on the board of directors and is Chairman of the audit committee of Intra-Cellular Therapies, Inc. (since January 2014), serves on the boards of directors of Enumeral Biomedical, Inc. (since December 2014) and the Biomedical Research Alliance of New York (BRANY) (since 2011), and served on the board of directors and as Chair of the audit committee of Apex Bioventures, Inc. from 2006 to 2009. Mr. Van Nostrand received a B.S. in Accounting from Long Island University, New York, completed advanced management studies at the Wharton School, and he is a Certified Public Accountant. The Board believes that the Company is very fortunate to have Mr. Van Nostrand serve as a director and as Chairman of our Audit Committee because of the depth of his experience and expertise in financial reporting and corporate compliance, as well as his operational experience.

*Lynne H. Brum* has served as Vice President, Planning and Communications since October 2016. She joined the Company in November 2011 as Vice President, Marketing and Corporate Communications. Prior to joining the Company, in 2010 to 2011 she was a communications consultant and served in various roles including as a freelance project director for Seidler Bernstein Inc. Ms. Brum served from 2007 to 2009 as an Executive Vice President at Porter Novelli Life Sciences, a subsidiary of global PR firm, Porter Novelli International. Prior to that, Ms. Brum was responsible for corporate communications, investor relations and brand management for Vertex Pharmaceuticals, Inc. from 1994 to 2007 in various positions, including Vice President of Strategic Communications. Ms. Brum was also a vice president at Feinstein Kean Healthcare and was part of the communications team at Biogen, Inc.. Ms. Brum holds a bachelor's degree in biological sciences from Wellesley College and a master's degree in business administration from Simmons College's School of Management.

*Charles B. Haaser* has served as the Company's Vice President, Finance, Chief Accounting Officer and Treasurer since October 2016 after having served as Chief Accounting Officer and Treasurer since November 2014, and its Corporate Controller since 2008. Mr. Haaser has more than thirty years of experience in accounting and finance, primarily working for publicly traded U.S. companies. Before joining Yield10 Bioscience, Mr. Haaser was the Corporate Controller of Indevus Pharmaceuticals, Inc. from 2006 to 2008. He was the Corporate Controller and Principal Accounting Officer at ABIOMED, Inc. from 1998 to 2006 and additionally served as ABIOMED's Acting Chief Financial Officer from 2003 to 2006. From 1997 to 1998 Mr. Haaser was Controller for Technical Communications Corporation and from 1986 to 1997 was the Director of Finance at ISI Systems, Inc. From 1984 to 1986 Mr. Haaser was an auditor in the commercial audit division of Price Waterhouse LLP (now PricewaterhouseCoopers LLP). Mr. Haaser received a bachelor's degree in business administration (finance) from the University of Notre Dame, an MBA from Northeastern University and a Masters of Science in Taxation from Bentley University. Mr. Haaser became a Certified Public Accountant in 1997.

*Kristi D. Snell, Ph.D.* was named Vice President, Research and Chief Science Officer in October 2016 in conjunction with the transition to Yield10 Bioscience as the Company's core business. Dr. Snell joined the Company in 1997 and she has led the plant science research program since its inception. She has held a number of positions with the Company, including Vice President, Research and Biotechnology from July 2013 until October 2016 and President of Metabolix Oilseeds, the Company's wholly owned Canadian subsidiary, from April 2014 to present. Dr. Snell has more than 20 years of relevant experience and is an industry recognized expert in metabolic engineering of plants and microbes for the production of novel products and increased plant yield. Dr. Snell received a bachelor of science degree in Chemistry from the University of Michigan, and a Ph.D. in Organic Chemistry from Purdue University where she worked on metabolic engineering strategies to increase carbon flow to industrial products. Dr. Snell conducted her post-doctoral research at MIT in biochemistry and metabolic engineering.

#### **SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE**

Section 16(a) of the Exchange Act requires our directors, executive officers and persons who own more than ten percent of a registered class of our equity securities to file reports of ownership and changes in ownership with the SEC. Such persons are required by regulations of the SEC to furnish us with copies of all such filings. Based on our review of the copies of such filings received by us with respect to the fiscal year ended December 31, 2016, we believe that all required persons complied with all Section 16(a) filing requirements.

## CORPORATE GOVERNANCE AND BOARD MATTERS

### Audit Committee

Mr. Van Nostrand, Mr. Kellogg and Dr. Hamilton serve on the Audit Committee. Mr. Van Nostrand is the chairman of the Audit Committee. The Audit Committee has the responsibility and authority described in the Yield10 Bioscience Audit Committee Charter, which has been approved by the Board of Directors. A copy of the Audit Committee Charter is available on our website at <http://www.yield10bio.com> under "Investors - Corporate Governance." The Board of Directors has determined that each member of the Audit Committee is independent within the meaning of the Company's and NASDAQ's director independence standards and the SEC's heightened director independence standards for Audit Committee members as determined under the Exchange Act. The Board of Directors has also determined that Mr. Kellogg and Mr. Van Nostrand also qualify as "Audit Committee financial experts" under the rules of the SEC.

### Executive Sessions

The Board of Directors generally holds executive sessions of the independent directors following regularly scheduled in-person meetings of the Board of Directors, at least four times a year. Executive sessions do not include any employee directors of the Company.

### Compensation Risk Assessment

The Compensation Committee believes that our employee compensation policies and practices are not structured to be reasonably likely to present a material adverse risk to the Company. We believe we have allocated our compensation among base salary and short- and long-term incentive compensation opportunities in such a way as to not encourage excessive or inappropriate risk-taking by our executives and other employees. We also believe our approach to goal setting and evaluation of performance results reduce the likelihood of excessive risk-taking that could harm our value or reward poor judgment.

### Code of Business Conduct and Ethics

The Company has adopted the Code of Business Conduct and Ethics ("Code of Business Conduct") as its "code of ethics" as defined by regulations promulgated under the Securities Act of 1933, as amended (the "Securities Act"), and the Exchange Act (and in accordance with the NASDAQ requirements for a "code of conduct"), which applies to all of the Company's directors, officers and employees, including our principal executive officer, principal financial officer and accounting officer, or persons performing similar functions. A current copy of the Code of Business Conduct is available at the Company's website at [www.yield10bio.com](http://www.yield10bio.com) under "Investors—Corporate Governance." A copy of the Code of Business Conduct may also be obtained free of charge from the Company upon a request directed to Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801, Attention: Investor Relations. The Company will promptly disclose any substantive changes in or waivers, along with reasons for the waivers, of the Code of Business Conduct granted to its executive officers, including its principal executive officer, principal financial officer and accounting officer or controller, or persons performing similar functions, and its directors by posting such information on its website at [www.yield10bio.com](http://www.yield10bio.com) under "Investor Relations—Corporate Governance."

**ITEM 11. EXECUTIVE COMPENSATION****SUMMARY COMPENSATION TABLE**

The following table summarizes the compensation earned during the years ended December 31, 2016 and December 31, 2015 by our principal executive officer, our former principal executive officer, the two other most highly paid executive officers who were serving as executive officers on December 31, 2016 (our named executive officers):

<b>Name and Principal Position</b>	<b>Year</b>	<b>Salary</b>	<b>Bonus</b>	<b>Stock Awards(1)</b>	<b>Option Awards(1)</b>	<b>Non-Equity Incentive Plan Compensation(2)</b>	<b>All Other Compensation(3)</b>	<b>Total</b>
Oliver P. Peoples, Ph.D.	2016	\$ 237,500	—	—	\$ 389,355	—	\$ 11,925	\$ 638,780
President and Chief Executive Officer	2015	\$ 240,000	—	\$ 396,900	—	\$ 144,000	\$ 11,925	\$ 792,825
Lynne H. Brum	2016	\$ 220,000	—	—	\$ 196,850	—	\$ 11,925	\$ 428,775
Vice President, Planning and Communications	2015	\$ 220,000	—	\$ 342,975	—	\$ 88,000	\$ 11,675	\$ 662,650
Joseph Shaulson,	2016	\$ 320,833	—	—	\$ 196,105	—	\$ 67,350	\$ 584,288
Former President and Chief Executive Officer	2015	\$ 350,000	—	\$ 762,300	—	\$ 210,000	\$ 71,925	\$ 1,394,225
Kristi D. Snell, Ph.D.	2016	\$ 214,347	—	—	\$ 289,600	—	\$ 11,925	\$ 515,872
Vice President, Research and Chief Scientific Officer								

- (1) The amounts listed in the "Stock Awards" and "Option Awards" columns do not represent the actual amounts paid in cash or value realized by the named executive officers. These amounts represent the aggregate grant date fair value of restricted stock units and stock option awards for each individual computed in accordance with FASB ASC Topic 718. For a discussion of valuation assumptions, see Note 10 to our 2016 Consolidated Financial Statements, and Note 12 to our 2015 Consolidated Financial Statements included in our Annual Reports on Form 10-K for the years ended December 31, 2016 and 2015, respectively.
- (2) 2015 Non-Equity Incentive Plan Compensation represents bonus amounts paid in March 2016 based on the Compensation Committee's review of corporate performance for fiscal 2015 pursuant to the Company's executive cash incentive performance bonus program.
- (3) Other Compensation for 2016 and 2015 includes the value of the Company's Common Stock contributed to the Company's 401(k) plan as a matching contribution. In Mr. Shaulson's case, Other Compensation also includes \$50,000 and \$60,000 paid to him for temporary living and commuting costs during 2016 and 2015, respectively, and in 2016, cash payment of \$5,425 for unused vacation earned through his date of termination.

**Narrative Disclosure to Summary Compensation Table****Base Salaries**

During 2016, Dr. Peoples' base salary decreased from \$240,000 to \$225,000 per year in recognition of his increased opportunity to obtain future value from stock options awarded to him during 2016. Other than Dr. Peoples, base salary levels for the named executive officers remained unchanged during 2016 as compared to 2015. Since 2008 there have been no increases in base salaries for the named executive officers other than in connection with promotions.

**Pay for Performance**

Executive bonuses have historically been awarded based on overall corporate performance and to recognize and reward the teamwork of the named executive officers in advancing corporate goals, although the Compensation Committee retained the discretion to adjust individual bonus amounts in exceptional cases.

During 2016, the Board of Directors of the Company approved a strategic restructuring plan under which Yield10 Bioscience became its core business with a focus on developing disruptive technologies for step-change improvements in

crop yield. As part of the restructuring, the Company discontinued its biopolymer operations and eliminated approximately 45 positions in its biopolymer and corporate organization. To further conserve cash resources and to more strongly link employee performance to the future success of Yield10 Bioscience, executive officers and other employees with the Company, received stock options during 2016 in lieu of cash bonuses that would normally have been paid during the Company's first quarter of 2017.

***Long-Term Incentives***

In connection with the Company's strategic pivot to Yield10 Bioscience, the Compensation Committee awarded long-term stock option incentives in 2016 to the executive officers and other employees whose employment continued beyond the completed restructuring. Each awarded option has an exercise price per share equal to the fair market value of the Company's common stock on the date of the grant, vests in four equal semi-annual installments at a rate of 25% per installment over two years, and has a term of ten years from the date of grant. Named executive officers receiving these stock option awards were as follows:

<b>Named Executive Officer</b>	<b>Number of Options</b>
Oliver P. Peoples	1,650,000
Kristi D. Snell	1,000,000
Lynne H. Brum	500,000

***Option Awards and Award Modifications in lieu of Cash Severance***

On November 4, 2016, the Company's Board of Directors awarded Mr. Shaulson, its former Chief Executive Officer, a non-qualified stock option grant for 750,000 shares under a separation agreement. These options have an exercise price per share equal to the fair market value of the Company's common stock on the date of grant, were fully vested on the effective date of the separation agreement, became exercisable on the effective date of the release required by the separation agreement and will remain exercisable through December 19, 2023.

In December 2013, the Company's Board of Directors granted a non-qualified stock option award for the purchase of 191,667 shares of common stock to Mr. Shaulson in connection with his agreement to serve as a member of the Company's Board and to accept employment as its President and Chief Executive Officer. Upon execution of his separation agreement on November 4, 2016, the 143,750 remaining unvested stock options under this award became fully vested and 151,250 previously outstanding RSUs awarded to Mr. Shaulson in 2015 became fully vested.

The new stock option award and the accelerated vesting of the previously awarded RSUs and stock options were provided to Mr. Shaulson in lieu of any cash severance and 2016 cash bonus payable under his previous employment agreement.

**OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END**

The following table summarizes stock option and restricted stock awards held by our named executive officers at December 31, 2016:

Name	Grant Date	Option Awards				Stock Awards	
		Number of Securities Underlying Unexercised Options(1) Exercisable	Number of Securities Underlying Unexercised Options(1) Unexercisable(1)	Option Exercise Price(\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)(2)
Oliver P. Peoples							
	5/17/2007	6,667	—	\$ 143.94	5/17/2017	—	—
	3/5/2008	6,667	—	\$ 90.00	3/5/2018	—	—
	5/28/2009	6,667	—	\$ 41.58	5/28/2019	—	—
	5/27/2010	7,500	—	\$ 86.94	5/27/2020	—	—
	5/19/2011	7,501	—	\$ 43.50	5/19/2021	—	—
	2/1/2012	15,000	—	\$ 15.96	2/1/2022	—	—
	9/18/2012	20,833	—	\$ 9.30	9/18/2022	—	—
	5/30/2013	10,209	1,458	\$ 10.14	5/30/2023	—	—
	10/26/2016	—	1,650,000	\$ 0.53	10/26/2026	—	—
	4/1/2015 (3)					78,750	\$ 27,563
Lynne H. Brum							
	11/17/2011	5,833	—	\$ 24.78	11/17/2021	—	—
	5/31/2012	3,333	—	\$ 12.00	5/31/2022	—	—
	5/30/2013	5,833	834	\$ 10.14	5/30/2023	—	—
	10/26/2016	—	500,000	\$ 0.53	10/26/2026	—	—
	4/1/2015					58,749	\$ 20,562
Joseph Shaulson							
	12/19/2013	191,667	—	\$ 7.98	12/19/2023	—	—
	11/4/2016	750,000	—	\$ 0.44	12/19/2023	—	—
Kristi D. Snell							
	3/5/2008	417	—	\$ 90.00	3/5/2018	—	—
	5/30/2008	2,500	—	\$ 67.32	5/30/2018	—	—
	10/21/2008	1,400	—	\$ 54.72	10/21/2018	—	—
	8/21/2009	1,333	—	\$ 63.24	8/21/2019	—	—
	2/12/2010	1,667	—	\$ 58.62	2/12/2020	—	—
	2/11/2011	1,667	—	\$ 54.72	2/11/2021	—	—
	2/1/2012	3,334	—	\$ 15.96	2/1/2022	—	—
	5/31/2012	3,334	—	\$ 12.00	5/31/2022	—	—
	9/18/2012	10,000	—	\$ 9.30	9/18/2022	—	—
	2/13/2013	1,563	104	\$ 10.08	2/13/2023	—	—
	7/22/2013	3,386	781	\$ 8.88	7/22/2023	—	—
	2/24/2014	3,439	1,562	\$ 7.74	2/24/2024	—	—
	10/26/2016	—	1,000,000	\$ 0.53	10/26/2026	—	—
	4/1/2015 (3)					21,249	\$ 7,437
	9/30/2015 (3)					22,500	\$ 7,875

(1) All stock options that are not yet fully exercisable vest in equal quarterly installments over a period of four years from the grant date, except for options awarded to Dr. Peoples, Dr. Snell and Ms. Brum on 10/26/16, that vest in four equal semi-annual installments at the rate of 25% per installment commencing on 10/26/16.

(2) The aggregate market value of the unvested RSUs as shown in the table is based on \$0.35 per share, the closing price per share of the Company's common stock on December 30, 2016.



- (3) These RSUs will vest in four equal annual installments over a period of four years from the grant date.

### **Executive Employment Agreements**

*Oliver P. Peoples*. The Company has an employment agreement with Dr. Oliver P. Peoples, President and Chief Executive Officer. The agreement includes a minimum salary of \$225,000 and provides that Dr. Peoples will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Dr. Peoples' agreement, if the Company terminates Dr. Peoples' employment without "cause" or if Dr. Peoples terminates his employment for "good reason" (each, as defined in the agreement), he will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to the greater of \$480,000 or 24 months' base salary and a pro rata portion of the target bonus for the year in which termination occurs, but not less than a pro rata portion of \$180,000, plus payment of COBRA premiums for 24 months, provided that he signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Dr. Peoples' employment without cause or if Dr. Peoples terminates his employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Dr. Peoples will be entitled to the separation benefits and automatic full vesting of his unvested stock options. To the extent Dr. Peoples would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize his total after-tax payments.

*Lynne H. Brum*. The Company has an employment agreement with Lynne H. Brum, Vice President of Planning and Communications. The agreement includes a minimum salary of \$220,000 and provides that Ms. Brum will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Ms. Brum's agreement, if the Company terminates Ms. Brum's employment without "cause" or if Ms. Brum terminates her employment for "good reason" (each, as defined in the agreement), she will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that she signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Ms. Brum's employment without cause or if Ms. Brum terminates her employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Ms. Brum will be entitled to the separation benefits and automatic full vesting of her unvested stock options. To the extent Ms. Brum would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize her total after-tax payments.

*Charles B. Haaser*. The Company has an employment agreement with Charles B. Haaser, Vice President of Finance & Chief Accounting Officer. The agreement includes a minimum salary of \$205,000 and provides that Mr. Haaser will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Mr. Haaser's agreement, if the Company terminates Mr. Haaser's employment without "cause" or if Mr. Haaser terminates his employment for "good reason" (each, as defined in the agreement), he will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that he signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Mr. Haaser's employment without cause or if Mr. Haaser terminates his employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Mr. Haaser will be entitled to the separation benefits and automatic full vesting of his unvested stock options. To the extent Mr. Haaser would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize his total after-tax payments.

*Joseph Shaulson*. The Company had an employment contract with Joseph Shaulson, our former Chief Executive Officer, under which Mr. Shaulson was entitled to the following compensation in connection with his service as the president and CEO: an annual base salary of \$350,000, subject to increase to \$425,000 if the Company achieves certain revenue targets, and an annual cash bonus of up to 140% of base salary with a target bonus of no less than 70% of base salary, subject to the achievement of performance goals.

Pursuant to the terms of Mr. Shaulson's employment agreement, if Mr. Shaulson's employment were to be terminated without "cause" or for "good reason" (each, as defined in the agreement), Mr. Shaulson would be entitled to severance of 1.7 times his base salary, provided that he signed and did not revoke a general release. In addition, the vesting of

all unvested equity awards would continue as scheduled, and the exercise period for all equity awards would be extended. In connection with the Company's transition to Yield10 Bioscience and the related restructuring of management, on October 17, 2016, Mr. Shaulson resigned from his executive responsibilities as president and chief executive officer of the Company and on November 4, 2016, Mr. Shaulson and the Company entered into a Separation Agreement as described below (the "Separation Agreement").

The Separation Agreement provides that Mr. Shaulson would remain an employee and provide transition support to the Company and its management team through the end of 2016. He also continues to serve on the Company's board of directors. He received base compensation and standard employee benefits during the transition period through December 31, 2016. Base compensation was continued at the rate of \$350,000 per year through the end of October and then reduced to the rate of \$175,000 per year through the end of December. Contemporaneously with the execution of this Separation Agreement, Mr. Shaulson and the Company entered into a Release Agreement, which became effective on November 11, 2016.

The Separation Agreement provided for the following in lieu of any cash severance and 2016 cash bonus payable under Mr. Shaulson's previous employment agreement:

- Mr. Shaulson's outstanding non-qualified stock options covering 143,750 shares of Common Stock were immediately vested and remain exercisable for the balance of their original term through December 19, 2023.
- Mr. Shaulson's outstanding restricted stock units covering 151,250 shares of Common Stock were immediately vested.
- Mr. Shaulson was granted new non-qualified stock options under the Company's stock option plan exercisable for a total of 750,000 shares of Common Stock. The new options have an exercise price equal to the closing price of the Company's Common Stock on the date of grant, are fully vested and became exercisable on November 11, 2016, the effective date of the Release Agreement, and will be exercisable through December 19, 2023.

*Kristi D. Snell* The Company has an employment agreement with Kristi D. Snell, Vice President of Research & Chief Science Officer. The agreement includes a minimum salary of \$220,000 and provides that Ms. Snell will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Ms. Snell's agreement, if the Company terminates Ms. Snell's employment without "cause" or if Ms. Snell terminates her employment for "good reason" (each, as defined in the agreement), she will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that she signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Ms. Snell's employment without cause or if Ms. Snell terminates her employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Ms. Snell will be entitled to the separation benefits and automatic full vesting of her unvested stock options. To the extent Ms. Snell would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize her total after-tax payments.

#### **Executive Noncompetition, Nonsolicitation, Confidentiality, and Inventions Agreements**

All employees named above have signed the Company's *Employee Noncompetition, Nonsolicitation, Confidentiality, and Inventions* agreement which prohibits them, during their employment by us and for a period of one year thereafter, from engaging in certain business activities which are directly or indirectly in competition with the products or services being developed, manufactured, marketed, distributed, planned, or sold by the Company during the term of their employment.

**DIRECTOR COMPENSATION**

The following table summarizes the compensation earned by our non-employee directors in 2016:

<b>Name</b>	<b>Fees Earned or Paid in Cash (\$)(1)</b>	<b>Stock Awards (\$)</b>	<b>Total (\$)</b>
Peter N. Kellogg	\$ 17,500	\$ —	\$ 17,500
Celeste Beeks Mastin (2)	\$ 30,000	\$ —	\$ 30,000
Anthony J. Sinskey, Sc.D.	\$ 33,750	\$ —	\$ 33,750
Matthew Strobeck, Ph.D. (2)	\$ —	\$ —	\$ —
Robert L. Van Nostrand	\$ 37,500	\$ —	\$ 37,500

(1) Represents fees for the year 2016. All such fees were paid during 2016. Mr. Strobeck waived all cash compensation for Board and committee membership.

(2) Dr. Strobeck and Ms. Mastin resigned from the Company's Board on January 10, 2017, and March 8, 2017, respectively.

**Narrative to Director Compensation Table**

Under the Company's policy for compensation of non-employee directors, each non-employee member of our Board of Directors had previously been entitled to an annual retainer of \$30,000, paid in equal quarterly installments. In addition, the chairs of the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee were entitled to an additional annual retainer of \$15,000, \$10,000 and \$10,000, respectively. Each non-employee director serving as a member but not chair of our Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee received an annual retainer of \$5,000. Effective September 30, 2016, the Company's Board determined that it would temporarily suspend cash compensation to its non-employee members. The Board is exploring increased equity compensation in lieu of the reduced cash compensation and plans to revisit the matter later in 2017.

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

The following table sets forth certain information regarding beneficial ownership of the Company's Common Stock as of March 17, 2017: (i) by each person known to us to be the beneficial owner of more than 5% of our outstanding shares of Common Stock; (ii) by each of our directors and nominees; (iii) by all individuals serving as our "principal executive officer" during the year ended December 31, 2016, the two most highly paid executive officers who were serving as executive officers on December 31, 2016 (our "named executive officers"); (iv) by an executive officer who terminated employment with us prior to December 31, 2016, and whose 2016 compensation would otherwise have resulted in his being considered a named executive officer if he had remained employed with us through year-end; and (v) by all of our directors and executive officers as a group. Unless otherwise noted below, the address of each person listed on the table is c/o Yield10 Bioscience, Inc., 19 Presidential Way, Suite 201, Woburn, Massachusetts 01801.

<b>Beneficial Owner</b>	<b>Shares of Common Stock(1)</b>	<b>Options Exercisable Within 60 Days(2)</b>	<b>Warrants Exercisable Within 60 Days (2)</b>	<b>RSUs Vesting Within 60 days(2)</b>	<b>Total Shares Beneficially Owned</b>	<b>Percentage of Outstanding Shares(3)</b>
<b>5% Stockholders:</b>						
Jack W. Schuler(4) 28161 North Keith Drive Lake Forest, IL 60045	11,969,795	—	2,996,712	—	14,966,507	47.7%
William P. Scully(5) 771 Manatee Cove Vero Beach, FL 32963	2,933,333	—	—	—	2,933,333	10.3%
Matthew Strobeck (6) C/O Birchview Capital 688 Pine Street, Suite D Burlington, VT 05401	2,284,934	16,667	131,103	—	2,432,704	8.5%
<b>Directors, Nominees and Named Executive Officers:</b>						
Oliver P. Peoples (7)	242,674	494,274	13,113	26,250	776,311	2.7%
Richard W. Hamilton	—	—	—	—	—	*
Peter N. Kellogg	12,500	25,002	—	—	37,502	*
Joseph Shaulson (8)	320,515	941,667	31,500	—	1,293,682	4.4%
Anthony J. Sinskey (9)	72,390	21,669	—	—	94,059	*
Robert L. Van Nostrand	34,583	24,169	—	—	58,752	*
Lynne H. Brum (10)	76,884	140,416	13,113	19,583	249,996	*
Kristi D. Snell (11)	44,062	284,976	—	14,583	343,621	1.2%
All directors and executive officers as a group (9 persons)(12)	824,892	2,083,154	57,726	67,499	3,033,271	9.9%

\* less than 1%.

- (1) Beneficial ownership, as such term is used herein, is determined in accordance with Rule 13d-3(d)(1) promulgated under the Securities Exchange Act of 1934, as amended, and includes voting and/or investment power with respect to shares of our Common Stock. Unless otherwise indicated, the named person possesses sole voting and investment power with respect to the shares.
- (2) Consists of shares of Common Stock subject to stock options, warrants and restricted stock units ("RSUs") held by the person that are currently vested or will vest within 60 days after March 17, 2017.
- (3) Percentages of ownership are based upon 28,402,471 shares of Common Stock issued and outstanding as of March 17, 2017. Shares of Common Stock that may be acquired pursuant to options, warrants and RSUs that are vested and exercisable within 60 days after March 17, 2017, are deemed outstanding for computing the percentage ownership of the person holding such options, but are not deemed outstanding for the percentage ownership of any other person.

- (4) Information regarding Mr. Schuler is based solely on a Schedule 13D/A filed with the SEC on June 23, 2015. According to such Schedule 13D/A, Mr. Schuler reported sole voting and dispositive power as to 3,684,008 shares and shared voting and dispositive power as to 11,282,499 shares.
- (5) Information regarding Mr. Scully is based solely on a Schedule 13D/A filed with the SEC on January 7, 2016. According to such Schedule 13D/A, Mr. Scully reported sole voting power and sole dispositive power as to all of the shares.
- (6) Includes 710,366 shares held by Birchview Fund, LLC and 39,330 shares subject to warrants held by Birchview Fund, LLC. Dr. Strobeck is the sole member of Birchview Capital GP, LLC (the "GP"), the general partner of Birchview Capital, LP (the "Investment Manager"), which is the investment Manager of Birchview Fund, LLC (the "Fund") and the sole member of Birchview Partners, LLC (the "Manager"), which is a member of the Fund. Dr. Strobeck disclaims Section 16 beneficial ownership of the shares of Common Stock held by the Fund (collectively, the "Fund Shares"), except to the extent of his pecuniary interest, if any, in the Fund Shares by virtue of his membership interest in the GP. Also includes 66,664 shares held in accounts for minor children for which Dr. Strobeck serves as a custodian, 14,949 shares held by Dr. Strobeck's spouse as custodian for their children, and 6,819 shares held indirectly by a trust for the benefit of Dr. Strobeck's children. Dr. Strobeck is a trustee of the trust. Dr. Strobeck disclaims beneficial ownership of these shares except to the extent of his pecuniary interest in them, if any. Dr. Strobeck resigned from our Board on January 10, 2017.
- (7) Includes 15,991 shares held for Dr. Peoples in the Company's 401(k) plan.
- (8) Includes 14,696 shares held for Mr. Shaulson in the Company's 401(k) plan.
- (9) Includes 8,224 shares owned by Dr. Sinskey's spouse and 1,666 shares owned by a trust over which Dr. Sinskey may be deemed to share voting and investment power. Dr. Sinskey disclaims beneficial ownership of such shares.
- (10) Includes 27,092 shares held for Ms. Brum in the Company's 401(k) plan.
- (11) Includes 25,854 shares held for Dr. Snell in the Company's 401(k) plan.
- (12) Includes a total of 104,917 shares held for current executive officers and Mr. Shaulson, our former President and Chief Executive Officer, in the Company's 401(k) plan.

#### SECURITIES AUTHORIZED FOR ISSUANCE UNDER EQUITY COMPENSATION PLANS

The following table provides information about the Common Stock that may be issued upon the exercise of options, warrants and rights under all the Company's existing equity compensation plans as of December 31, 2016.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by stockholders (1)	6,120,383	\$3.30	4,234,034
Equity compensation plans not approved by stockholders (2)	191,667	\$7.98	—

- (1) Consists of the 2006 Stock Option and Incentive Plan and the 2014 Stock Option and Incentive Plan. For a description of these plans see Note 10 to our 2016 Consolidated Financial Statements included in this Annual Report on Form 10-K for the year ended December 31, 2016.
- (2) Consists of a stock option granted to Mr. Shaulson as an inducement for him to join the Company. These options originally vested over a four year period, but the remaining unvested portion became fully vested upon execution of Mr. Shaulson's separation agreement in November 2016.

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

The charter of the Nominating and Corporate Governance Committee provides that the committee shall conduct an appropriate review of all related party transactions (including those required to be disclosed pursuant to Item 404 of Regulation S-K) for potential conflict of interest situations on an ongoing basis, and the approval of that committee shall be required for all such transactions.

Also, under the Company's Code of Business Conduct, any transaction or relationship that reasonably could be expected to give rise to a conflict of interest involving an employee must be reported promptly to the Company's Chief Accounting Officer, who has been designated as the Company's Compliance Officer. The Compliance Officer may notify the Board of Directors or a committee thereof as he deems appropriate. Actual or potential conflicts of interest involving a director, executive officer or the Compliance Officer must be disclosed directly to the Chairman of the Board of Directors.

The transactions set forth below were approved by a majority of the Board of Directors, including a majority of the independent and disinterested members of the Board of Directors. The Company believes that it has executed all of the transactions set forth below on terms no less favorable to us than could have been obtained from unaffiliated third parties.

The Company previously licensed certain technology to Tepha, Inc., a related party, for use in medical applications. During May 2016, the Company entered into an amendment to its license agreement with Tepha, in which the Company received a lump sum payment of \$2,000 in consideration for an early buyout of all future royalties under the agreement and the licensing of two additional production strains and related intellectual property that was fully delivered to Tepha during 2016. The Company recognized \$2,272 and \$578 of license and royalty revenue from Tepha for the years ended December 31, 2016 and 2015, respectively. During 2016, the Company also received \$11 from Tepha in connection with their purchase of certain laboratory equipment previously used in the Company's biopolymer operations. Dr. Sinskey, a member of our Board of Directors, serves on the board of directors of Tepha. Dr. Peoples, Dr. Sinskey and Dr. Snell are stockholders of Tepha, and the Company owns 648,149 shares of Tepha's Series A redeemable convertible preferred stock. We believe that the terms of the transactions with Tepha were no less favorable to us than license agreements that might be entered into with an independent third party.

#### **Independence of Members of the Board of Directors**

The Board of Directors has determined that each of the Company's non-employee directors (Mr. Kellogg, Dr. Sinskey, Dr. Hamilton, and Mr. Van Nostrand) is independent within the meaning of the director independence standards of The NASDAQ Stock Market, LLC ("NASDAQ") and the Securities and Exchange Commission ("SEC"), including rules under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Furthermore, the Board of Directors has determined that each member of each of the Audit, Compensation and Nominating and Corporate Governance committees of the Board of Directors is independent within the meaning of the director independence standards of NASDAQ and the SEC, and that each member of the Audit Committee meets the heightened director independence standards for audit committee members as required by the SEC. In evaluating the independence of the directors, the Board considered the relationship of Dr. Sinskey as a stockholder and members of the board of directors of Tepha, Inc. The Board determined that these relationships did not impair the independence of Dr. Sinskey. See "Certain Relationships and Related Person Transactions."

At least annually, a committee of the Board of Directors evaluates all relationships between the Company and each director in light of relevant facts and circumstances for the purpose of determining whether a material relationship exists that might signal a potential conflict of interest or otherwise interfere with such director's ability to satisfy his responsibilities as an independent director.

### **ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES**

Based upon the recommendation of our Audit Committee of the Board of Directors, RSM US LLP replaced PricewaterhouseCoopers LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2016. That change was reported by the Company in a Current Report on Form 8-K dated January 3, 2017, filed with the SEC on January 5, 2017.

#### **Fees**

The following sets forth the aggregate fees billed by RSM US LLP, to the Company for the year ended December 31, 2016:

*Audit Fees*

Fees related to audit services were approximately \$119,000 for the year ended December 31, 2016 and relate to the year-end audit of the Company's financial statements for that year.

*Audit Related Fees*

RSM US LLP billed no audit related fees for the year ended December 31, 2016.

*Tax Fees*

RSM US LLP billed no fees for tax services for the fiscal year ended December 31, 2016.

*All Other Fees*

RSM US LLP billed no other fees for the year ended December 31, 2016.

**Pre-Approval Policy of the Audit Committee**

All of the services performed by RSM US LLP for the fiscal year ended December 31, 2016, were pre-approved in accordance with the pre-approval policy set forth in the Audit Committee Charter. The Audit Committee pre-approves all audit services and permitted non-audit services performed or proposed to be undertaken by the independent registered public accounting firm (including the fees and terms thereof), except where such services are determined to be *de minimis* under the Exchange Act, giving particular attention to the relationship between the types of services provided and the independent registered public accounting firm's independence.

**PART IV**

**ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES**

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

(1) **Financial Statements**

See Index to Financial Statements on page F-1.

(2) **Supplemental Schedules**

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

(3) **Exhibits**

See Item 15(b) below.

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

<b>Exhibit Number</b>	<b>Description</b>
<a href="#">2.1</a> (15)	Purchase Agreement between Metabolix, Inc. and CJ Research Center LLC, dated September 16, 2016.
<a href="#">3.1</a> (14)	Amended and Restated Certificate of Incorporation of the Registrant.
<a href="#">3.2</a> (1)	Amended and Restated By-laws of the Registrant.
<a href="#">4.1</a> (1)	Specimen Stock Certificate for shares of the Registrant's Common Stock.



<a href="#">4.2</a>	(12)	Registration Rights Agreement, dated October 7, 2015, between Metabolix, Inc. and Aspire Capital Fund, LLC
<a href="#">10.1</a>	†(1)	2006 Stock Option and Incentive Plan.
<a href="#">10.1.1</a>	†(1)	2006 Stock Option and Incentive Plan, Form of Incentive Stock Option Agreement.
<a href="#">10.1.2</a>	†(1)	2006 Stock Option and Incentive Plan, Form of Non-Qualified Stock Option Agreement.
<a href="#">10.1.3</a>	†(1)	2006 Stock Option and Incentive Plan, Form of Director Non-Qualified Stock Option Agreement.
<a href="#">10.2</a>	†(9)	2014 Stock Option and Incentive Plan, Revised and Restated.
<a href="#">10.2.1</a>	†(10)	2014 Stock Option and Incentive Plan, Form of Incentive Stock Option Award.
<a href="#">10.2.2</a>	†(10)	2014 Stock Option and Incentive Plan, Form of Non-Qualified Stock Option Award.
<a href="#">10.2.3</a>	†(10)	2014 Stock Option and Incentive Plan, Form of Restricted Stock Unit Award.
<a href="#">10.3</a>	†*	Employment Agreement between the Company and Oliver P. Peoples dated March 28, 2017.
<a href="#">10.4</a>	†*	Employment Agreement between the Company and Charles B. Haaser dated March 28, 2017.
<a href="#">10.5</a>	†(6)	Severance Agreement between the Company and Sarah P. Cecil executed July 1, 2013.
<a href="#">10.6</a>	†*	Employment Agreement between the Company and Lynne H. Brum dated March 28, 2017.
<a href="#">10.7</a>	†(7)	Employment Agreement between the Company and Joseph Shaulson dated December 19, 2013.
<a href="#">10.8</a>	†*	Employment Agreement between the Company and Kristi Snell dated March 28, 2017.
<a href="#">10.9</a>	†*	Noncompetition, Confidentiality and Inventions Agreement between the Company and each of Oliver Peoples, Charles Haaser, Lynne H. Brum and Kristi Snell, dated March 28, 2017.
<a href="#">10.10</a>	†(8)	Non-Qualified Stock Option Agreement between the Company and Joseph Shaulson dated December 19, 2013.
<a href="#">10.11</a>	†(8)	Restricted Stock Unit Award Agreement between the Registrant and Joseph Shaulson dated March 24, 2014.
<a href="#">10.12</a>	†(1)	Form of Indemnification Agreement between the Registrant and its Directors and Officers.
<a href="#">10.13</a>	(2)	Lease between Fortune Wakefield, LLC and Metabolix, Inc. dated March 30, 2007.
<a href="#">10.13.1</a>	(4)	First Amendment of Lease between Fortune Wakefield, LLC and Metabolix, Inc. dated February 29, 2012.
<a href="#">10.13.2</a>	(7)	Second Amendment of Lease between Fortune Wakefield, LLC and Metabolix, Inc. dated October 24, 2013.
<a href="#">10.14</a>	(11)	Securities Purchase Agreement dated June 15, 2015 between the Company and the Investors named therein.
<a href="#">10.15</a>	(11)	Standstill Agreement dated June 19, 2015 between the Company and Jack W. Schuler, Renate Schuler and the Schuler Family Foundation.
<a href="#">10.16</a>	(13)	Lease Agreement between the Company and ARE MA Region No. 20, LLC dated January 20, 2016 for the premises located at 19 Presidential Way, Woburn, MA
<a href="#">10.17</a>	(12)	Common Stock Purchase Agreement, dated October 7, 2015 between Metabolix, Inc. and Aspire Capital Fund, LLC.
<a href="#">10.18</a>	†*	Separation Agreement between the Company and Joseph Shaulson, dated as of November 3, 2016.

<a href="#">10.19</a>	*@	Exclusive License Agreement, dated as of June 30, 2015, between the Company and the University of Massachusetts.
<a href="#">10.20</a>	*	Sublease between CJ Research Center LLC and the Company, dated as of September 16, 2016.
<a href="#">14.1</a>	(3)	Yield10 Bioscience, Inc. Code of Business Conduct and Ethics.
<a href="#">21.1</a>	(5)	Subsidiaries of the Registrant.
<a href="#">23.1</a>	*	Consent of PricewaterhouseCoopers LLP, an independent registered public accounting firm.
<a href="#">23.2</a>	*	Consent of RSM US LLP, an independent registered public accounting firm.
24.1		Power of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K).
<a href="#">31.1</a>	*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934.
<a href="#">31.2</a>	*	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934.
<a href="#">32.1</a>	*	Certification Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.1	*	The following financial information from the Yield10 Bioscience, Inc. Annual Report on Form 10-K for the year ended December 31, 2016 formatted in XBRL; (i) Consolidated Balance Sheets, December 31, 2016 and December 31, 2015; (ii) Consolidated Statements of Operations, Years Ended December 31, 2016 and 2015; (iii) Consolidated Statements of Comprehensive Income (Loss), Years Ended December 31, 2016 and 2015; (iv) Consolidated Statements of Cash Flows, Years Ended December 31, 2016 and 2015; and (v) Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2016 and 2015; and (vi) Notes to Consolidated Financial Statements.
101.INS	*	XBRL Instance Document.
101.SCH	*	XBRL Taxonomy Extension Schema.
101.CAL	*	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	*	XBRL Taxonomy Extension Definition Linkbase.
101.LAB	*	XBRL Taxonomy Extension Label Linkbase.
101.PRE	*	XBRL Taxonomy Extension Presentation Linkbase.

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

\* Filed herewith

@ Confidential treatment has been requested for certain portions of this document.

- (1) Incorporated by reference herein to the exhibits to the Company's Registration Statement on Form S-1 (File No. 333-135760)
- (2) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007 (File No. 001-33133)
- (3) Incorporated by reference herein to the exhibits to the Company's 2011 Annual Report on Form 10-K filed March 12, 2012 (File No. 001-33133)
- (4) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 (File No. 001-33133)
- (5) Incorporated by reference herein to the exhibits to the Company's 2012 Annual Report on Form 10-K filed March 28, 2013 (File No. 001-33133)
- (6) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013 (File No. 001-33133)
- (7) Incorporated by reference herein to the exhibits to the Company's 2013 Annual Report on Form 10-K filed March 28, 2014 (File No. 001-33133)
- (8) Incorporated by reference herein to the exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014 (File No. 001-33133)
- (9) Incorporated herein by reference herein to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015 (File No. 001-33133)
- (10) Incorporated by reference herein to the exhibits to the Company's 2014 Annual Report on Form 10-K filed March 25, 2015 (File No. 001-33133)
- (11) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed on June 17, 2015 (File No. 001-33133)
- (12) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed on October 7, 2015 (File No. 001-33133)
- (13) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed on January 26, 2016 (File No. 001-33133)
- (14) Incorporated by reference herein to the exhibits to the Company's Report on Form 10-Q filed filed for the quarter ended September 30, 2015 (File No. 001-33133)
- (15) Incorporated by reference herein to the exhibits to the Company's Report on Form 8-K filed on September 21, 2016 (File No. 001-33133)

**ITEM 16. FORM 10-K SUMMARY**

Registrants may voluntarily include a summary of information required by Form 10-K under this Item 16. We have elected not to include such summary.

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

March 30, 2017

YIELD10 BIOSCIENCE, INC.

By: \_\_\_\_\_ /s/ OLIVER P. PEOPLES

Dr. Oliver P. Peoples, Ph.D.  
President and Chief Executive Officer  
(Principal Executive Officer)

**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Oliver P. Peoples, Charles B. Haaser, and Lynne H. Brum, jointly and severally, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.

[Table of Contents](#)

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

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ OLIVER P. PEOPLES</u> Oliver P. Peoples	President and Chief Executive Officer and Director (Principal Executive Officer)	March 30, 2017
<u>/s/ CHARLES B. HAASER</u> Charles B. Haaser	Vice President, Finance, and Chief Accounting Officer (Principal Financial and Accounting Officer)	March 30, 2017
<u>/s/ PETER N. KELLOGG</u> Peter N. Kellogg	Director	March 30, 2017
<u>Richard W. Hamilton, Ph.D.</u> <u>/s/ JOSEPH SHAULSON</u> Joseph Shaulson	Director	March 30, 2017
<u>/s/ ANTHONY J. SINSKEY</u> Anthony J. Sinskey, Sc.D.	Director	March 30, 2017
<u>/s/ ROBERT L. VAN NOSTRAND</u> Robert L. Van Nostrand	Chairman	March 30, 2017

**YIELD10 BIOSCIENCE, INC.**  
**Index to Consolidated Financial Statements**

<a href="#">Reports of Independent Registered Public Accounting Firms</a>	<a href="#">F- 2</a>
<a href="#">Consolidated Balance Sheets as of December 31, 2016 and 2015</a>	<a href="#">F- 4</a>
<a href="#">Consolidated Statements of Operations for the Years Ended December 31, 2016 and 2015</a>	<a href="#">F- 5</a>
<a href="#">Consolidated Statements of Comprehensive Loss for the Years Ended December 31, 2016 and 2015</a>	<a href="#">F- 6</a>
<a href="#">Consolidated Statements of Cash Flows for the Years Ended December 31, 2016 and 2015</a>	<a href="#">F- 7</a>
<a href="#">Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2016 and 2015</a>	<a href="#">F- 8</a>
<a href="#">Notes to Consolidated Financial Statements</a>	<a href="#">F- 9</a>

**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Shareholders  
Yield10 Bioscience, Inc.

We have audited the accompanying consolidated balance sheet of Yield10 Bioscience, Inc. and subsidiaries (the "Company") as of December 31, 2016, and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for the year then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above, present fairly, in all material respects, the financial position of Yield10 Bioscience, Inc. and subsidiaries as of December 31, 2016, and the results of operations and cash flows for the year then ended in conformity with U.S. generally accepted accounting principles.

The accompanying financial statements as of and for the year ended December 31, 2016, have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has insufficient capital resources, which raises substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ RSM US LLP

Boston, Massachusetts  
March 30, 2017



**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Stockholders of Yield10 Bioscience, Inc.

In our opinion, the accompanying consolidated balance sheet as of December 31, 2015 and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for the year then ended present fairly, in all material respects, the financial position of Yield10 Bioscience, Inc. (formerly known as Metabolix, Inc.) and its subsidiaries as of December 31, 2015, and the results of their operations and their cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has insufficient capital resources, which raises substantial doubt about its ability to continue as a going concern. Management's plans in regard to this matter are also described in Note 1. The consolidated financial statements as of and for the year ended December 31, 2015 do not include any adjustments that might result from the outcome of this uncertainty.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts

March 29, 2016, except for the effects

of discontinued operations

discussed in Note 15 to the

consolidated financial statements,

as to which the date is March 30, 2017

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**CONSOLIDATED BALANCE SHEETS**

(In thousands, except share and per share amounts)

	December 31, 2016	December 31, 2015
<b>Assets</b>		
Current Assets:		
Cash and cash equivalents	\$ 7,309	\$ 12,269
Accounts receivable	66	238
Due from related parties	1	146
Unbilled receivables	121	150
Inventory	—	51
Prepaid expenses and other current assets	363	1,668
Assets of disposal group classified as held for sale	—	328
Total current assets	7,860	14,850
Restricted cash	432	619
Property and equipment, net	1,739	105
Deferred equity financing costs	622	619
Other assets	95	95
Other assets of disposal group classified as held for sale	—	800
Total assets	\$ 10,748	\$ 17,088
<b>Liabilities and Stockholders' Equity</b>		
Current Liabilities:		
Accounts payable	\$ 56	\$ 120
Accrued expenses	2,702	3,513
Deferred revenue	—	277
Total current liabilities	2,758	3,910
Lease incentive obligation, net of current portion	1,132	—
Contract termination obligation, net of current portion (Note 14)	489	—
Other long-term liabilities	—	150
Total liabilities	4,379	4,060
Commitments and contingencies (Note 7)		
Stockholders' Equity:		
Preferred stock (\$0.01 par value per share); 5,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock (\$0.01 par value per share); 250,000,000 shares authorized at December 31, 2016; 28,342,625 and 27,331,435 shares issued and outstanding at December 31, 2016 and 2015, respectively	283	273
Additional paid-in capital	339,527	338,580
Accumulated other comprehensive loss	(84)	(72)
Accumulated deficit	(333,357)	(325,753)
Total stockholders' equity	6,369	13,028
Total liabilities and stockholders' equity	\$ 10,748	\$ 17,088

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

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**CONSOLIDATED STATEMENTS OF OPERATIONS**

(In thousands, except share and per share amounts)

	Years Ended December 31,	
	2016	2015
Revenue:		
Grant revenue	\$ 1,159	\$ 1,350
Total revenue	1,159	1,350
Expenses:		
Research and development	5,670	6,602
General and administrative	5,737	7,217
Total expenses	11,407	13,819
Loss from continuing operations	(10,248)	(12,469)
Other income (expense), net	(38)	29
Net loss from continuing operations before income tax benefit	(10,286)	(12,440)
Income tax benefit	1,097	—
Net loss from continuing operations	(9,189)	(12,440)
Discontinued operations		
Income (loss) from discontinued operations	2,682	(11,241)
Income tax provision	(1,097)	—
Total net income (loss) from discontinued operations	1,585	(11,241)
Net loss	\$ (7,604)	\$ (23,681)
Basic and Diluted net loss per share:		
Net loss from continuing operations	\$ (0.33)	\$ (0.50)
Net income (loss) from discontinued operations	0.06	(0.45)
Net loss per share	\$ (0.27)	\$ (0.95)
Number of shares used in per share calculations:		
Basic & Diluted	27,811,956	25,007,351

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

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS**

**(In thousands)**

	<b>Years Ended December 31,</b>	
	<b>2016</b>	<b>2015</b>
Net loss	\$ (7,604)	\$ (23,681)
Other comprehensive income (loss):		
Change in foreign currency translation adjustment	(12)	(8)
Total other comprehensive income (loss)	(12)	(8)
Comprehensive loss	<u>\$ (7,616)</u>	<u>\$ (23,689)</u>

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

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**CONSOLIDATED STATEMENTS OF CASH FLOWS**

(In thousands)

	Years Ended December 31,	
	2016	2015
<b>Cash flows from operating activities</b>		
Net loss	\$ (7,604)	\$ (23,681)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation	515	265
Charge for 401(k) company common stock match	281	323
Stock-based compensation	848	2,128
Inventory impairment	199	209
Gain on sale of discontinued operation and property and equipment	(9,833)	(33)
Non-cash restructuring expense paid through stock and equipment	196	—
Changes in operating assets and liabilities:		
Accounts receivable	172	(193)
Due from related parties	145	(34)
Unbilled receivables	29	270
Inventory	180	(2)
Prepaid expenses and other assets	1,302	(1,081)
Accounts payable	(51)	(226)
Accrued expenses	(845)	62
Contract termination obligation and other long-term liabilities	339	—
Deferred revenue	(277)	130
Taxes paid on employees' behalf related to vesting of stock awards	(296)	—
Net cash used in operating activities	(14,700)	(21,863)
<b>Cash flows from investing activities</b>		
Purchase of property and equipment	(752)	(654)
Proceeds from sale of discontinued operation and property and equipment	10,317	40
Change in restricted cash	187	—
Net cash provided (used) by investing activities	9,752	(614)
<b>Cash flows from financing activities</b>		
Proceeds from private placement offering	—	14,703
Net cash provided by financing activities	—	14,703
Effect of exchange rate changes on cash and cash equivalents	(12)	(3)
Net decrease in cash and cash equivalents	(4,960)	(7,777)
Cash and cash equivalents at beginning of period	12,269	20,046
Cash and cash equivalents at end of period	\$ 7,309	\$ 12,269
Supplemental disclosure of non-cash information:		
Purchase of property and equipment included in accounts payable and accrued expenses	\$ —	\$ 68
Lease incentive paid by lessor	\$ 1,332	\$ —
Transfer of equipment to settle contractual liability	\$ 111	\$ —
Issuance of common stock to settle contractual liability	\$ 85	\$ —
Issuance of stock in connection with Aspire agreement	\$ —	\$ 450
Restricted stock units issued to settle incentive compensation obligation	\$ —	\$ 305

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

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY**

(In thousands, except share amounts)

	Series B		Common Stock		Additional Paid-In Capital	Accumulated other Comprehensive Income (loss)	Accumulated Deficit	Total Stockholders' Equity
	Preferred Stock		Shares	Par Value				
	Shares	Par Value	Shares	Par Value				
<b>Balance, December 31, 2014</b>	—	\$ —	22,530,322	\$ 225	\$ 320,707	\$ (64)	\$ (302,072)	\$ 18,796
Non-cash stock-based compensation expense	—	—	—	—	2,128	—	—	2,128
Restricted stock units issued to settle incentive compensation obligation	—	—	—	—	305	—	—	305
Issuance of common stock for 401k match	—	—	131,113	1	334	—	—	335
Issuance of stock in connection with private placement, net offering costs of \$297	—	—	4,370,000	44	14,659	—	—	14,703
Issuance of common stock in connection with Aspire agreement	—	—	300,000	3	447	—	—	450
Effect of foreign currency translation	—	—	—	—	—	(8)	—	(8)
Net loss	—	—	—	—	—	—	(23,681)	(23,681)
<b>Balance, December 31, 2015</b>	—	\$ —	27,331,435	\$ 273	\$ 338,580	\$ (72)	\$ (325,753)	\$ 13,028
Non-cash stock-based compensation expense	—	—	—	—	848	—	—	848
Issuance of common stock for 401k match	—	—	319,309	3	317	—	—	320
Issuance of stock for restricted stock unit release, net of 188,500 shares withheld for employee taxes (See Note 10)	—	—	416,881	4	(300)	—	—	(296)
Issuance of stock in connection with contract termination	—	—	275,000	3	82	—	—	85
Effect of foreign currency translation	—	—	—	—	—	(12)	—	(12)
Net loss	—	—	—	—	—	—	(7,604)	(7,604)
<b>Balance, December 31, 2016</b>	—	\$ —	28,342,625	\$ 283	\$ 339,527	\$ (84)	\$ (333,357)	\$ 6,369

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

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

**1. Nature of Business and Basis of Presentation**

Yield10 Bioscience, Inc. was founded as Metabolix, Inc. in 1992 and changed its name in January 2017. Yield10 Bioscience is an agricultural bioscience company focusing on the development of new technologies to enable step-change increases in crop yield to enhance global food security. Yield10 is using two proprietary advanced biotechnology trait gene discovery platforms to improve fundamental crop yield through enhanced photosynthetic carbon capture and increased carbon utilization efficiency to increase seed yield. These platforms are based on the principle that plants which capture and utilize carbon more efficiently will enable more robust crops capable of increased seed yield. Yield10 is working to translate and demonstrate the commercial value of novel yield trait genes it has identified in major crops and to identify additional genome editing targets for improved crop performance in several key food and feed crops, including canola, soybean, rice and corn. Yield10 Bioscience is headquartered in Woburn, Massachusetts and has an additional agricultural science facility with greenhouses located in Saskatoon, Saskatchewan, Canada.

The accompanying consolidated financial statements have been prepared on a basis which assumes that the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the normal course of business. With the exception of 2012, when the Company recognized \$38,885 of deferred revenue from a terminated joint venture, the Company has recorded losses since its initial founding, including its fiscal year ending December 31, 2016. During 2016, the Company completed a strategic restructuring under which Yield10 Bioscience became its core business. In connection with the restructuring, the Company discontinued its pilot biopolymer production and other biopolymer operations, sold substantially all of its biopolymer assets to CJ CheilJedang Corporation ("CJ") for a total purchase price of \$10,000 and reduced staffing levels to approximately twenty full-time employees as of December 31, 2016, in order to focus on crop science activities and significantly reduce the Company's cash burn rate used in operations. During 2016, the Company recorded restructuring charges of \$3,525 and as of December 31, 2016, restructuring obligations of \$2,048 remain outstanding with various payment due dates through May 2018.

As of December 31, 2016, the Company held unrestricted cash and cash equivalents of \$7,309. The Company anticipates current cash resources will be sufficient to fund operations and meet its obligations, including its restructuring obligations, when due into the fourth quarter of 2017. This forecast of cash resources is forward-looking information that involves risks and uncertainties, and the actual amount of expenses could vary materially and adversely as a result of a number of factors. The Company has evaluated the new guidance of ASU 2014-15, *Presentation of Financial Statements-Going Concern (Subtopic 205-40)* in order to determine whether there is substantial doubt about its ability to continue as a going concern for one year after the date its financial statements are issued. The Company's ability to continue operations after its current cash resources are exhausted depends on its ability to obtain additional financing through, among other sources, public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, additional government research grants or collaborative arrangements with third parties, as to which no assurances can be given. Management does not know whether additional financing will be available on terms favorable or acceptable to the Company when needed, if at all. If adequate additional funds are not available when required, or if the Company is unsuccessful in entering collaborative arrangements for further research, management may be forced to curtail the Company's research efforts, explore strategic alternatives and/or wind down its operations, pursue options for liquidating its remaining assets, including intellectual property and equipment and/or seek strategic alternatives. Based on the cash forecast, management has determined that the Company's present capital resources are not sufficient to fund its planned operations for a twelve month period from the date that the financial statements are issued, and therefore, raise substantial doubt about its ability to continue as a going concern.

During 2015, the Company entered into a common stock purchase agreement with Aspire Capital Fund, LLC ("Aspire"). Under terms of the agreement, Aspire committed to purchase up to \$20,000 of Yield10 Bioscience common stock over a 30 month period that will end on May 8, 2018. Common stock may be sold from time to time at the Company's option under pricing formulas based on prevailing market prices around the time of each sale. The purchase agreement contains limitations on the number of shares that the Company may sell to Aspire. Additionally, the Company and Aspire may not effect any sales of shares of its common stock under the purchase agreement during the continuance of an event of default or



**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

on any trading day that the closing sale price of its common stock is less than \$0.50 per share. At December 31, 2016, the market price for the Company's common stock was below \$0.50, and although the full \$20,000 remained available under the purchase agreement with Aspire, market conditions likely limit the extent which the Company can draw on this facility.

If the Company issues equity or debt securities to raise additional funds, (i) the Company may incur fees associated with such issuance, (ii) its existing stockholders may experience dilution from the issuance of new equity securities, (iii) the Company may incur ongoing interest expense and be required to grant a security interest in Company assets in connection with any debt issuance, and (iv) the new equity or debt securities may have rights, preferences and privileges senior to those of the Company's existing stockholders. In addition, utilization of the Company's net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code of 1986 due to ownership changes resulting from equity financing transactions. If the Company raises additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to its potential products or proprietary technologies, or grant licenses on terms that are not favorable to the Company.

On June 30, 2016, the Company received a Notice of Delisting from The Nasdaq Stock Market LLC ("Nasdaq") as a result of the Company's bid price for the previous 30 consecutive business days closing below the minimum \$1.00 per share requirement for continued listing on The Nasdaq Capital Market under Nasdaq Listing Rule 5810(a)(2). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company was provided with an initial period of 180 calendar days, or until December 27, 2016, to regain compliance. On December 28, 2016, the Company received a second notice that Nasdaq had granted the Company an additional 180 days (until June 26, 2017) to regain compliance with Nasdaq's \$1.00 per share minimum bid price. The Company is considering actions that it may take in order to regain compliance with this continued listing requirement.

## **2. Summary of Significant Accounting Policies**

### **Principles of Consolidation**

The Company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany transactions were eliminated, including transactions with its Canadian subsidiary, Metabolix Oilseeds, Inc. On September 16, 2016, the Company completed the sale of its biopolymer intellectual property and certain equipment and inventory to an affiliate of CJ in a transaction that met the requirements for discontinued operations reporting in accordance with ASU No. 2014-08, *Reporting Discontinued Operations and Disclosures of Disposals of Components of an Entity*. The consolidated financial statements for each of the two years ending December 31, 2016, have been presented to reflect the Company's biopolymer operation as a discontinued operation.

### **Use of Estimates**

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

### **Cash and Cash Equivalents**

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

### **Investments**

The Company considers all investments purchased with an original maturity date of ninety days or more at the date of purchase and a maturity date of one year or less at the balance sheet date to be short-term investments. All other

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

investments are classified as long-term. The Company held no short or long-term investments at December 31, 2016 or December 31, 2015.

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

**Restricted Cash**

The Company had restricted cash in the amount of \$432 and \$619 at December 31, 2016, and December 31, 2015, respectively. At December 31, 2016, restricted cash consists of \$307 held in connection with the lease agreement for the Company's Woburn, Massachusetts facility and \$125 held in connection with its corporate credit card program.

**Deferred Equity Financing Costs**

The Company entered into a common stock purchase agreement in 2015 with Aspire Capital in which Aspire committed to purchase up to \$20,000 of the Company's common stock over a 30-month period (see Note 9). Offering costs incurred to establish this agreement have been recorded as deferred equity financing costs in the accompanying consolidated balance sheet at December 31, 2016 and December 31, 2015. These costs will be charged to additional paid-in-capital as shares are issued under the agreement. In the event it is determined that no additional shares will be issued, any remaining deferred equity offering costs will be recognized as expense at that time.

**Foreign Currency Translation**

Foreign denominated assets and liabilities of the Company's wholly-owned foreign subsidiaries are translated into U.S. dollars at the prevailing exchange rates in effect on the balance sheet date. Revenues and expenses are translated at average exchange rates prevailing during the period. Any resulting translation gains or losses are recorded in accumulated other comprehensive income (loss) in the consolidated balance sheet. When the Company dissolves, sells or substantially sells all of the assets of a consolidated foreign subsidiary, the cumulative translation gain or loss of that subsidiary is released from comprehensive income (loss) and included within its consolidated statement of operations during the fiscal period when the dissolution or sale occurs.

**Comprehensive Income (Loss)**

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

**Concentration of Credit Risk**

Financial instruments that potentially subject the Company to concentrations of credit risk primarily consist of cash and cash equivalents and accounts receivable. The Company has historically invested its cash equivalents in highly rated money market funds, corporate debt, federal agency notes and U.S. treasury notes. Investments are acquired in accordance with the Company's investment policy which establishes a concentration limit per issuer. At December 31, 2016, the Company's cash equivalents were invested solely in money market funds.

The Company's receivables related to government grants are believed to have a low risk of default. At December 31, 2016, the Company's accounts and unbilled receivables of \$188 are substantially all from research grants with the U.S. government under which the Company serves as either the primary contractor or as a subcontractor. At December 31, 2015, the Company's accounts and unbilled receivables included \$156 or 29% from government research grants.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

**Fair Value Measurements**

The carrying amounts of the Company's financial instruments as of December 31, 2016 and 2015, which include cash equivalents, accounts receivable, unbilled receivables, receivables due from related parties, accounts payable, and accrued expenses, approximate their fair values due to the short-term nature of these instruments. See Note 4 for further discussion on fair value measurements.

**Segment Information**

The accounting guidance for segment reporting establishes standards for reporting information on operating segments in annual financial statements. The Company is an agricultural bioscience company operating in one segment, which is the development of technologies to produce step-change improvements in crop yield for food and feed crops. The Company's chief operating decision-maker does not manage any part of the Company separately, and the allocation of resources and assessment of performance are based on the Company's consolidated operating results. As of December 31, 2016, and December 31, 2015, less than 10% of the Company's combined total assets were located outside of the United States. In addition, the reported net income (loss) outside of the United States was less than 10% of the combined net income (loss) of the consolidated Company.

**Property and Equipment**

Property and equipment are stated at cost less accumulated depreciation. Repairs and maintenance are charged to operations as incurred. Depreciation is computed using the straight-line method over the estimated useful lives of the assets once they are placed in service as follows:

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

The Company records incentive payments received from its landlords as deferred rent and amortizes these amounts as reductions to lease expense over the lease term.

**Impairment of Long-Lived Assets**

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

**Revenue Recognition**

The Company's principal source of continuing revenue is from its government research grants in which it serves as either the primary contractor or as a subcontractor. These contracts grants are considered an ongoing major and central operation of the Company's business. Revenue is earned as research expenses related to the grants are incurred. Revenue earned on government grants, but not yet invoiced as of the balance sheet date, are recorded as unbilled receivables in the accompanying consolidated balance sheets for the years ended December 31, 2016 and December 31, 2015. Funds received from government grants in advance of work being performed are recorded as deferred revenue until earned.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

**Research and Development**

All costs associated with internal research and development are expensed as incurred. Research and development expenses include, among others, direct costs for salaries, employee benefits, subcontractors, product trials, facility related expenses, depreciation, and stock-based compensation. Costs related to revenue-producing contracts and government grants are recorded as research and development expenses.

**General and Administrative Expenses**

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

**Intellectual Property Costs**

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

**Stock-Based Compensation**

All share-based payments to employees, members of the Board of Directors and non-employees are recognized in the statement of operations based on their fair values. For employees and members of the Company's Board of Directors, who receive nearly all of our stock awards, stock compensation expense is recognized based on the grant-date fair value of the award, adjusted for estimated forfeitures, and is recognized on a straight-line basis over the period during which the recipient is required to provide service in exchange for the award. See Note 10 for a description of the types of stock-based awards granted, the compensation expense related to such awards and detail of equity-based awards outstanding.

**Basic and Diluted Net Loss per Share**

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

The Company follows the two-class method when computing net loss per share, when it has issued shares that meet the definition of participating securities. The two-class method determines net loss per share for each class of common and participating securities according to dividends declared or accumulated and participating rights in undistributed earnings. The two-class method requires income available to common stockholders for the period to be allocated between common and participating securities based on their respective rights to receive dividends, as if all income for the period has been distributed or losses to be allocated if they are contractually required to fund losses. There were no amounts allocated to participating securities during each of the two years ended December 31, 2016, as the Company was in a loss position and had no shares that met the definition of participating securities outstanding at December 31, 2016 and December 31, 2015.

The number of shares of potentially dilutive common stock presented on a weighted average basis, related to options, restricted stock units and warrants (prior to consideration of the treasury stock method) that were excluded from the

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

calculation of dilutive shares since the inclusion of such shares would be anti-dilutive for the years ended December 31, 2016 and 2015, respectively, are shown below:

	<b>Year Ended December 31,</b>	
	<b>2016</b>	<b>2015</b>
Options	898,711	943,197
Restricted stock awards	707,581	946,074
Warrants	3,933,000	2,144,293
Total	<u>5,539,292</u>	<u>4,033,564</u>

In July 2016, the Board of Directors of the Company approved a strategic restructuring plan under which Yield10 Bioscience became its core business with a focus on developing disruptive technologies for step-change improvements in crop yield to enhance global food security. In connection with this restructuring, the Company discontinued its biopolymer operations. The Company's consolidated statement of operations for the years ending December 31, 2016 and 2015, included in this annual report have been prepared to present basic and diluted earnings per share from continuing and discontinued operations.

### **Income Taxes**

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in the Company's tax returns. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided to reduce the deferred tax asset to a level which, more likely than not, will be realized. See Note 11 for further discussion of income taxes. The Company had no amounts recorded for any unrecognized tax benefits as of December 31, 2016 and 2015.

The Company accounts for uncertain tax positions using a "more-likely-than-not" threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. The provision for income taxes includes the effects of any resulting tax reserves or unrecognized tax benefits that are considered appropriate as well as the related net interest and penalties, if any. The Company evaluates uncertain tax positions on a quarterly basis and adjusts the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions.

### **Restructuring Charges**

In July 2016, the Company announced a strategic restructuring under which Yield10 Bioscience became its core business and its biopolymer operations were discontinued. The Company records estimated restructuring charges for employee severance and contract termination costs as a current period expense as those costs become contractually fixed, probable and estimable. The long and short-term obligations associated with these charges is reduced or adjusted as payments are made or the Company's estimates are revised.

### **Recent Accounting Standards Changes**

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that we adopt as of the specified effective date.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements-Going Concern (Subtopic 205-40)*. The new guidance addresses management's responsibility to evaluate whether there is substantial doubt about an

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

entity's ability to continue as a going concern for one year after the date that the financial statements are issued and to provide related footnote disclosures. Management's evaluation should be based on relevant conditions and events that are known and reasonably knowable at the date that the financial statements are issued. This guidance should reduce diversity in the timing and content of footnote disclosures. The amendments in this update apply to all entities and are effective for the annual period ending after December 15, 2016, and for annual periods and interim periods thereafter. The Company adopted ASU 2014-15 for its fiscal year ending December 31, 2016. The adoption impacted presentation and disclosure only and did not have an impact on the Company's financial position or results of operations.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. The new standard clarifies certain aspects of the statement of cash flows, including the classification of debt prepayment or debt extinguishment costs, settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies, distributions received from equity method investees and beneficial interests in securitization transactions. The new standard also clarifies that an entity should determine each separately identifiable source or use within the cash receipts and cash payments on the basis of the nature of the underlying cash flows. In situations in which cash receipts and payments have aspects of more than one class of cash flows and cannot be separated by source or use, the appropriate classification should depend on the activity that is likely to be the predominant source or use of cash flows for the item. The new standard will be effective for the Company on January 1, 2018. The Company is in the process of evaluating the impact of this new guidance.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The new standard changes the impairment model for most financial assets and certain other instruments. Under the new standard, entities holding financial assets and net investment in leases that are not accounted for at fair value through net income are to be presented at the net amount expected to be collected. An allowance for credit losses will be a valuation account that will be deducted from the amortized cost basis of the financial asset to present the net carrying value at the amount expected to be collected on the financial asset. The new standard will be effective for us on January 1, 2020. The Company is in the process of evaluating the impact of this new guidance.

In March 2016, the FASB issued ASU No. 2016-06, *Derivatives and Hedging (Topic 815): Contingent Put and Call Options in Debt Instruments*. The new standard simplifies the embedded derivative analysis for debt instruments containing contingent call or put options by removing the requirement to assess whether a contingent event is related to interest rates or credit risks. The new standard will be effective for us on January 1, 2017. The adoption of this standard is not expected to have an impact on our financial position or results of operations.

In March 2016, the FASB issued ASU No. 2016-07, *Investments - Equity Method and Joint Ventures (Topic 323): Simplifying the Transition to the Equity Method of Accounting*. The new standard eliminates the requirement that when an investment qualifies for use of the equity method as a result of an increase in the level of ownership interest or degree of influence, an adjustment must be made to the investment, results of operations and retained earnings retroactively on a step-by-step basis as if the equity method had been in effect during all previous periods that the investment had been held. The new standard will be effective for the Company on January 1, 2017. The adoption of this standard is not expected to have a material impact on our financial position or results of operations.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation - Stock Compensation (Topic 718) : Improvements to Employee Share-Based Payment Accounting*. The new standard involves several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. The new standard will be effective for the Company on January 1, 2017. The Company is in the process of evaluating the impact of this new guidance.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The new standard requires that all lessees recognize the assets and liabilities that arise from leases on the balance sheet and disclose qualitative and quantitative information about its leasing arrangements. The new standard will be effective for us on January 1, 2019. The Company is in the process of evaluating the impact of this new guidance.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. The new standard amends certain aspects of accounting and disclosure requirements of financial instruments, including the requirement that equity investments with readily determinable fair values be measured at fair value with changes in fair value recognized in our results of operations. The new standard does not apply to investments accounted for under the equity method of accounting or those that result in consolidation of the investee. Equity investments that do not have readily determinable fair values may be measured at fair value or at cost minus impairment adjusted for changes in observable prices. A financial liability that is measured at fair value in accordance with the fair value option is required to be presented separately in other comprehensive income for the portion of the total change in the fair value resulting from change in the instrument-specific credit risk. In addition, a valuation allowance should be evaluated on deferred tax assets related to available-for-sale debt securities in combination with other deferred tax assets. The new standard will be effective for us on January 1, 2018. The Company is in the process of evaluating the impact of this new guidance.

In May 2014, the FASB issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. The ASU is the result of a joint project by the FASB and the International Accounting Standards Board ("IASB") to clarify the principles for recognizing revenue and to develop a common revenue standard for GAAP and International Financial Reporting Standards ("IFRS") that would: remove inconsistencies and weaknesses, provide a more robust framework for addressing revenue issues, improve comparability of revenue recognition practices across entities, jurisdictions, industries, and capital markets, improve disclosure requirements and resulting financial statements, and simplify the presentation of financial statements. The core principle of the new guidance is that an entity should recognize revenue to depict the transfer of promised goods or services in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU is effective for annual reporting periods beginning after December 15, 2016. Early adoption is not permitted. On July 9, 2015, the FASB voted to delay the effective date of the new revenue standard by one year, but to permit entities to choose to adopt the standard as of the original date. We have begun to evaluate the effect the new revenue standard will have on our consolidated financial statements and related disclosures, but have not completed our evaluation and implementation process. We intend to complete the process during 2017 and adopt the standard on January 1, 2018, using the full retrospective adoption transition method. The adoption of this standard is not expected to have a material impact on our financial position or results of operations.

### **3. Significant Collaborations**

The Company follows the accounting guidance for collaborative arrangements which requires that certain transactions between collaborators be recorded in the income statement on either a gross or net basis, depending on the characteristics of the collaboration relationship, and provides for enhanced disclosure of collaborative relationships. The Company evaluates its collaborative agreements for proper income statement classification based on the nature of the underlying activity.

Yield10 Bioscience is not currently participating in any collaborative arrangements. The Company's historic strategy for collaborative arrangements has been to retain substantial participation in the future economic value of its technology while receiving current cash payments to offset research and development costs and working capital needs. By their nature, the Company's collaborative agreements have been complex, containing multiple elements covering a variety of present and future activities.

#### 4. Fair Value Measurements

The Company has certain financial assets recorded at fair value which have been classified as Level 1 within the fair value hierarchy as described in the accounting standards for fair value measurements. Fair value is the price that would be received from the sale of an asset or the price paid to transfer a liability in an orderly transaction between independent market participants at the measurement date. Fair values determined by Level 1 inputs utilize observable data such as quoted prices in active markets for identical instruments. Fair values determined by Level 2 inputs utilize data points other than quoted prices in active markets that are observable either directly or indirectly. Fair values determined by Level 3 inputs utilize unobservable data points in which there is little or no market data, which require the reporting entity to develop its own assumptions. The fair value hierarchy level is determined by the lowest level of significant input. At December 31, 2016 and 2015, the Company did not own any Level 2 or Level 3 financial assets or liabilities and there were no transfers of financial assets or liabilities between category levels for the years ended December 31, 2016 and December 31, 2015.

The Company's assets are measured at fair value on a recurring basis. The balance of Level 1 assets as of December 31, 2016 and December 31, 2015 were \$1,018 and \$8,013, respectively, and for both years the assets were in money market funds classified in cash and cash equivalents.

#### 5. Property and Equipment, Net

Property and equipment consist of the following:

	Year ended December 31,	
	2016	2015
Equipment	\$ 1,048	\$ 1,049
Furniture and fixtures	226	220
Leasehold improvements	1,825	1,265
Software	116	283
Total property and equipment, at cost	3,215	2,817
Less: Accumulated depreciation	(1,476)	(2,712)
Property and equipment, net	\$ 1,739	\$ 105

Depreciation expense for continuing operations for the years ended December 31, 2016 and 2015, was \$177 and \$118, respectively.

#### 6. Accrued Expenses

Accrued expenses consist of the following:

	Year ended December 31,	
	2016	2015
Employee compensation and benefits	\$ 713	\$ 2,114
Commercial manufacturing	939	465
Professional services	459	431
Other	591	503
Total accrued expenses	\$ 2,702	\$ 3,513



**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

Included within accrued employee compensation and benefits is \$626 of employee post-employment severance at December 31, 2016, associated with the Company's restructuring that was completed during 2016. See Note 14. The Company did not have a severance accrual at December 31, 2015.

Accrued commercial manufacturing expenses at December 31, 2016, includes the current portion of the Company's terminated manufacturing contract obligation of \$933. See Note 14.

## 7. Commitments and Contingencies

### Leases

The Company rents its facilities under operating leases, which expire at various dates through December 2026. Rent expense for continuing operations under operating leases for the years ended December 31, 2016 and 2015, was \$1,889 and \$2,063, respectively.

At December 31, 2016, the Company's future minimum payments required under operating leases are as follows:

<b>Year ended December 31,</b>	<b>Minimum lease payment</b>
2017	\$ 836
2018	802
2019	828
2020	705
2021	624
2022 and thereafter	3,348
Total	<u>\$ 7,143</u>

### Lease Commitments

On January 20, 2016, the Company entered into a lease agreement, pursuant to which the Company leases approximately 29,622 square feet of office and research and development space located at 19 Presidential Way, Woburn, Massachusetts. The lease began on June 1, 2016 and will end on November 30, 2026. The Company provided the landlord with a security deposit in the form of a letter of credit in the amount of \$307. Pursuant to the lease, the Company also will pay certain taxes and operating costs associated with the premises throughout the term of the lease. During the buildout of the rented space, the landlord paid \$889 for tenant improvements to the facility and an additional \$444 for tenant improvements that result in increased rental payments by the Company. The current and non-current portions of the lease incentive obligations related to the landlord's contributions toward the cost of tenant improvements are recorded within accrued expenses and long-term lease incentive obligation, respectively, in the Company's consolidated balance sheet contained herein.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

On October 10, 2016, the Company entered into a sublease agreement with a subsidiary of CJ for the sublease of approximately 9,874 square feet of its leased facility located in Woburn, Massachusetts. The subleased space was determined to be in excess of the Company's needs as a result of its recent strategic shift to Yield10 Bioscience and the related restructuring of its operations. The sublease is coterminous with the Company's master lease. CJ will pay rent and operating expenses equal to approximately one-third of the amounts payable to the landlord by the Company, as adjusted from time-to-time in accordance with the terms of the master lease. Total future minimum operating lease payments of \$7,143 shown above are net of the CJ sublease payments. In October 2016, CJ provided the Company with a security deposit of \$103 in the form of an irrevocable letter of credit.

The Company also leases approximately 13,702 square feet of office and laboratory space at 650 Suffolk Street, Lowell, Massachusetts. The lease for this facility expires in May 2020, with an option to renew for one five-year period. The Company is currently working with a commercial real estate broker to locate a subtenant for this space. The Company's wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada, leases approximately 4,100 square feet of office, laboratory and greenhouse space. MOI's leases for its various leased facilities expire between April 30, 2017 and September 30, 2017. The Company expects to renew these Canadian leases prior to their expiration.

### **Contractual Commitments**

In connection with the wind down of its biopolymer operations, the Company ceased pilot production of biopolymer material and reached agreements with the owner-operators of its biopolymer production facilities regarding the termination of their services. The Company recorded contract termination costs related to these manufacturing agreements of \$2,641 during 2016, which is included within discontinued operations in the Company's statement of operations included in this report. As of December 31, 2016, approximately \$1,500 of the obligations remain outstanding and will be paid in quarterly installments through May 2018. The short and long-term portions of these contractual liabilities are recorded in accrued expenses and contract termination obligation, respectively, in the Company's consolidated balance sheets contained herein.

<b>Year ended December 31,</b>	<b>Amount</b>
2017	\$ 1,000
2018	500
2019 and thereafter	—
Total	<u>\$ 1,500</u>

### **Litigation**

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. The Company is not currently aware of any such proceedings or claims that it believes will have, individually or in the aggregate, a material adverse effect on the business, financial condition or the results of operations.

### **Guarantees**

As of December 31, 2016 and 2015, the Company did not have significant liabilities recorded for guarantees.

The Company enters into indemnification provisions under various agreements with other companies in the ordinary course of business, typically with business partners, contractors, and customers. Under these provisions, the Company generally indemnifies and holds harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of its activities. These indemnification provisions generally survive termination of the underlying agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification provisions is unlimited. However, to date Yield10 Bioscience has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As a result, the estimated fair value of these agreements is minimal. Accordingly, the Company has no liabilities recorded for these agreements as of December 31, 2016 and December 31, 2015.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

**8. License Agreements and Related Parties**

The Company previously licensed certain technology to Tephra, Inc., a related party, for use in medical applications. During May 2016, the Company entered into an amendment to its license agreement with Tephra, in which the Company received a lump sum payment of \$2,000 in consideration for an early buyout of all future royalties under the agreement and the licensing of two additional production strains and related intellectual property that was fully delivered to Tephra during 2016. The Company recognized \$2,272 and \$578 of license and royalty revenue from Tephra for the years ended December 31, 2016 and 2015, respectively. During 2016, the Company also received \$11 from Tephra in connection with their purchase of certain laboratory equipment previously used in the Company's biopolymer operations. At December 31, 2016 and December 31, 2015, the Company had outstanding receivables due from Tephra of \$1 and \$146, respectively.

During June 2016, the Company entered into a purchase and licensing agreement with a third party in which the Company received a lump sum payment of \$1,000 in consideration for the sale of certain biopolymer inventory and a non-exclusive license to certain patents owned or controlled by the Company related to biopolymers. The Company recorded license fee and royalty revenue of \$850 and product sales of \$150 for the year ended December 31, 2016, related to this agreement.

The patents underlying these license agreements are now owned by CJ. As a consequence of this sale and the Company's discontinuation of its biopolymer operations, license fee and royalty revenue is included within income (loss) from discontinued operations within the Company's consolidated statements of operations. See Note 15.

**9. Capital Stock**

**Common Stock**

In connection with the wind down of its biopolymer operations, the Company ceased pilot production of biopolymer material at its third-party biopolymer production facilities. On September 19, 2016, the Company entered into an early termination agreement with the owner-operator of one of the biopolymer production facilities. As part of the consideration for the early termination, the Company issued 275,000 unregistered shares of Yield10 common stock.

On October 7, 2015, the Company entered into a common stock purchase agreement with Aspire Capital Fund, LLC. Under the terms of the agreement, Aspire committed to purchase up to an aggregate of \$20,000 of the Company's common stock over a 30 month period that will end on May 8, 2018. Common stock may be sold from time to time at the Company's direction under pricing formulas based on prevailing market prices around the time of each sale. The purchase agreement contains limitations on the number of shares that the Company may sell to Aspire. Additionally, the Company and Aspire may not effect any sales of shares of the Company's common stock under the purchase agreement during the continuance of an event of default or on any trading day that the closing sale price of its common stock is less than \$0.50 per share. Upon execution of the purchase agreement, the Company issued 300,000 shares of its common stock to Aspire with a fair value of \$450, as a commitment fee. In addition, the Company incurred \$172 of additional costs in connection with the Aspire facility, which along with the fair value of the common stock has been recorded as deferred equity financing costs in the accompanying consolidated balance sheet at December 31, 2016 and December 31, 2015. These costs will be charged to additional paid-in-capital as shares are issued to Aspire. In the event it is determined no additional shares will be issued under the purchase agreement, any remaining deferred equity offering costs will be expensed at such time. At December 31, 2016, the full \$20,000 under the purchase agreement remains available for sale to Aspire.

On June 19, 2015, the Company completed a private placement of its securities. Proceeds received from the transaction were \$14,703, net of issuance costs of \$297. Investors participating in the transaction purchased a total of 4,370,000 shares of common stock at a price of \$3.32 per share and warrants with a purchase price of \$0.125 per warrant to purchase up to an aggregate of 3,933,000 additional shares of common stock. The warrants have a four-year term and are immediately exercisable at a price of \$3.98 per share. The Company has determined that the warrants should be recorded within equity as additional paid-in capital.

**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

**Preferred Stock**

The Company's certificate of incorporation, as amended and restated, authorizes it to issue up to 5,000,000 shares of \$0.01 par value preferred stock. As of December 31, 2016 and December 31, 2015, no preferred stock was issued or outstanding.

**10. Stock-Based Compensation**

The Company adopted a stock plan in 2006 (the "2006 Plan"), which provided for the granting of incentive stock options, nonqualified stock options, stock appreciation rights, deferred stock awards, restricted stock awards, unrestricted stock awards, cash-based awards and dividend equivalent rights. In October 2014, the 2006 Plan was terminated and the Company adopted a new plan (the "2014 Plan"). No further grants or awards were subsequently made under the 2006 Plan. A total of 1,467,076 options have been awarded from the 2006 Plan and as of December 31, 2016, 482,314 of these options remain outstanding and eligible for future exercise.

The 2014 Plan provides for the granting of incentive stock options, nonqualified stock options, stock appreciation rights, deferred stock awards, restricted stock awards, unrestricted stock awards, cash-based awards and dividend equivalent rights. A total of 5,401,118 options have been awarded from the 2014 Plan and as of December 31, 2016, 5,376,786 of these options remain outstanding and eligible for future exercise. A total of 1,192,023 restricted stock awards have been awarded from the 2014 Plan and as of December 31, 2016, 261,283 of these restricted stock awards are unvested and outstanding.

**Expense Information for Employee Stock Awards**

The Company recognized stock-based compensation expense, related to employee stock awards, including awards to non-employees and members of the Board of Directors, of \$848 and \$2,128 for the years ended December 31, 2016 and 2015, respectively. At December 31, 2016, there was approximately \$1,828 of stock-based compensation expense, net of estimated forfeitures, related to unvested awards not yet recognized which is expected to be recognized over a weighted average period of 1.81 years.

**Stock Options**

Options granted under the 2006 Plan and the 2014 Plan (the "Plans") generally vest ratably over periods of one to four years from the date of hire for new employees, or date of award for existing employees, or date of commencement of services with the Company for nonemployees, and generally expire ten years from the date of issuance. The Company's policy is to issue new shares upon the exercise of stock options.

On October 26, 2016, the Company's Compensation Committee granted stock options for a total of 4,560,000 shares to employees who remained with the Company after the Company's restructuring was completed. Of this amount, options for 1,750,000 shares were contingent until December 21, 2016, when shareholder approval of certain amendments to the 2014 Plan was obtained, at which point they were no longer contingent. Each option has an exercise price per share equal to the fair market value of the Company's common stock on the date of grant, vests in four equal semi-annual installments at a rate of 25% per installment over two years, and has a term of ten years from the date of grant.

On November 4, 2016, the Company's former chief executive officer ("CEO"), was granted stock options for 750,000 shares upon the execution of separation and release agreements relating to the termination of his employment with the Company. These options have an exercise price per share equal to the fair market value of the Company's common stock on the date of grant, were fully vested on the date of grant, became exercisable on the effective date of the release agreement, and will remain exercisable through December 19, 2023. The Company recognized the full fair value of this award as stock compensation expense in its fourth fiscal quarter ending December 31, 2016.

In December 2013, the Company's Board of Directors granted a non-qualified stock option award for the purchase of 191,667 shares of common stock to its former CEO in connection with his agreement to serve as a member of the

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

Company's Board and to accept employment as its President and Chief Executive Officer. Upon execution of his separation agreement on November 4, 2016, the 143,750 remaining unvested stock options under this award became fully vested. The Company accounted for this vesting as an award modification and recorded the new fair value of the remaining options as expense during the Company's fourth fiscal quarter.

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

	Number of Shares	Weighted Average Exercise Price	Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Balance at December 31, 2015	904,133	\$26.58		
Granted	5,365,000	0.53		
Exercised	—	—		
Forfeited	(42,410)	6.68		
Expired	(175,956)	32.44		
Balance at December 31, 2016	6,050,767	3.45	8.82	\$—
Vested and expected to vest at December 31, 2016	5,780,598	3.58	8.77	—
Exercisable at December 31, 2016	1,422,694	12.85	5.60	—

The weighted average grant date fair value per share of options granted during fiscal years 2016 and 2015, was \$0.31, and \$2.61, respectively. No options were exercised during 2016 and 2015, and therefore the intrinsic value for exercised options during the two years was not applicable. The weighted average remaining contractual term for options outstanding as of December 31, 2016 was 8.8 years.

For the years ended December 31, 2016, and 2015, the Company determined the fair value of stock options using the Black-Scholes option pricing model with the following assumptions for option grants, respectively:

	Year Ended December 31,	
	2016	2015
Expected dividend yield	—	—
Risk-free rate	1.24% - 2.04%	1.32% - 1.69%
Expected option term (in years)	5.4-5.7	5.5-5.9
Volatility	93% - 96%	88% - 91%

The Company determined its volatility assumption based on actual market price fluctuations experienced during its trading history. The risk-free interest rate used for each grant is equal to the U.S. Treasury yield curve in effect at the time of grant for instruments with a term similar to the expected life of the related option. The expected term of the options is based upon evaluation of historical and expected future exercise behavior.

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

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

**Restricted Stock Units**

During 2015, the Company initiated use of Restricted Stock Units ("RSUs") as a broad-based form of long-term compensation incentive for its officers, directors and employees. On April 1, 2015, the Company awarded 203,967 RSUs under the 2014 Plan to members of senior management pursuant to elections previously made by the senior managers to convert a portion of their 2014 performance bonuses from cash to equity. These RSUs vested one year later on April 1, 2016. During the year ended December 31, 2015, the Company also awarded a total of 906,806 additional long-term incentive RSUs to senior management and employees. These RSUs vest in four equal annual installments beginning one year after the date of grant, subject to service conditions. On September 10, 2015, the Company awarded 81,250 RSUs to its non-employee directors. These RSUs vested on May 28, 2016.

Upon execution of the separation agreement with our former CEO on November 4, 2016, the Company accelerated the vesting of 151,250 previously outstanding RSUs awarded to him in 2015. The Company recorded stock compensation expense for the fair value of these RSUs during its fiscal quarter ended December 31, 2016, as a result of the accelerated vesting. The accelerated vesting of the RSUs and existing stock options previously discussed was provided pursuant to the terms of the separation agreement in lieu of any cash severance and 2016 cash bonus payable under the CEO's previous employment agreement.

The Company records stock compensation expense for RSUs on a straight line basis over their vesting period based on each RSU's award date market value. The Company recognizes compensation expense for only the portion of awards that are expected to vest. Therefore, the Company has estimated expected forfeitures of RSU's for the awards valued. In developing a forfeiture rate estimate, the Company considered its historical experience and actual forfeitures for the year. The Company will continue to evaluate its forfeiture rate as compared to the actual number of forfeitures in future periods to determine if adjustments to compensation expense may be required.

The Company will pay minimum required income tax withholding associated with RSUs for its employees. As the RSUs vest, the Company will withhold a number of shares with an aggregate fair market value equal to the minimum tax withholding amount (unless the employee makes other arrangements for payment of the tax withholding) from the common stock issuable at the vest date. During the year ended December 31, 2016, the Company withheld vested shares with a fair value of \$296 to pay for minimum tax withholding associated with RSU vesting. No such amounts were paid during the year ended December 31, 2015.

A summary of RSU activity for the year ended December 31, 2016 is as follows:

	Number of RSUs	Weighted Average Remaining Contractual Life (years)
Outstanding at December 31, 2015	1,286,773	
Awarded	—	
Released	(605,381)	
Forfeited	(420,109)	
Outstanding at December 31, 2016	<u>261,283</u>	1.25
Vested and expected to vest as of December 31, 2016	202,710	1.21
Weighted average remaining recognition period (years)	2.25	
Weighted average grant date fair value of RSUs granted during the year ended December 31, 2016	<u>\$ —</u>	

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

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

During the year ended December 31, 2016, the Company granted stock options to purchase 55,000 shares of common stock to non-employee members of the Company's scientific advisory board. The compensation expense related to these options is to be recognized over a period of 2 years. The granted options vest 50% annually and such vesting is contingent upon future services provided by the advisors to the Company. Stock compensation expense of \$9 related to these non-employee stock awards was recorded during the year ended December 31, 2016. No options were awarded and no stock compensation expense was recorded for the year ended December 31, 2015, related to non-employee option grants. Options remaining unvested for non-employees are subject to remeasurement each reporting period prior to their vesting in full. Since the fair market value of the options issued to non-employees is subject to change in the future, the compensation expense recognized each year may not be indicative of future stock-based compensation charges.

**11. Income Taxes**

The components of loss from continuing operations before provision for income taxes consist of the following:

	Year Ended December 31,	
	2016	2015
Domestic	\$ (10,318)	\$ (12,406)
Foreign	48	21
Loss before taxes	<u>\$ (10,270)</u>	<u>\$ (12,385)</u>

The reported amount of income tax expense for the years differs from the amount that would result from applying domestic federal statutory tax rates to pretax losses primarily because of changes in valuation allowance. Significant components of the Company's net deferred tax assets are as follows:

	Year Ended December 31,	
	2016	2015
<b>Deferred Tax Assets:</b>		
Net operating loss carryforward	\$ 25,182	\$ 9,904
Capitalization of research and development expense	2,634	15,070
Credit carryforwards	2,048	1,312
Depreciation	1,505	2,148
Stock compensation	2,414	4,902
Other temporary differences	1,202	1,186
Total deferred tax assets.	<u>34,985</u>	<u>34,522</u>
Valuation allowance	<u>(34,985)</u>	<u>(34,522)</u>
Net deferred tax assets	—	—
<b>Deferred Tax Liabilities:</b>		
Other temporary differences	—	—
Net deferred taxes	<u>\$ —</u>	<u>\$ —</u>

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

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

	Year Ended December 31,	
	2016	2015
Federal income tax at statutory federal rate	34.0 %	34.0 %
State taxes	5.0 %	5.0 %
Permanent differences	(1.9)%	(3.9)%
Tax credits	7.4 %	6.9 %
State rate change on deferred balances	(0.6)%	(0.1)%
Impact of ownership change	(6.1)%	3.3 %
Stock compensation	(22.9)%	0.0 %
Other	(0.5)%	0.6 %
Change in valuation allowance	(3.7)%	(45.8)%
Total	10.7 %	0.0 %

The tax years 2013 through 2016 remain open to examination by major taxing jurisdictions to which the Company is subject, which are primarily in the U.S. The statute of limitations for net operating losses utilized in future years will remain open beginning in the year of utilization.

The Company's policy is to record estimated interest and penalties related to uncertain tax positions as income tax expense. As of December 31, 2016 and 2015, the Company had no accrued interest or penalties recorded related to uncertain tax positions.

At December 31, 2016, the Company had net operating loss carryforwards (NOLs) for federal, state and international income tax purposes of approximately \$63,285, \$58,732 and \$2,404, respectively. Included in the federal and state net operating loss carryforwards is \$543 deduction related to the exercise of stock options. This amount represents an excess tax benefit which will be realized when it results in a reduction of cash taxes in accordance with ASC 718. The Company's existing federal and state net operating loss carryforwards will begin to expire on various dates through 2036. The Company also had available research and development credits for federal and state income tax purposes of approximately \$1,195 and \$673, respectively. These federal and state research and development credits will begin to expire in 2034 and 2029, respectively. As of December 31, 2016, the Company also had available investment tax credits for state income tax purposes of \$14, which also begin to expire in 2017. Management of the Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are comprised principally of net operating loss carryforwards and research and development credits. Under the applicable accounting standards, management has considered the Company's history of losses and concluded that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets. Accordingly, a full valuation allowance has been established against the deferred tax assets.

Utilization of the net operating loss and research and development credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986 due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes may limit the amount of net operating loss and research and development credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. The Company completed an evaluation of its ownership changes through December 31, 2015 and determined that an ownership change occurred on August 22, 2014 in connection with the Company's issuance of Common and Series B Convertible Preferred stock. As a consequence of this ownership change, the Company's NOLs, tax credit carryforwards and other tax deductions allocable to the tax periods preceding the ownership change became subject to limitation under Section 382. The Company has reduced its associated deferred tax assets accordingly. The Company has not yet completed an evaluation of ownership changes through December 31, 2016. To the extent an ownership change



**YIELD10 BIOSCIENCE, INC.**  
**(formerly known as Metabolix, Inc.)**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
**(In thousands, except for share and per share amounts)**

occurs in the future, the net operating loss, credit carryforwards and other deferred tax assets may be subject to further limitations.

For the year ended December 31, 2016, the Company recognized tax expense of \$1,097 as a result of net income recorded for discontinued operations. This tax expense is offset in consolidation by a tax benefit of \$1,097 as a result of the Company's net loss from continuing operations.

No additional provision has been made for U.S. income taxes related to the undistributed earnings of the wholly-owned subsidiaries of Yield10 Bioscience, Inc. or for unrecognized deferred tax liabilities for temporary differences related to investments in subsidiaries as the amounts are not significant. As such, earnings are expected to be permanently reinvested, the investments are essentially permanent in duration, or the Company has concluded that no additional tax liability will arise as a result of the distribution of such earnings. A liability could arise if amounts are distributed by such subsidiaries or if such subsidiaries are ultimately disposed. It is not practical to estimate the additional income taxes related to permanently reinvested earnings or the basis differences related to investment in subsidiaries. Unremitted earnings at December 31, 2016 and December 31, 2015 approximated \$346 and \$311, respectively.

**12. Employee Benefits**

The Company maintains a 401(k) savings plan in which substantially all of its regular U.S. employees are eligible to participate. Participants may contribute up to 60% of their annual compensation to the plan, subject to eligibility requirements and annual IRS limitations. The Company's plan provides for a matching contribution in common stock of up to 4.5% of a participant's total compensation dependent upon the level of participant contributions made during the plan year. Pursuant to this plan, the Company issued 319,309, and 131,113 shares of common stock during the years ended December 31, 2016, and 2015, respectively, and recorded \$281, and \$323, respectively, of related expense. Company contributions are fully vested upon issuance.

**13. U.S. Department of Energy Grants**

In 2011, the Company entered into a multi-year \$6.0 million grant agreement entitled, *Renewable Enhanced Feedstocks for Advanced Biofuels and Bioproducts*, with the U.S. Department of Energy for the development of switchgrass. The Company used the funds to perform research to enhance the yield of bio-based products, biopower, or fuels made from switchgrass to produce denser biomass and other products that can be further processed to make fuels such as butanol, chemicals such as propylene, and other materials to improve the economic competitiveness of future biorefineries. The Company recognized revenue from the grant over the term of the agreement as it incurred related research and development costs and it met its prorated cost-sharing obligation of approximately \$3.9 million. During the year ended December 31, 2015, the Company recognized the final \$1,028 in revenue related to this grant.

In 2015, the Company entered into a multi-year \$2.0 million grant agreement entitled, *Production of High Oil, Transgene Free Camelina Sativa Plants through Genome Editing*, with the U.S. Department of Energy for the development of Camelina sativa feedstock. The Company is using the funds to perform research to increase oil content and/or seed yield to maximize oil yields per acre. Continued receipt of grant proceeds is contingent upon the availability of government appropriated funds and the Company's ability to make substantial progress towards meeting the objectives of the award. The Company recognizes revenue from the grant over the term of the agreement as it incurs related research and development costs and provided it meets its prorated cost-sharing obligation of approximately \$0.5 million. The Company may elect to retain rights to inventions it conceives or reduces to practice in the performance of work under the award, subject to certain rights of the U.S. Government. During the years ended December 31, 2016 and 2015, the Company recognized \$913 and \$33, respectively, in revenue related to this grant. The grant is expected to complete in September 2017.

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

**14. Restructuring**

In July 2016, the Company announced a strategic restructuring under which Yield10 Bioscience has become its core business and the biopolymer operations were discontinued. As part of its strategic restructuring, the Company reduced staffing levels to twenty full-time employees as of December 31, 2016, and in January 2017, the Company formally changed its name to Yield10 Bioscience, Inc.. See Note 15, Discontinued Operations.

In connection with the wind down of biopolymer operations, the Company also ceased pilot production of biopolymer materials and reached agreements with the owner-operators of its biopolymer production facilities regarding the termination of these services. During 2016, the Company made cash payments of \$1,023, issued 275,000 shares of company common stock with a fair market value of \$85 and transferred certain biopolymer-related production equipment with a net book value of \$111 to settle a portion of these agreements and other restructuring activities. Remaining cash restructuring costs at December 31, 2016, of \$2,048 are expected to be paid out at various times through May 2018.

	Biopolymer Production Agreements	Employee Severance and Related Costs	Total
Original Charges and Amounts Accrued	\$ 2,641	\$ 322	\$ 2,963
Adjustments to Charges	—	562	562
Paid in Cash	(1,023)	(258)	(1,281)
Paid through Stock and Equipment	(196)	—	(196)
Ending Balance Accrued at December 31, 2016	<u>\$ 1,422</u>	<u>\$ 626</u>	<u>\$ 2,048</u>

With the exception of approximately \$238 of employee severance and related costs incurred for non-biopolymer employees, total restructuring costs shown in the table above have been classified within discontinued operations in the Company's consolidated statement of operations for the year ended December 31, 2016. Amounts related to the biopolymer production agreements are included in research and development expenses within discontinued operations as shown in Note 15. Remaining unpaid manufacturing contract termination costs of \$933 and \$489 are included in accrued expenses and contract termination obligation in the Company's consolidated balance sheet at December 31, 2016. Employee severance and related costs shown in the table above, are included in accrued expenses in the Company's consolidated balance sheet at December 31, 2016.

**15. Discontinued Operation**

In July 2016, the Company announced a strategic restructuring plan under which Yield10 Bioscience became its core business. Yield10 Bioscience discontinued its biopolymer operations and eliminated approximately 45 positions in its biopolymer operations and corporate organization.

As part of this strategic shift, the Company completed the sale of its biopolymer intellectual property and certain equipment and inventory to an affiliate of CJ during September 2016. The \$10,000 purchase price paid by CJ was primarily for the acquisition of intellectual property, including the Company's PHA strains, patent rights, know-how and its rights, title and interest in certain license agreements. None of this intellectual property was previously capitalized to the Company's balance sheet. As such, the transaction resulted in a gain on the sale of approximately \$9,868, net of the book value of the equipment sold. In addition to the CJ purchase, other parties acquired various capital equipment of the biopolymer operation for a total purchase price of approximately \$428, resulting in a net loss on sale of this equipment of approximately \$35.

The Company will not have further involvement in the operations of the discontinued biopolymer business.

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

The following are the major items comprising income or loss from discontinued operations for the years ended December 31, 2016 and December 31, 2015.

	Year Ended December 31,	
	2016	2015
Total revenue	\$ 4,945	\$ 1,244
Costs and expenses:		
Cost of product revenue	793	660
Research and development	9,854	9,970
Selling, general and administrative	1,449	1,888
Net gain on sales of biopolymer assets	(9,833)	—
Other expense	—	(33)
Total costs and expenses	2,263	12,485
Income (loss) from discontinued operations before income tax provision	\$ 2,682	\$ (11,241)
Income tax provision	(1,097)	—
Total net income (loss) from discontinued operations	\$ 1,585	\$ (11,241)

At December 31, 2015, current assets and other assets of disposal group classified as held for sale of \$328 and \$800, respectively, shown on the Company's condensed consolidated balance sheet, represent biopolymer inventory and biopolymer production and laboratory equipment, respectively. All of this inventory and equipment was located in the U.S. At December 31, 2016, the sale of assets to CJ was completed and these assets are no longer carried within the Company's balance sheet.

The following are the non-cash operating items and investing items related to discontinued operations for the years ended December 31, 2016 and December 31, 2015.

	Year Ended December 31,	
	2016	2015
Non-cash operating items:		
Depreciation	\$ 326	\$ 147
Charge for 401(k) company common stock match	\$ 118	\$ 167
Stock-based compensation	\$ 217	\$ 663
Inventory impairment	\$ 199	\$ 209
Non-cash restructuring expense paid through stock and equipment	\$ 196	\$ —
Gain on sale of discontinued operation and property and equipment	\$ (9,833)	\$ (33)
Investing item:		
Purchases of property and equipment	\$ 193	\$ 615

**YIELD10 BIOSCIENCE, INC.**  
(formerly known as Metabolix, Inc.)

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**  
(In thousands, except for share and per share amounts)

**16. Geographic Information**

The geographic distribution of the Company's revenues and long-lived assets from continuing operations is summarized as follows:

	U.S.	Canada	Eliminations	Total
<b>Year Ended December 31, 2016</b>				
Net revenues to unaffiliated customers	\$ 1,159	\$ —	\$ —	\$ 1,159
Inter-geographic revenues	—	906	(906)	—
Net revenues	<u>\$ 1,159</u>	<u>\$ 906</u>	<u>\$ (906)</u>	<u>\$ 1,159</u>
Identifiable long-lived assets	<u>\$ 1,739</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,739</u>
<b>Year Ended December 31, 2015</b>				
Net revenues to unaffiliated customers	\$ 1,349	\$ 1	\$ —	\$ 1,350
Inter-geographic revenues	—	769	(769)	—
Net revenues	<u>\$ 1,349</u>	<u>\$ 770</u>	<u>\$ (769)</u>	<u>\$ 1,350</u>
Identifiable long-lived assets	<u>\$ 103</u>	<u>\$ 2</u>	<u>\$ —</u>	<u>\$ 105</u>

Foreign revenue is based on the country in which the Company's subsidiary that earned the revenue is domiciled. During 2016, grant revenue earned from the Company's BETO grant and subaward with North Carolina State University totaled \$913 and \$246, or 79% and 21%, respectively, of total revenue. During 2015, revenue earned from the Company's REFABB grant with U.S. Department of Energy totaled \$1,028, or 76% of total revenue.

March 28, 2017

Dr. Oliver Peoples  
c/o Yield10 Bioscience, Inc..  
19 Presidential Way  
Woburn, MA 01801

Re: Employment Agreement

Dear Olly:

We are pleased to offer the following terms for your employment by Yield10 Bioscience, Inc. (the “Company”). As set forth herein, you and the Company agree as follows (the “Agreement”):

1. Employment.

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

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

2. Term. The Company agrees to continue to employ you, and you agree to continue to serve the Company, on an “at will” basis, which means that, subject to the payment obligations imposed on the Company pursuant to this Agreement, either the Company or you may terminate employment with the Company at any time, with or without Cause, as provided in Section 4 below. The period commencing with the Start Date and ending on the effective date of any termination of employment in accordance with the provisions hereof shall constitute the term of this Agreement (“Agreement Term”).

3. Compensation.

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- 3.1 Base Salary. While you are employed hereunder, the Company will pay you a base salary at the annual rate of no less than \$225,000 per year (the “Base Salary”). You may be eligible for an annual salary increase in the good faith determination of the Company and the Compensation Committee of its Board of Directors. The Company will pay such Base Salary on a semi-monthly basis in accordance with the Company’s normal payroll practices and will deduct from each monthly salary payment all amounts required to be deducted or withheld under applicable law or under any employee benefit plan in which you participate.
  - 3.2 Equity Compensation. The Company, in the Board’s sole discretion, may from time to time grant to you stock options, restricted stock or other forms of equity compensation pursuant to the Metabolix, Inc. 2014 Stock Plan or any other authorized stock plan in effect at the time.
  - 3.3 Vacation. You will be entitled to paid vacation, sick time, and paid holidays, accrued and used in accordance with the Company’s policies as in effect from time to time. All vacation days will be taken at times mutually agreed by you and the Company and will be subject to the business needs of the Company. For the purpose of clarity, under the current policy, you accrue five (5) weeks (i.e. 25 days) of vacation each year.
  - 3.4 Fringe Benefits. You may be entitled to participate in the employee benefit plans which the Company provides or may establish for the benefit of its senior executives (for example, group life, disability, medical, dental and other insurance, retirement, pension, profit-sharing and similar plans) (collectively, the “Fringe Benefits”). Your eligibility to participate in the Fringe Benefits and receive benefits thereunder will be subject to the plan documents governing such Fringe Benefits. Nothing contained herein will require the Company to establish or maintain any Fringe Benefits.
  - 3.5 Reimbursement of Certain Expenses. You shall be reimbursed for reasonable and necessary business expenses incurred by you while you are employed by the Company, which are directly related to the furtherance of the Company’s business. You must submit any request for reimbursement no later than ninety (90) days following the date that such business expense is incurred in accordance with the Company’s reimbursement policy regarding same, and business expenses must be substantiated by appropriate receipts and documentation. All reimbursements provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A of the Code and the rules and regulations thereunder (“Section 409A”) including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during the Agreement Term; (ii) the amount
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of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year; (iii) the reimbursement of an eligible expense shall be made no later than the last day of the calendar year following the year in which the expense is incurred; and (iv) the right to reimbursement or in kind benefits is not subject to liquidation or exchange for another benefit.

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

- 4.1 Termination by Employee. You may terminate this Agreement with or without Good Reason (as defined herein). Termination without Good Reason shall require 30 days' prior written notice to the Company. Termination for Good Reason must occur within a period of 90 days after the occurrence of an event of Good Reason.
  - 4.2 Good Reason. As used in this Agreement, "Good Reason" means that you have complied with the "Good Reason Process" (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties or the assignment to you of duties materially inconsistent with this Agreement; (ii) a diminution in your Base Salary below the minimum Base Salary set forth herein; (iii) the relocation of your principal place of business beyond 40 road miles from Woburn, MA; (iv) the material breach of this Agreement by the Company; or (v) a change in your reporting relationship as made by the Board of Directors. "Good Reason Process" shall mean that (i) you reasonably determine in good faith that a "Good Reason" condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 60 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company's efforts, for a period not less than 30 days following such notice (the "Cure Period"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within 60 days after the end of the Cure Period. If the Company permanently cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.
  - 4.3 Termination by Company. This Agreement shall terminate, at the election of the Company, with or without Cause. For purposes of this Agreement, a termination shall be considered to be "for Cause" if it occurs in conjunction with a determination by the Board that any of the following has occurred:
    - a) Your conviction of, pleading guilty to, or confession to a felony or any crime involving any act of dishonesty, fraud, misappropriation or embezzlement;
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- b) Your misconduct or gross negligence in connection with the performance of your duties hereunder;
- c) Your commission of fraud, disloyalty, or unprofessional conduct which does, or likely is to be, materially injurious to the Company, its financial condition, or its reputation;
- d) Your willful and continued failure to perform your duties with the Company (other than any such failure resulting from your Disability);
- e) Your material breach of the covenants set forth in Section 7 of this Agreement, or material breach of any other provisions of this Agreement.

If the Company determines that it has grounds to terminate your employment for Cause pursuant to the provisions of clauses (d) or (e) of this Section 4.3, then it will first deliver to you a written notice setting forth with specificity the occurrence deemed to give rise to a right to terminate your employment for Cause, and you will have 10 days after the receipt of such written notice to cease such actions or otherwise correct any such failure or breach. If you do not cease such actions or otherwise correct such failure or breach within such 10-day period, or having once received such written notice and ceased such actions or corrected such failure or breach, at any time thereafter you again so act, fail, or breach, the Company may terminate your employment for Cause immediately. The Company may terminate your employment without Cause, or for Cause pursuant to the provisions of clauses (a), (b), or (c) of this Section 4.3, immediately.

- 4.4 Death or Disability. This Agreement shall terminate upon your death or disability. If you shall be disabled so as to be unable to perform the essential functions of your position under this Agreement with or without reasonable accommodation, the Board may remove you from any responsibilities and/or reassign you to another position with the Company during the period of such disability, and such reassignment shall not trigger a Good Reason termination as provided herein. Notwithstanding any such removal or reassignment, you shall continue to receive your Base Salary (less any disability pay or sick pay benefits to which you may be entitled under the Company's policies) and benefits under this Agreement (except to the extent that you may be ineligible for one or more such benefits under applicable plan terms) for a period of three months, and your employment may be terminated by the Company at any time, with or without notice, thereafter.

5. Effect of Termination.

- 5.1 Termination for Cause, Death, Disability or Voluntary Resignation. In the event (i) your employment is terminated for Cause; (ii) your employment is terminated for
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death or Disability; or (iii) you voluntarily resign (other than for Good Reason), unless otherwise specifically provided herein, you, or your estate, shall be eligible only to receive (i) the portion of your Base Salary as has accrued prior to the effectiveness of such termination and has not yet been paid, (ii) an amount equal to the value of your accrued unused vacation days, and (iii) reimbursement for expenses properly incurred by you on behalf of the Company prior to such termination if such expenses are properly documented in accordance with Company policy and practice and submitted for reimbursement within 30 days of the termination date (collectively, the “Accrued Obligations”). Such amounts will be paid promptly after termination in accordance with Massachusetts law.

5.2 Termination Without Cause or Resignation for Good Reason. In the event that (i) you are terminated without Cause; or (ii) you resign for Good Reason, and contingent on your executing and not revoking a separation agreement in a form prepared by and acceptable to the Company, which shall include, at a minimum, a full release of all claims against the Company, as well as non-disparagement and confidentiality provisions in favor of the Company, with standard exceptions for vested benefits and equity interests, rights to indemnification, and exceptions for all claims not waivable under applicable law (the “Release”) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive the following (the “Separation Benefits”):

- a) lump-sum severance pay in an amount equal to the greater of: (1) twenty-four (24) months of your Base Salary in effect at the time of termination; or (2) \$480,000.00, less all required withholdings and deductions, to be paid on the next pay period after the date the Release becomes effective and irrevocable; provided, however, that if the 30 day period in which the Release must become enforceable and irrevocable begins in one year and ends in the following year, the Company shall make the lump sum payment on the first pay period in the second year.
  - b) lump-sum pro rata portion of your then-current target bonus, if any, in effect for the calendar year in which such termination occurs, but not less than a pro rata portion of \$180,000.00, less all required withholdings and deductions, to be paid on the next pay period after the date the Release becomes effective and irrevocable; provided, however, that if the 30 day period in which the Release must become enforceable and irrevocable begins in one year and ends in the following year, the Company shall make the lump sum payment on the first pay period in the second year;
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- c) subject to your election under COBRA, payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of termination until the earlier of (x) 24 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.

5.3 Termination Without Cause or Resignation for Good Reason After a Change of Control. In the event that your employment is terminated by the Company without Cause or by you for Good Reason (each, as defined herein) within the twenty-four (24) month period immediately following, or within the two month period immediately prior, to Change of Control (as defined herein), and contingent on your executing a Release (as defined herein) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations and Separation Benefits described above, to all outstanding unvested options granted to you under the Metabolix Inc. 1995 Stock Plan, the Metabolix Inc. 2005 Stock Plan, the Metabolix, Inc. 2014 Stock Plan, or any authorized successor stock plan, and all such outstanding unvested options will fully vest and become exercisable as of the date of termination, provided that the conditions to vesting other than the passage of time have been satisfied.

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

- a) any “person” (as such term is used in Sections 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) becomes a “beneficial owner” (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) (other than the Company, any currently existing equity investors, any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or any corporation owned, directly or indirectly, by the stockholders of the Company, in substantially the same proportions as their ownership of stock of the Company), directly or indirectly, of securities of the Company, representing fifty percent (50%) or more of the combined voting power of the Company’s then outstanding securities; or
  - b) persons who, as of the date this Agreement is signed, constituted the Company’s Board of Directors (the “Incumbent Board”) cease for any reason including, without limitation, as a result of a tender offer, proxy contest, merger, consolidation or similar transaction, to constitute at least a majority of the Board of Directors, provided that any person becoming a director of
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the Company subsequent to the date this Agreement is signed whose election was approved by at least a majority of the directors then comprising the Incumbent Board shall, for purposes of this Section, be considered a member of the Incumbent Board; or

- c) the consummation of a merger or consolidation of the Company with any other corporation or other entity, other than (1) a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation or (2) a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no "person" (as hereinabove defined) acquires more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities; or
- d) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

5.5 Excise Tax. You agree that the payments and benefits hereunder, and under all other contracts, arrangements or programs that apply to you (the "Company Payments"), shall be reduced to an amount that is one dollar less than the amount that would trigger an excise tax under Section 4999 of the Code, as determined in good faith by the Company's independent public accountants, provided, however, that the reduction shall occur only if the reduced Company Payments received by you (after taking into account further reductions for applicable federal, state and local income, social security and other taxes) would be greater than the unreduced Company Payments to be received by you minus (i) the excise tax payable with respect to such Company Payments under Section 4999 of the Code; and (ii) all applicable federal, state and local income, social security and other taxes on such Company Payments. You and the Company agree to cooperate in good faith with each other in connection with any administrative or judicial proceedings concerning the existence or amount of golden parachute penalties with respect to payments or benefits that you receive. In the event that such payments are required to be reduced pursuant to this Section, such payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits, and

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to the extent any payment is to be made over time (e.g., in installments, etc.), then the payments shall be reduced in reverse chronological order.

- 5.6 Separation from Service. Notwithstanding anything set forth in this Agreement, a termination of your employment triggering payment of benefits under Section 5 of this Agreement shall be deemed not to have occurred until such time as you incur a “separation from service” with the Company in accordance with Section 409A(a)(2)(A)(i) of the Code and the applicable provisions of Treasury Regulation Section 1.409A-1(h).
- 5.7 Section 409A. Notwithstanding anything set forth in this Agreement, if at the time of your “separation from service,” the Company determines that the you are a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that you become entitled to under this Agreement on account of your separation from service would be considered deferred compensation subject to additional tax under Section 409A(a) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after your separation from service, or (B) your death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment described in Section 5 is considered a separate payment.
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6. Taxes. All payments required to be made by the Company to you under this Agreement shall be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may reasonably determine it should withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Agreement be exempt from, or comply with, the provisions of Section 409A of the Code, and this Agreement shall be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Agreement.
  7. Noncompetition, Nonsolicitation, Confidentiality and Inventions Obligations. As a condition of employment, you must execute, and abide by the obligations in, the enclosed Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement simultaneously with the execution of this Agreement.
  8. Disclosure to Future Employers. You will provide, and the Company, in its discretion, may similarly provide, a copy of the covenants contained in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement to any business or enterprise which you may, directly or indirectly, own, manage, operate, finance, join, control or in which you may participate in the ownership, management, operation, financing, or control, or with which you may be connected as an officer, director, employee, partner, principal, agent, representative, consultant or otherwise.
  9. Representations. You hereby represent and warrant to the Company that you understand this Agreement, that you enter into this Agreement voluntarily and that your employment under this Agreement will not conflict with any legal duty owed by you to any other party.
  10. General.
    - 10.1 Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party's address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand, at the time of the delivery thereof to the receiving party at the address of such party
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set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5th business day following the day such mailing is made.

- 10.2 Entire Agreement. This Agreement, together with any Stock Option Agreements executed by you and the Company (either prior to or in conjunction with this Agreement) and the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement, embody the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Agreement.
  - 10.3 Modifications and Amendments. The terms and provisions of this Agreement may be modified or amended only by written agreement executed by the parties hereto.
  - 10.4 Waivers and Consents. The terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.
  - 10.5 Assignment. The Company shall cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business or that aspect of the Company's business in which you are principally involved and may assign its rights and obligations hereunder to any Company affiliate. You may not assign your rights and obligations under this Agreement without the prior written consent of the Company and any such attempted assignment by you without the prior written consent of the Company will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Agreement shall inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, shall be issued and paid to your estate.
  - 10.6 Governing Law. This Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.
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- 10.7 Jury Waiver. YOU AND THE COMPANY AGREE TO WAIVE TRIAL BY JURY IN CONNECTION WITH ANY ACTION ARISING FROM OR RELATING TO THIS AGREEMENT.
- 10.8 Severability. The parties intend this Agreement to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.
- 10.9 Headings and Captions. The headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.
- 10.10 Acknowledgments. You recognize and agree that the enforcement of the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement is necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the proprietary nature of the Company's business, the restrictions set forth in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement are reasonable as to time and scope.
- 10.11 Counterparts. This Agreement may be executed counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

If you accept the above terms, please so indicate by signing and returning to us the enclosed copy of this Agreement no later than March 28, 2017.

Very truly yours,

YIELD10 BIOSCIENCE, INC.

By: /s/ Robert L. Van Nostrand  
Name: Robert L. Van Nostrand  
Title: Board Chairman

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**BY SIGNING BELOW, I CERTIFY THAT I HAVE READ THIS AGREEMENT CAREFULLY AND AM SATISFIED THAT I UNDERSTAND IT COMPLETELY.**

**Accepted and Agreed:**

/s/ Oliver P. Peoples  
Oliver Peoples

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



March 28, 2017

Charles Haaser  
c/o Yield10 Bioscience, Inc.  
19 Presidential Way  
Woburn, MA 01801

Re: Employment Agreement

Dear Charles:

We are pleased to offer the following terms for your employment by Yield10 Bioscience, Inc. (the “Company”). As set forth herein, you and the Company agree as follows (the “Agreement”):

1. Employment.

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

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

2. Term. The Company agrees to continue to employ you, and you agree to continue to serve the Company, on an “at will” basis, which means that, subject to the payment obligations imposed on the Company pursuant to this Agreement, either the Company or you may terminate employment with the Company at any time, with or without Cause, as provided in Section 4 below. The period commencing with the Start Date and ending on the effective date of any termination of employment in accordance with the provisions hereof shall constitute the term of this Agreement (“Agreement Term”).

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3. Compensation.

- 3.1 Base Salary. While you are employed hereunder, the Company will pay you a base salary at the annual rate of no less than \$205,000 per year (the “Base Salary”). You may be eligible for an annual salary increase in the good faith determination of the Company and the Compensation Committee of its Board of Directors. The Company will pay such Base Salary on a semi-monthly basis in accordance with the Company’s normal payroll practices and will deduct from each monthly salary payment all amounts required to be deducted or withheld under applicable law or under any employee benefit plan in which you participate.
- 3.2 Equity Compensation. The Company, in the Board’s sole discretion, may from time to time grant to you stock options, restricted stock or other forms of equity compensation pursuant to the Metabolix, Inc. 2014 Stock Plan or any other authorized stock plan in effect at the time.
- 3.3 Vacation. You will be entitled to paid vacation, sick time, and paid holidays, accrued and used in accordance with the Company’s policies as in effect from time to time. All vacation days will be taken at times mutually agreed by you and the Company and will be subject to the business needs of the Company. For the purpose of clarity, under the current policy, you accrue five (5) weeks (i.e. 25 days) of vacation each year.
- 3.4 Fringe Benefits. You may be entitled to participate in the employee benefit plans which the Company provides or may establish for the benefit of its senior executives (for example, group life, disability, medical, dental and other insurance, retirement, pension, profit-sharing and similar plans) (collectively, the “Fringe Benefits”). Your eligibility to participate in the Fringe Benefits and receive benefits thereunder will be subject to the plan documents governing such Fringe Benefits. Nothing contained herein will require the Company to establish or maintain any Fringe Benefits.
- 3.5 Reimbursement of Certain Expenses. You shall be reimbursed for reasonable and necessary business expenses incurred by you while you are employed by the Company, which are directly related to the furtherance of the Company’s business. You must submit any request for reimbursement no later than ninety (90) days following the date that such business expense is incurred in accordance with the Company’s reimbursement policy regarding same, and business expenses must be substantiated by appropriate receipts and documentation. All reimbursements provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A of the Code and the rules and regulations thereunder
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(“Section 409A”) including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during the Agreement Term; (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year; (iii) the reimbursement of an eligible expense shall be made no later than the last day of the calendar year following the year in which the expense is incurred; and (iv) the right to reimbursement or in kind benefits is not subject to liquidation or exchange for another benefit.

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

- 4.1 Termination by Employee. You may terminate this Agreement with or without Good Reason (as defined herein). Termination without Good Reason shall require 30 days’ prior written notice to the Company. Termination for Good Reason must occur within a period of 90 days after the occurrence of an event of Good Reason.
- 4.2 Good Reason. As used in this Agreement, “ Good Reason ” means that you have complied with the “Good Reason Process” (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties, or the assignment to you of duties materially inconsistent with this Agreement; (ii) a diminution in your Base Salary below the minimum Base Salary set forth herein; (iii) the relocation of your principal place of business beyond 40 road miles from Woburn, MA; (iv) the material breach of this Agreement by the Company; or (v) a change in your reporting relationship to the Chief Executive Officer as set forth herein. “ Good Reason Process ” shall mean that (i) you reasonably determine in good faith that a “Good Reason” condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 60 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company’s efforts, for a period not less than 30 days following such notice (the “ Cure Period ”), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within 60 days after the end of the Cure Period. If the Company permanently cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.
- 4.3 Termination by Company. This Agreement shall terminate, at the election of the Company, with or without Cause. For purposes of this Agreement, a termination shall be considered to be “for Cause” if it occurs in conjunction with a determination by the Board that any of the following has occurred:
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- a) Your conviction of, pleading guilty to, or confession to a felony or any crime involving any act of dishonesty, fraud, misappropriation or embezzlement;
- b) Your misconduct or gross negligence in connection with the performance of your duties hereunder;
- c) Your commission of fraud, disloyalty, or unprofessional conduct which does, or likely is to be, materially injurious to the Company, its financial condition, or its reputation;
- d) Your willful and continued failure to perform your duties with the Company (other than any such failure resulting from your Disability);
- e) Your material breach of the covenants set forth in Section 7 of this Agreement, or material breach of any other provisions of this Agreement.

If the Company determines that it has grounds to terminate your employment for Cause pursuant to the provisions of clauses (d) or (e) of this Section 4.3, then it will first deliver to you a written notice setting forth with specificity the occurrence deemed to give rise to a right to terminate your employment for Cause, and you will have 10 days after the receipt of such written notice to cease such actions or otherwise correct any such failure or breach. If you do not cease such actions or otherwise correct such failure or breach within such 10-day period, or having once received such written notice and ceased such actions or corrected such failure or breach, at any time thereafter you again so act, fail, or breach, the Company may terminate your employment for Cause immediately. The Company may terminate your employment without Cause, or for Cause pursuant to the provisions of clauses (a), (b), or (c) of this Section 4.3, immediately.

- 4.4 Death or Disability. This Agreement shall terminate upon your death or disability. If you shall be disabled so as to be unable to perform the essential functions of your position under this Agreement with or without reasonable accommodation, the Board may remove you from any responsibilities and/or reassign you to another position with the Company during the period of such disability, and such reassignment shall not trigger a Good Reason termination as provided herein. Notwithstanding any such removal or reassignment, you shall continue to receive your Base Salary (less any disability pay or sick pay benefits to which you may be entitled under the Company's policies) and benefits under this Agreement (except to the extent that you may be ineligible for one or more such benefits under applicable plan terms) for a period of three months, and your employment may be terminated by the Company at any time, with or without notice, thereafter.
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5. Effect of Termination.

- 5.1 Termination for Cause, Death, Disability or Voluntary Resignation. In the event (i) your employment is terminated for Cause; (ii) your employment is terminated for death or Disability; or (iii) you voluntarily resign (other than for Good Reason), unless otherwise specifically provided herein, you, or your estate, shall be eligible only to receive (i) the portion of your Base Salary as has accrued prior to the effectiveness of such termination and has not yet been paid, (ii) an amount equal to the value of your accrued unused vacation days, and (iii) reimbursement for expenses properly incurred by you on behalf of the Company prior to such termination if such expenses are properly documented in accordance with Company policy and practice and submitted for reimbursement within 30 days of the termination date (collectively, the “Accrued Obligations”). Such amounts will be paid promptly after termination in accordance with Massachusetts law.
- 5.2 Termination Without Cause or Resignation for Good Reason. In the event that (i) you are terminated without Cause; or (ii) you resign for Good Reason, and contingent on your executing and not revoking a separation agreement in a form prepared by and acceptable to the Company, which shall include, at a minimum, a full release of all claims against the Company, as well as non-disparagement and confidentiality provisions in favor of the Company, with standard exceptions for vested benefits and equity interests, rights to indemnification, and exceptions for all claims not waivable under applicable law (the “Release”) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive the following (the “Separation Benefits”):
- a) continuation of your Base Salary in effect at the time of termination for a period of twelve (12) months following the Agreement Term, commencing on the 7<sup>th</sup> day after the date the Release becomes effective and irrevocable, payable in accordance with the Company’s normal payroll practices; provided, however, that if the 30 day period in which the Release must become enforceable and irrevocable begins in one year and ends in the following year, the Company shall commence payment of the Base Salary in the second year; and provided, further, that the first installment of the Base Salary shall include all amounts that would otherwise have been paid to the you between the date of termination and your receipt of the first installment.
  - b) subject to your election under COBRA, payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of
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termination until the earlier of (x) 12 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.

- 5.3 Termination Without Cause or Resignation for Good Reason After a Change of Control. In the event that your employment is terminated by the Company without Cause or by you for Good Reason (each, as defined herein) within the twenty-four (24) month period immediately following, or within the two month period immediately prior, to Change of Control (as defined herein), and contingent on your executing a Release (as defined herein) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations and Separation Benefits described above, to all outstanding unvested options granted to you under the Metabolix Inc. 1995 Stock Plan, the Metabolix Inc. 2005 Stock Plan, the Metabolix, Inc. 2014 Stock Plan, or any authorized successor stock plan, and all such outstanding unvested options will fully vest and become exercisable as of the date of termination, provided that the conditions to vesting other than the passage of time have been satisfied.
- 5.4 “Change of Control”. As used herein, a “Change of Control” shall occur or be deemed to have occurred only upon any one or more of the following events:
- a) any “person” (as such term is used in Sections 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) becomes a “beneficial owner” (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) (other than the Company, any currently existing equity investors, any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or any corporation owned, directly or indirectly, by the stockholders of the Company, in substantially the same proportions as their ownership of stock of the Company), directly or indirectly, of securities of the Company, representing fifty percent (50%) or more of the combined voting power of the Company’s then outstanding securities; or
  - b) persons who, as of the date this Agreement is signed, constituted the Company’s Board of Directors (the “Incumbent Board”) cease for any reason including, without limitation, as a result of a tender offer, proxy contest, merger, consolidation or similar transaction, to constitute at least a majority of the Board of Directors, provided that any person becoming a director of the Company subsequent to the date this Agreement is signed whose election was approved by at least a majority of the directors then comprising the
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Incumbent Board shall, for purposes of this Section, be considered a member of the Incumbent Board; or

- c) the consummation of a merger or consolidation of the Company with any other corporation or other entity, other than (1) a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation or (2) a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no "person" (as hereinabove defined) acquires more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities; or
- d) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

5.5 Excise Tax. You agree that the payments and benefits hereunder, and under all other contracts, arrangements or programs that apply to you (the "Company Payments"), shall be reduced to an amount that is one dollar less than the amount that would trigger an excise tax under Section 4999 of the Code, as determined in good faith by the Company's independent public accountants, provided, however, that the reduction shall occur only if the reduced Company Payments received by you (after taking into account further reductions for applicable federal, state and local income, social security and other taxes) would be greater than the unreduced Company Payments to be received by you minus (i) the excise tax payable with respect to such Company Payments under Section 4999 of the Code; and (ii) all applicable federal, state and local income, social security and other taxes on such Company Payments. You and the Company agree to cooperate in good faith with each other in connection with any administrative or judicial proceedings concerning the existence or amount of golden parachute penalties with respect to payments or benefits that you receive. In the event that such payments are required to be reduced pursuant to this Section, such payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits, and to the extent any payment is to be made over time (e.g., in installments, etc.), then the payments shall be reduced in reverse chronological order.

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- 5.6 Separation from Service. Notwithstanding anything set forth in this Agreement, a termination of your employment triggering payment of benefits under Section 5 of this Agreement shall be deemed not to have occurred until such time as you incur a “separation from service” with the Company in accordance with Section 409A(a)(2)(A)(i) of the Code and the applicable provisions of Treasury Regulation Section 1.409A-1(h).
- 5.7 Section 409A. Notwithstanding anything set forth in this Agreement, if at the time of your “separation from service,” the Company determines that the you are a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that you become entitled to under this Agreement on account of your separation from service would be considered deferred compensation subject to additional tax under Section 409A(a) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after your separation from service, or (B) your death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment described in Section 5 is considered a separate payment.
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6. Taxes. All payments required to be made by the Company to you under this Agreement shall be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may reasonably determine it should withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Agreement be exempt from, or comply with, the provisions of Section 409A of the Code, and this Agreement shall be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Agreement.
  7. Noncompetition, Nonsolicitation, Confidentiality and Inventions Obligations. As a condition of employment, you must execute, and abide by the obligations in, the enclosed Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement simultaneously with the execution of this Agreement.
  8. Disclosure to Future Employers. You will provide, and the Company, in its discretion, may similarly provide, a copy of the covenants contained in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement to any business or enterprise which you may, directly or indirectly, own, manage, operate, finance, join, control or in which you may participate in the ownership, management, operation, financing, or control, or with which you may be connected as an officer, director, employee, partner, principal, agent, representative, consultant or otherwise.
  9. Representations. You hereby represent and warrant to the Company that you understand this Agreement, that you enter into this Agreement voluntarily and that your employment under this Agreement will not conflict with any legal duty owed by you to any other party.
  10. General.
    - 10.1 Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party's address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand,
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at the time of the delivery thereof to the receiving party at the address of such party set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5th business day following the day such mailing is made.

- 10.2 Entire Agreement. This Agreement, together with any Stock Option Agreements executed by you and the Company (either prior to or in conjunction with this Agreement) and the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement, embody the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Agreement.
- 10.3 Modifications and Amendments. The terms and provisions of this Agreement may be modified or amended only by written agreement executed by the parties hereto.
- 10.4 Waivers and Consents. The terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.
- 10.5 Assignment. The Company shall cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business or that aspect of the Company's business in which you are principally involved and may assign its rights and obligations hereunder to any Company affiliate. You may not assign your rights and obligations under this Agreement without the prior written consent of the Company and any such attempted assignment by you without the prior written consent of the Company will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Agreement shall inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, shall be issued and paid to your estate.
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- 10.6 Governing Law. This Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.
- 10.7 Jury Waiver. YOU AND THE COMPANY AGREE TO WAIVE TRIAL BY JURY IN CONNECTION WITH ANY ACTION ARISING FROM OR RELATING TO THIS AGREEMENT.
- 10.8 Severability. The parties intend this Agreement to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.
- 10.9 Headings and Captions. The headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.
- 10.10 Acknowledgments. You recognize and agree that the enforcement of the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement is necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the proprietary nature of the Company's business, the restrictions set forth in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement are reasonable as to time and scope.
- 10.11 Counterparts. This Agreement may be executed counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

If you accept the above terms, please so indicate by signing and returning to us the enclosed copy of this Agreement no later than March 28, 2017.

Very truly yours,

YIELD10 BIOSCIENCE, INC.

By: /s/ Oliver P. Peoples

Name: Olly Peoples

Title: President & CEO

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**BY SIGNING BELOW, I CERTIFY THAT I HAVE READ THIS AGREEMENT CAREFULLY AND AM SATISFIED THAT I UNDERSTAND IT COMPLETELY.**

**Accepted and Agreed:**

/s/ Charles B. Haaser

Charles Haaser

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

March 28, 2017

Lynne H. Brum  
c/o Yield10 Bioscience, Inc..  
19 Presidential Way  
Woburn, MA 01801

Re: Employment Agreement

Dear Lynne:

We are pleased to offer the following terms for your employment by Yield10 Bioscience, Inc. (the “Company”). As set forth herein, you and the Company agree as follows (the “Agreement”):

1. Employment.

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

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

2. Term. The Company agrees to continue to employ you, and you agree to continue to serve the Company, on an “at will” basis, which means that, subject to the payment obligations imposed on the Company pursuant to this Agreement, either the Company or you may terminate employment with the Company at any time, with or without Cause, as provided in Section 4 below. The period commencing with the Start Date and ending on the effective date of any termination of employment in accordance with the provisions hereof shall constitute the term of this Agreement (“Agreement Term”).

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3. Compensation.

- 3.1 Base Salary. While you are employed hereunder, the Company will pay you a base salary at the annual rate of no less than \$220,000 per year (the “Base Salary”). You may be eligible for an annual salary increase in the good faith determination of the Company and the Compensation Committee of its Board of Directors. The Company will pay such Base Salary on a semi-monthly basis in accordance with the Company’s normal payroll practices and will deduct from each monthly salary payment all amounts required to be deducted or withheld under applicable law or under any employee benefit plan in which you participate.
- 3.2 Equity Compensation. The Company, in the Board’s sole discretion, may from time to time grant to you stock options, restricted stock or other forms of equity compensation pursuant to the Metabolix, Inc. 2014 Stock Plan or any other authorized stock plan in effect at the time.
- 3.3 Vacation. You will be entitled to paid vacation, sick time, and paid holidays, accrued and used in accordance with the Company’s policies as in effect from time to time. All vacation days will be taken at times mutually agreed by you and the Company and will be subject to the business needs of the Company. For the purpose of clarity, under the current policy, you accrue five (5) weeks (i.e. 25 days) of vacation each year.
- 3.4 Fringe Benefits. You may be entitled to participate in the employee benefit plans which the Company provides or may establish for the benefit of its senior executives (for example, group life, disability, medical, dental and other insurance, retirement, pension, profit-sharing and similar plans) (collectively, the “Fringe Benefits”). Your eligibility to participate in the Fringe Benefits and receive benefits thereunder will be subject to the plan documents governing such Fringe Benefits. Nothing contained herein will require the Company to establish or maintain any Fringe Benefits.
- 3.5 Reimbursement of Certain Expenses. You shall be reimbursed for reasonable and necessary business expenses incurred by you while you are employed by the Company, which are directly related to the furtherance of the Company’s business. You must submit any request for reimbursement no later than ninety (90) days following the date that such business expense is incurred in accordance with the Company’s reimbursement policy regarding same, and business expenses must be substantiated by appropriate receipts and documentation. All reimbursements provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A of the Code and the rules and regulations thereunder
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(“Section 409A”) including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during the Agreement Term; (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year; (iii) the reimbursement of an eligible expense shall be made no later than the last day of the calendar year following the year in which the expense is incurred; and (iv) the right to reimbursement or in kind benefits is not subject to liquidation or exchange for another benefit.

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

- 4.1 Termination by Employee. You may terminate this Agreement with or without Good Reason (as defined herein). Termination without Good Reason shall require 30 days’ prior written notice to the Company. Termination for Good Reason must occur within a period of 90 days after the occurrence of an event of Good Reason.
- 4.2 Good Reason. As used in this Agreement, “ Good Reason ” means that you have complied with the “Good Reason Process” (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties, or the assignment to you of duties materially inconsistent with this Agreement; (ii) a diminution in your Base Salary below the minimum Base Salary set forth herein; (iii) the relocation of your principal place of business beyond 40 road miles from Woburn, MA; (iv) the material breach of this Agreement by the Company; or (v) a change in your reporting relationship to the Chief Executive Officer as set forth herein. “ Good Reason Process ” shall mean that (i) you reasonably determine in good faith that a “Good Reason” condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 60 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company’s efforts, for a period not less than 30 days following such notice (the “ Cure Period ”), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within 60 days after the end of the Cure Period. If the Company permanently cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.
- 4.3 Termination by Company. This Agreement shall terminate, at the election of the Company, with or without Cause. For purposes of this Agreement, a termination shall be considered to be “for Cause” if it occurs in conjunction with a determination by the Board that any of the following has occurred:
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- a) Your conviction of, pleading guilty to, or confession to a felony or any crime involving any act of dishonesty, fraud, misappropriation or embezzlement;
- b) Your misconduct or gross negligence in connection with the performance of your duties hereunder;
- c) Your commission of fraud, disloyalty, or unprofessional conduct which does, or likely is to be, materially injurious to the Company, its financial condition, or its reputation;
- d) Your willful and continued failure to perform your duties with the Company (other than any such failure resulting from your Disability);
- e) Your material breach of the covenants set forth in Section 7 of this Agreement, or material breach of any other provisions of this Agreement.

If the Company determines that it has grounds to terminate your employment for Cause pursuant to the provisions of clauses (d) or (e) of this Section 4.3, then it will first deliver to you a written notice setting forth with specificity the occurrence deemed to give rise to a right to terminate your employment for Cause, and you will have 10 days after the receipt of such written notice to cease such actions or otherwise correct any such failure or breach. If you do not cease such actions or otherwise correct such failure or breach within such 10-day period, or having once received such written notice and ceased such actions or corrected such failure or breach, at any time thereafter you again so act, fail, or breach, the Company may terminate your employment for Cause immediately. The Company may terminate your employment without Cause, or for Cause pursuant to the provisions of clauses (a), (b), or (c) of this Section 4.3, immediately.

- 4.4 Death or Disability. This Agreement shall terminate upon your death or disability. If you shall be disabled so as to be unable to perform the essential functions of your position under this Agreement with or without reasonable accommodation, the Board may remove you from any responsibilities and/or reassign you to another position with the Company during the period of such disability, and such reassignment shall not trigger a Good Reason termination as provided herein. Notwithstanding any such removal or reassignment, you shall continue to receive your Base Salary (less any disability pay or sick pay benefits to which you may be entitled under the Company's policies) and benefits under this Agreement (except to the extent that you may be ineligible for one or more such benefits under applicable plan terms) for a period of three months, and your employment may be terminated by the Company at any time, with or without notice, thereafter.
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5. Effect of Termination.

- 5.1 Termination for Cause, Death, Disability or Voluntary Resignation. In the event (i) your employment is terminated for Cause; (ii) your employment is terminated for death or Disability; or (iii) you voluntarily resign (other than for Good Reason), unless otherwise specifically provided herein, you, or your estate, shall be eligible only to receive (i) the portion of your Base Salary as has accrued prior to the effectiveness of such termination and has not yet been paid, (ii) an amount equal to the value of your accrued unused vacation days, and (iii) reimbursement for expenses properly incurred by you on behalf of the Company prior to such termination if such expenses are properly documented in accordance with Company policy and practice and submitted for reimbursement within 30 days of the termination date (collectively, the “Accrued Obligations”). Such amounts will be paid promptly after termination in accordance with Massachusetts law.
- 5.2 Termination Without Cause or Resignation for Good Reason. In the event that (i) you are terminated without Cause; or (ii) you resign for Good Reason, and contingent on your executing and not revoking a separation agreement in a form prepared by and acceptable to the Company, which shall include, at a minimum, a full release of all claims against the Company, as well as non-disparagement and confidentiality provisions in favor of the Company, with standard exceptions for vested benefits and equity interests, rights to indemnification, and exceptions for all claims not waivable under applicable law (the “Release”) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive the following (the “Separation Benefits”):
- a) continuation of your Base Salary in effect at the time of termination for a period of twelve (12) months following the Agreement Term, commencing on the 7<sup>th</sup> day after the date the Release becomes effective and irrevocable, payable in accordance with the Company’s normal payroll practices; provided, however, that if the 30 day period in which the Release must become enforceable and irrevocable begins in one year and ends in the following year, the Company shall commence payment of the Base Salary in the second year; and provided, further, that the first installment of the Base Salary shall include all amounts that would otherwise have been paid to the you between the date of termination and your receipt of the first installment.
  - b) subject to your election under COBRA, payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of
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termination until the earlier of (x) 12 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.

- 5.3 Termination Without Cause or Resignation for Good Reason After a Change of Control. In the event that your employment is terminated by the Company without Cause or by you for Good Reason (each, as defined herein) within the twenty-four (24) month period immediately following, or within the two month period immediately prior, to Change of Control (as defined herein), and contingent on your executing a Release (as defined herein) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations and Separation Benefits described above, to all outstanding unvested options granted to you under the Metabolix Inc. 1995 Stock Plan, the Metabolix Inc. 2005 Stock Plan, the Metabolix, Inc. 2014 Stock Plan, or any authorized successor stock plan, and all such outstanding unvested options will fully vest and become exercisable as of the date of termination, provided that the conditions to vesting other than the passage of time have been satisfied.
- 5.4 “Change of Control”. As used herein, a “Change of Control” shall occur or be deemed to have occurred only upon any one or more of the following events:
- a) any “person” (as such term is used in Sections 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) becomes a “beneficial owner” (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) (other than the Company, any currently existing equity investors, any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or any corporation owned, directly or indirectly, by the stockholders of the Company, in substantially the same proportions as their ownership of stock of the Company), directly or indirectly, of securities of the Company, representing fifty percent (50%) or more of the combined voting power of the Company’s then outstanding securities; or
  - b) persons who, as of the date this Agreement is signed, constituted the Company’s Board of Directors (the “Incumbent Board”) cease for any reason including, without limitation, as a result of a tender offer, proxy contest, merger, consolidation or similar transaction, to constitute at least a majority of the Board of Directors, provided that any person becoming a director of the Company subsequent to the date this Agreement is signed whose election was approved by at least a majority of the directors then comprising the
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Incumbent Board shall, for purposes of this Section, be considered a member of the Incumbent Board; or

- c) the consummation of a merger or consolidation of the Company with any other corporation or other entity, other than (1) a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation or (2) a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no "person" (as hereinabove defined) acquires more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities; or
- d) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

5.5 Excise Tax. You agree that the payments and benefits hereunder, and under all other contracts, arrangements or programs that apply to you (the "Company Payments"), shall be reduced to an amount that is one dollar less than the amount that would trigger an excise tax under Section 4999 of the Code, as determined in good faith by the Company's independent public accountants, provided, however, that the reduction shall occur only if the reduced Company Payments received by you (after taking into account further reductions for applicable federal, state and local income, social security and other taxes) would be greater than the unreduced Company Payments to be received by you minus (i) the excise tax payable with respect to such Company Payments under Section 4999 of the Code; and (ii) all applicable federal, state and local income, social security and other taxes on such Company Payments. You and the Company agree to cooperate in good faith with each other in connection with any administrative or judicial proceedings concerning the existence or amount of golden parachute penalties with respect to payments or benefits that you receive. In the event that such payments are required to be reduced pursuant to this Section, such payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits, and to the extent any payment is to be made over time (e.g., in installments, etc.), then the payments shall be reduced in reverse chronological order.

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- 5.6 Separation from Service. Notwithstanding anything set forth in this Agreement, a termination of your employment triggering payment of benefits under Section 5 of this Agreement shall be deemed not to have occurred until such time as you incur a “separation from service” with the Company in accordance with Section 409A(a)(2)(A)(i) of the Code and the applicable provisions of Treasury Regulation Section 1.409A-1(h).
- 5.7 Section 409A. Notwithstanding anything set forth in this Agreement, if at the time of your “separation from service,” the Company determines that the you are a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that you become entitled to under this Agreement on account of your separation from service would be considered deferred compensation subject to additional tax under Section 409A(a) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after your separation from service, or (B) your death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment described in Section 5 is considered a separate payment.
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6. Taxes. All payments required to be made by the Company to you under this Agreement shall be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may reasonably determine it should withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Agreement be exempt from, or comply with, the provisions of Section 409A of the Code, and this Agreement shall be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Agreement.
  7. Noncompetition, Nonsolicitation, Confidentiality and Inventions Obligations. As a condition of employment, you must execute, and abide by the obligations in, the enclosed Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement simultaneously with the execution of this Agreement.
  8. Disclosure to Future Employers. You will provide, and the Company, in its discretion, may similarly provide, a copy of the covenants contained in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement to any business or enterprise which you may, directly or indirectly, own, manage, operate, finance, join, control or in which you may participate in the ownership, management, operation, financing, or control, or with which you may be connected as an officer, director, employee, partner, principal, agent, representative, consultant or otherwise.
  9. Representations. You hereby represent and warrant to the Company that you understand this Agreement, that you enter into this Agreement voluntarily and that your employment under this Agreement will not conflict with any legal duty owed by you to any other party.
  10. General.
    - 10.1 Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party's address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand,
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at the time of the delivery thereof to the receiving party at the address of such party set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5th business day following the day such mailing is made.

- 10.2 Entire Agreement. This Agreement, together with any Stock Option Agreements executed by you and the Company (either prior to or in conjunction with this Agreement) and the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement, embody the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Agreement.
- 10.3 Modifications and Amendments. The terms and provisions of this Agreement may be modified or amended only by written agreement executed by the parties hereto.
- 10.4 Waivers and Consents. The terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.
- 10.5 Assignment. The Company shall cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business or that aspect of the Company's business in which you are principally involved and may assign its rights and obligations hereunder to any Company affiliate. You may not assign your rights and obligations under this Agreement without the prior written consent of the Company and any such attempted assignment by you without the prior written consent of the Company will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Agreement shall inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, shall be issued and paid to your estate.
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- 10.6 Governing Law. This Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.
- 10.7 Jury Waiver. YOU AND THE COMPANY AGREE TO WAIVE TRIAL BY JURY IN CONNECTION WITH ANY ACTION ARISING FROM OR RELATING TO THIS AGREEMENT.
- 10.8 Severability. The parties intend this Agreement to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.
- 10.9 Headings and Captions. The headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.
- 10.10 Acknowledgments. You recognize and agree that the enforcement of the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement is necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the proprietary nature of the Company's business, the restrictions set forth in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement are reasonable as to time and scope.
- 10.11 Counterparts. This Agreement may be executed counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

If you accept the above terms, please so indicate by signing and returning to us the enclosed copy of this Agreement no later than March 28, 2017.

Very truly yours,

YIELD10 BIOSCIENCE, INC.

By: /s/ Oliver P. Peoples

Name: Olly Peoples

Title: President & CEO

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**BY SIGNING BELOW, I CERTIFY THAT I HAVE READ THIS AGREEMENT CAREFULLY AND AM SATISFIED THAT I UNDERSTAND IT COMPLETELY.**

**Accepted and Agreed:**

/s/ Lynne H. Brum

Lynne H. Brum

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



March 28, 2017

Kristi Snell  
c/o Yield10 Bioscience, Inc..  
19 Presidential Way  
Woburn, MA 01801

Re: Employment Agreement

Dear Kristi:

We are pleased to offer the following terms for your employment by Yield10 Bioscience, Inc. (the “Company”). As set forth herein, you and the Company agree as follows (the “Agreement”):

1. Employment.
    - 1.1 General. The Company will employ you as Vice President of Research & Chief Science Officer, reporting to the Company’s Chief Executive Officer, and you shall have the responsibilities, duties and authority commensurate with that position. You will also perform such reasonable other and/or different services for the Company, in addition to your primary duties as Vice President of Research & Chief Science Officer as may be assigned to you from time to time. You agree that if your employment hereunder ends for any reason, you will tender to the Company your resignation of all offices with the Company as of the date of your termination, such resignation not being relevant to the issue of the reason for your termination under this Agreement.
    - 1.2 Devotion to Duties. While you are employed hereunder, you will use your best efforts, skills and abilities to perform faithfully all duties assigned to you pursuant to this Agreement and will devote your full business time and energies to the business and affairs of the Company. While you are employed hereunder, you will not undertake any other employment from any person or entity without the prior written consent of the Company.
  2. Term. The Company agrees to continue to employ you, and you agree to continue to serve the Company, on an “at will” basis, which means that, subject to the payment obligations imposed on the Company pursuant to this Agreement, either the Company or you may terminate employment with the Company at any time, with or without Cause, as provided in Section 4 below. The period commencing with the Start Date and ending on the effective date of any termination of employment in accordance with the provisions hereof shall constitute the term of this Agreement (“Agreement Term”).
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3. Compensation.

- 3.1 Base Salary. While you are employed hereunder, the Company will pay you a base salary at the annual rate of no less than \$220,000 per year (the “Base Salary”). You may be eligible for an annual salary increase in the good faith determination of the Company and the Compensation Committee of its Board of Directors. The Company will pay such Base Salary on a semi-monthly basis in accordance with the Company’s normal payroll practices and will deduct from each monthly salary payment all amounts required to be deducted or withheld under applicable law or under any employee benefit plan in which you participate.
- 3.2 Equity Compensation. The Company, in the Board’s sole discretion, may from time to time grant to you stock options, restricted stock or other forms of equity compensation pursuant to the Metabolix, Inc. 2014 Stock Plan or any other authorized stock plan in effect at the time.
- 3.3 Vacation. You will be entitled to paid vacation, sick time, and paid holidays, accrued and used in accordance with the Company’s policies as in effect from time to time. All vacation days will be taken at times mutually agreed by you and the Company and will be subject to the business needs of the Company. For the purpose of clarity, under the current policy, you accrue five (5) weeks (i.e. 25 days) of vacation each year.
- 3.4 Fringe Benefits. You may be entitled to participate in the employee benefit plans which the Company provides or may establish for the benefit of its senior executives (for example, group life, disability, medical, dental and other insurance, retirement, pension, profit-sharing and similar plans) (collectively, the “Fringe Benefits”). Your eligibility to participate in the Fringe Benefits and receive benefits thereunder will be subject to the plan documents governing such Fringe Benefits. Nothing contained herein will require the Company to establish or maintain any Fringe Benefits.
- 3.5 Reimbursement of Certain Expenses. You shall be reimbursed for reasonable and necessary business expenses incurred by you while you are employed by the Company, which are directly related to the furtherance of the Company’s business. You must submit any request for reimbursement no later than ninety (90) days following the date that such business expense is incurred in accordance with the Company’s reimbursement policy regarding same, and business expenses must be substantiated by appropriate receipts and documentation. All reimbursements provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A of the Code and the rules and regulations thereunder
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(“Section 409A”) including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during the Agreement Term; (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year; (iii) the reimbursement of an eligible expense shall be made no later than the last day of the calendar year following the year in which the expense is incurred; and (iv) the right to reimbursement or in kind benefits is not subject to liquidation or exchange for another benefit.

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

- 4.1 Termination by Employee. You may terminate this Agreement with or without Good Reason (as defined herein). Termination without Good Reason shall require 30 days’ prior written notice to the Company. Termination for Good Reason must occur within a period of 90 days after the occurrence of an event of Good Reason.
  - 4.2 Good Reason. As used in this Agreement, “ Good Reason ” means that you have complied with the “Good Reason Process” (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties, or the assignment to you of duties materially inconsistent with this Agreement; (ii) a diminution in your Base Salary below the minimum Base Salary set forth herein; (iii) the relocation of your principal place of business beyond 40 road miles from Woburn, MA; (iv) the material breach of this Agreement by the Company; or (v) a change in your reporting relationship to the Chief Executive Officer as set forth herein. “ Good Reason Process ” shall mean that (i) you reasonably determine in good faith that a “Good Reason” condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 60 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company’s efforts, for a period not less than 30 days following such notice (the “ Cure Period ”), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within 60 days after the end of the Cure Period. If the Company permanently cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.
  - 4.3 Termination by Company. This Agreement shall terminate, at the election of the Company, with or without Cause. For purposes of this Agreement, a termination shall be considered to be “for Cause” if it occurs in conjunction with a determination by the Board that any of the following has occurred:
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- a) Your conviction of, pleading guilty to, or confession to a felony or any crime involving any act of dishonesty, fraud, misappropriation or embezzlement;
- b) Your misconduct or gross negligence in connection with the performance of your duties hereunder;
- c) Your commission of fraud, disloyalty, or unprofessional conduct which does, or likely is to be, materially injurious to the Company, its financial condition, or its reputation;
- d) Your willful and continued failure to perform your duties with the Company (other than any such failure resulting from your Disability);
- e) Your material breach of the covenants set forth in Section 7 of this Agreement, or material breach of any other provisions of this Agreement.

If the Company determines that it has grounds to terminate your employment for Cause pursuant to the provisions of clauses (d) or (e) of this Section 4.3, then it will first deliver to you a written notice setting forth with specificity the occurrence deemed to give rise to a right to terminate your employment for Cause, and you will have 10 days after the receipt of such written notice to cease such actions or otherwise correct any such failure or breach. If you do not cease such actions or otherwise correct such failure or breach within such 10-day period, or having once received such written notice and ceased such actions or corrected such failure or breach, at any time thereafter you again so act, fail, or breach, the Company may terminate your employment for Cause immediately. The Company may terminate your employment without Cause, or for Cause pursuant to the provisions of clauses (a), (b), or (c) of this Section 4.3, immediately.

- 4.4 Death or Disability. This Agreement shall terminate upon your death or disability. If you shall be disabled so as to be unable to perform the essential functions of your position under this Agreement with or without reasonable accommodation, the Board may remove you from any responsibilities and/or reassign you to another position with the Company during the period of such disability, and such reassignment shall not trigger a Good Reason termination as provided herein. Notwithstanding any such removal or reassignment, you shall continue to receive your Base Salary (less any disability pay or sick pay benefits to which you may be entitled under the Company's policies) and benefits under this Agreement (except to the extent that you may be ineligible for one or more such benefits under applicable plan terms) for a period of three months, and your employment may be terminated by the Company at any time, with or without notice, thereafter.
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5. Effect of Termination.

- 5.1 Termination for Cause, Death, Disability or Voluntary Resignation. In the event (i) your employment is terminated for Cause; (ii) your employment is terminated for death or Disability; or (iii) you voluntarily resign (other than for Good Reason), unless otherwise specifically provided herein, you, or your estate, shall be eligible only to receive (i) the portion of your Base Salary as has accrued prior to the effectiveness of such termination and has not yet been paid, (ii) an amount equal to the value of your accrued unused vacation days, and (iii) reimbursement for expenses properly incurred by you on behalf of the Company prior to such termination if such expenses are properly documented in accordance with Company policy and practice and submitted for reimbursement within 30 days of the termination date (collectively, the “Accrued Obligations”). Such amounts will be paid promptly after termination in accordance with Massachusetts law.
- 5.2 Termination Without Cause or Resignation for Good Reason. In the event that (i) you are terminated without Cause; or (ii) you resign for Good Reason, and contingent on your executing and not revoking a separation agreement in a form prepared by and acceptable to the Company, which shall include, at a minimum, a full release of all claims against the Company, as well as non-disparagement and confidentiality provisions in favor of the Company, with standard exceptions for vested benefits and equity interests, rights to indemnification, and exceptions for all claims not waivable under applicable law (the “Release”) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations, to receive the following (the “Separation Benefits”):
- a) continuation of your Base Salary in effect at the time of termination for a period of twelve (12) months following the Agreement Term, commencing on the 7<sup>th</sup> day after the date the Release becomes effective and irrevocable, payable in accordance with the Company’s normal payroll practices; provided, however, that if the 30 day period in which the Release must become enforceable and irrevocable begins in one year and ends in the following year, the Company shall commence payment of the Base Salary in the second year; and provided, further, that the first installment of the Base Salary shall include all amounts that would otherwise have been paid to the you between the date of termination and your receipt of the first installment.
  - b) subject to your election under COBRA, payment of COBRA premiums to maintain medical and dental benefits, if any, in effect at the time of
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termination until the earlier of (x) 12 months following the termination and (y) the date you become insured under a medical insurance plan providing similar benefits to that of the Company plan.

- 5.3 Termination Without Cause or Resignation for Good Reason After a Change of Control. In the event that your employment is terminated by the Company without Cause or by you for Good Reason (each, as defined herein) within the twenty-four (24) month period immediately following, or within the two month period immediately prior, to Change of Control (as defined herein), and contingent on your executing a Release (as defined herein) and provided the Release becomes irrevocable within thirty (30) days after the date of termination, you shall be entitled, in addition to the Accrued Obligations and Separation Benefits described above, to all outstanding unvested options granted to you under the Metabolix Inc. 1995 Stock Plan, the Metabolix Inc. 2005 Stock Plan, the Metabolix, Inc. 2014 Stock Plan, or any authorized successor stock plan, and all such outstanding unvested options will fully vest and become exercisable as of the date of termination, provided that the conditions to vesting other than the passage of time have been satisfied.
- 5.4 “Change of Control”. As used herein, a “Change of Control” shall occur or be deemed to have occurred only upon any one or more of the following events:
- a) any “person” (as such term is used in Sections 13(d) and 14(d)(2) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) becomes a “beneficial owner” (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) (other than the Company, any currently existing equity investors, any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or any corporation owned, directly or indirectly, by the stockholders of the Company, in substantially the same proportions as their ownership of stock of the Company), directly or indirectly, of securities of the Company, representing fifty percent (50%) or more of the combined voting power of the Company’s then outstanding securities; or
  - b) persons who, as of the date this Agreement is signed, constituted the Company’s Board of Directors (the “Incumbent Board”) cease for any reason including, without limitation, as a result of a tender offer, proxy contest, merger, consolidation or similar transaction, to constitute at least a majority of the Board of Directors, provided that any person becoming a director of the Company subsequent to the date this Agreement is signed whose election was approved by at least a majority of the directors then comprising the
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Incumbent Board shall, for purposes of this Section, be considered a member of the Incumbent Board; or

- c) the consummation of a merger or consolidation of the Company with any other corporation or other entity, other than (1) a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the combined voting power of the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation or (2) a merger or consolidation effected to implement a recapitalization of the Company (or similar transaction) in which no "person" (as hereinabove defined) acquires more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities; or
- d) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

5.5 Excise Tax. You agree that the payments and benefits hereunder, and under all other contracts, arrangements or programs that apply to you (the "Company Payments"), shall be reduced to an amount that is one dollar less than the amount that would trigger an excise tax under Section 4999 of the Code, as determined in good faith by the Company's independent public accountants, provided, however, that the reduction shall occur only if the reduced Company Payments received by you (after taking into account further reductions for applicable federal, state and local income, social security and other taxes) would be greater than the unreduced Company Payments to be received by you minus (i) the excise tax payable with respect to such Company Payments under Section 4999 of the Code; and (ii) all applicable federal, state and local income, social security and other taxes on such Company Payments. You and the Company agree to cooperate in good faith with each other in connection with any administrative or judicial proceedings concerning the existence or amount of golden parachute penalties with respect to payments or benefits that you receive. In the event that such payments are required to be reduced pursuant to this Section, such payments shall be reduced in the following order: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits, and to the extent any payment is to be made over time (e.g., in installments, etc.), then the payments shall be reduced in reverse chronological order.

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- 5.6 Separation from Service. Notwithstanding anything set forth in this Agreement, a termination of your employment triggering payment of benefits under Section 5 of this Agreement shall be deemed not to have occurred until such time as you incur a “separation from service” with the Company in accordance with Section 409A(a)(2)(A)(i) of the Code and the applicable provisions of Treasury Regulation Section 1.409A-1(h).
- 5.7 Section 409A. Notwithstanding anything set forth in this Agreement, if at the time of your “separation from service,” the Company determines that the you are a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that you become entitled to under this Agreement on account of your separation from service would be considered deferred compensation subject to additional tax under Section 409A(a) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after your separation from service, or (B) your death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule. Solely for purposes of Section 409A of the Code, each installment payment described in Section 5 is considered a separate payment.
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6. Taxes. All payments required to be made by the Company to you under this Agreement shall be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may reasonably determine it should withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Agreement be exempt from, or comply with, the provisions of Section 409A of the Code, and this Agreement shall be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Agreement.
  7. Noncompetition, Nonsolicitation, Confidentiality and Inventions Obligations. As a condition of employment, you must execute, and abide by the obligations in, the enclosed Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement simultaneously with the execution of this Agreement.
  8. Disclosure to Future Employers. You will provide, and the Company, in its discretion, may similarly provide, a copy of the covenants contained in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement to any business or enterprise which you may, directly or indirectly, own, manage, operate, finance, join, control or in which you may participate in the ownership, management, operation, financing, or control, or with which you may be connected as an officer, director, employee, partner, principal, agent, representative, consultant or otherwise.
  9. Representations. You hereby represent and warrant to the Company that you understand this Agreement, that you enter into this Agreement voluntarily and that your employment under this Agreement will not conflict with any legal duty owed by you to any other party.
  10. General.
    - 10.1 Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party's address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand,
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at the time of the delivery thereof to the receiving party at the address of such party set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5th business day following the day such mailing is made.

- 10.2 Entire Agreement. This Agreement, together with any Stock Option Agreements executed by you and the Company (either prior to or in conjunction with this Agreement) and the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement, embody the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Agreement.
  - 10.3 Modifications and Amendments. The terms and provisions of this Agreement may be modified or amended only by written agreement executed by the parties hereto.
  - 10.4 Waivers and Consents. The terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.
  - 10.5 Assignment. The Company shall cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business or that aspect of the Company's business in which you are principally involved and may assign its rights and obligations hereunder to any Company affiliate. You may not assign your rights and obligations under this Agreement without the prior written consent of the Company and any such attempted assignment by you without the prior written consent of the Company will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Agreement shall inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, shall be issued and paid to your estate.
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- 10.6 Governing Law. This Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.
- 10.7 Jury Waiver. YOU AND THE COMPANY AGREE TO WAIVE TRIAL BY JURY IN CONNECTION WITH ANY ACTION ARISING FROM OR RELATING TO THIS AGREEMENT.
- 10.8 Severability. The parties intend this Agreement to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.
- 10.9 Headings and Captions. The headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.
- 10.10 Acknowledgments. You recognize and agree that the enforcement of the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement is necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the proprietary nature of the Company's business, the restrictions set forth in the Employee Noncompetition, Nonsolicitation, Confidentiality and Inventions Agreement are reasonable as to time and scope.
- 10.11 Counterparts. This Agreement may be executed counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

If you accept the above terms, please so indicate by signing and returning to us the enclosed copy of this Agreement no later than March 28, 2017.

Very truly yours,

YIELD10 BIOSCIENCE, INC.

By: /s/ Oliver P. Peoples

Name: Olly Peoples

Title: President & CEO

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Kristi Snell  
March 28, 2017  
Page 12

**BY SIGNING BELOW, I CERTIFY THAT I HAVE READ THIS AGREEMENT CAREFULLY AND AM SATISFIED THAT I UNDERSTAND IT COMPLETELY.**

**Accepted and Agreed:**

/s/ Kristi D. Snell

Kristi Snell

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

67017706v.3

## YIELD10 BIOSCIENCE, INC.

### Form of EMPLOYEE NONCOMPETITION, NONSOLICITATION, CONFIDENTIALITY AND INVENTIONS AGREEMENT

The undersigned \_\_\_\_\_ in consideration and as a condition of my employment and continued employment by Yield10 Bioscience, Inc. (the "Company"), does hereby agree with the Company as follows:

- 1. Noncompetition and Nonsolicitation.** During my employment by the Company and for a period of one (1) year thereafter (the "Restricted Period"), I will not directly or indirectly, alone or as a partner, joint venturer, consultant, officer, director, employee, agent, independent contractor or stockholder of any agricultural bioscience company or business organization, including but not limited to Benson Hill, Evogene, Arcadia, and Kaiima, engage in any business activity which is in competition with the products or services being developed, manufactured, marketed, distributed, planned, sold or otherwise provided by the Company; provided, however, that the record or beneficial ownership by me of 1% or less of the outstanding publicly traded capital stock of any such company or business organization shall not be deemed, in and of itself, to be in violation of this Section 1. During the Restricted Period, I will not directly or indirectly in any manner (i) solicit, entice or persuade, or attempt to solicit, entice or persuade, any person employed or engaged by the Company (or any person who was employed or engaged by the Company within the six (6) month period preceding my separation from the Company) to leave his or her employment or engagement with the Company or assist in the recruitment of any such person for such purpose; or (ii) solicit, divert or appropriate, or attempt to solicit, divert or appropriate, the business or prospective business of any customer of the Company (other than on behalf of the Company) or directly or indirectly induce any customer, supplier, vendor, consultant or independent contractor of the Company to terminate or negatively alter his, her or its relationship with the Company.
- 2. Confidentiality.** I will not at any time, whether during or after the termination of my employment, reveal to any person, association, company, entity or other organization any of the trade secrets or confidential information of the Company or of any third party to whom the Company is under an obligation of confidentiality (including but not limited to trade secrets or confidential information respecting inventions, products, research and development activities, designs, methods, know-how, techniques, processes, plans and proposals, marketing and selling, business plans, budgets and unpublished financial statements, licenses, prices and costs, suppliers and customers) ("Confidential Information") except as may be required in the ordinary course of performing my duties as an employee of the Company. Further, I shall not use any Confidential Information except as required in the performance of my duties for the Company. Without limiting the generality of the foregoing, I shall not use any Confidential Information for my personal benefit or in any manner which may injure or cause loss, whether directly or indirectly, to the Company.  
  
Further, I agree that, during my employment, I shall not make, use or permit to be used any notes, memoranda, drawings, specification, programs, data, lab results, lab notes, formulas, codes or other materials of any nature relating to any matter within the scope of the business of the Company or concerning any of its dealings or affairs otherwise than for the benefit of the Company. I further agree that I shall not, after the termination of my employment, use or permit to be used any such materials, it being agreed that all of the foregoing are and shall be confidential information or trade secrets of the Company and shall be and remain the sole and exclusive property of the Company, and immediately upon the termination of my employment I shall deliver all Confidential Information, and all copies thereof, to the Company.
- 3. Notice Pursuant to Defend Trade Secrets Act.** Notwithstanding any provision of this Agreement prohibiting the disclosure of trade secrets or other confidential information, I understand that I may not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (A) is made (i) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney, and (ii) solely for the purpose of reporting or investigating a suspected violation of law, or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. In addition, if I file a lawsuit or other court proceeding against the Company for retaliating against me for reporting a suspected violation of law, I may disclose the trade secret to the attorney representing me and use the trade secret in the court proceeding, if I file any document containing the trade secret under seal and do not disclose the trade secret, except pursuant to court order.
- 4. Inventions and Intellectual Property.** If at any time or times during my employment I (either alone or with others) make, conceive, discover, reduce to practice or become possessed of any Intellectual Property, as hereinafter defined, such Intellectual Property shall be the sole and absolute property of the Company, as works made for hire or otherwise, and I hereby assign to the Company all of my rights in such Intellectual Property. For purposes hereof, "Intellectual Property" shall mean any invention, modification, discovery, design, development, improvement, process, formula, code, data, technique,

know-how, trade secret, work of authorship or intellectual property right whatsoever or any interest therein (whether or not patentable or registrable under copyright or similar statutes) during the term of my employment that (a) relates to the field of metabolic engineering, genetic engineering or genome editing of crops to increase yield, add novel traits, alter seed composition or produce new products such as polyhydroxyalkanoates or any other business of the Company or any of the products or services being developed, manufactured or sold by the Company or which may be useful in connection therewith, or (b) results from tasks assigned to me by the Company, or (c) results from the use of facilities owned, leased or contracted for by the Company.

I shall promptly disclose to the Company (or any persons designated by it) all such Intellectual Property and any information relating thereto. I shall also promptly disclose to the Company, and the Company hereby agrees to receive all such disclosures in confidence, any other invention, modification, discovery, design, development, improvement, process, formula, code, data, technique, know-how, trade secret, work of authorship or intellectual property right whatsoever or any interest therein (whether or not patentable or registrable under copyright or similar statutes) made, conceived, discovered, reduced to practice or possessed by me (either alone or with others) at any time or times during my employment, for the purposes of determining whether they constitute "Intellectual Property" as defined above.

During my employment and at any time thereafter I will, at the request and cost of the Company, sign, execute, make and do all such deeds, documents, acts and things as the Company and its duly authorized agents may reasonably require to apply for, obtain and vest in the name of the Company alone (or as the Company otherwise directs) and to defend, enforce and maintain any patents, patent applications, copyrights, or other analogous protection with respect to the Intellectual Property in any country throughout the world.

If the Company is unable, after reasonable effort, to secure my signature on any such application or other document relating to any Intellectual Property, whether because of my physical or mental incapacity or for any other reason whatsoever, I hereby irrevocably designate and appoint the Company and its duly authorized officers and agents as my agent and attorney-in-fact, to act for and in my behalf and stead to execute and file any such application(s) or document(s) and to do all other lawfully permitted acts to further the prosecution and issuance of letters patent, copyright or other analogous protection thereon with the same legal force and effect as if executed by me.

5. **Prior Inventions**. As Exhibit A to this Agreement, I agree to list all inventions or improvements, patents, patent applications, or patent rights relevant to the subject matter of my employment by the Company that have been made or conceived or first reduced to practice by me alone or jointly with others prior to my engagement by the Company.
6. **No Conflict**. Except as provided in the next paragraph of this Section 6, I represent that my performance of the terms of this Agreement, and my performance of my duties as an employee of the Company, does not and will not breach any agreement to which I am bound, including without limitation any agreement to keep in confidence Confidential Information acquired by me in confidence or in trust prior to my employment by the Company. I have not entered into, and I agree that I will not enter into, any agreement, either written or oral, in conflict herewith. During my employment by the Company, I will not improperly use or disclose any confidential information or trade secrets, if any, of any former employer or any other person to whom I have an obligation of confidentiality, and I will not bring onto the premises of the Company any unpublished documents or any property belonging to any former employer or any other person to whom I have an obligation of confidentiality unless consented to in writing by that former employer or person. I will use in the performance of my duties only information which is generally known and used by persons with training and experience comparable to my own, which is common knowledge in the industry or otherwise legally in the public domain, or which is otherwise provided or developed by the Company.

I have attached hereto a copy of each agreement, if any, which presently affects my compliance with the terms of this Agreement. IF THERE ARE ANY SUCH AGREEMENTS, THE UNDERSIGNED SHOULD INITIAL HERE. OTHERWISE IT WILL BE DEEMED THAT THERE ARE NO SUCH EXCLUSIONS. \_\_\_\_\_.

The parties acknowledge that pages \_\_\_ through \_\_\_ attached hereto are the only pages attached in response to this Section 6.

7. **Injunctive Relief**. I hereby expressly acknowledge that any breach or threatened breach of any of the terms of Sections 1, 2 or 4 of this Agreement shall result in substantial, continuing and irreparable injury to the Company. Therefore, in addition to any other remedy available to the Company, the Company shall be entitled to injunctive or other equitable relief by a court of appropriate jurisdiction in the event of any breach or threatened breach of the terms of Sections 1, 2 or 4 of this Agreement, without posting any bond or security, and without affecting the Company's right to seek and obtain damages or other equitable relief.

8. **No Employment Obligation**. I understand that this Agreement does not create an obligation on the Company or any other person to continue my employment. I acknowledge that my employment with the Company is at-will and therefore may be terminated by the Company or me at any time and for any reason.
9. **Notice of New Business Activity**. I agree that during the non-competition and non-solicitation period, I will give notice to the Company of each new business activity I plan to undertake, at least (10) business days prior to beginning any such activity. The notice shall state the name and address of the individual, corporation, association or other entity or organization (“Entity”) for whom such activity is undertaken and the name of my business relationship or position with the Entity. I further agree to provide the Company with other pertinent information concerning such business activity as the Company may reasonably request in order to determine my continued compliance with the obligations under this Agreement.
10. **Amendments**. Any amendment to or modification of this Agreement, and any waiver of any provision hereof, shall be in writing and shall be signed by the parties hereto. Any waiver by the Company of a breach of any provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach hereof.
11. **Severability**. I agree that this Agreement is intended to be enforced as written. However, if any portion or provision of this Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then I agree that the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Agreement will be valid and enforceable to the fullest extent permitted by law.
12. **Headings and Captions**. I understand that the headings and captions of the various subdivisions of this Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions
13. **Survival**. I understand that my obligations under this Agreement will continue in accordance with its express terms regardless of any changes in my title, position, duties, salary, compensation or benefits or other terms and conditions of employment. I further understand that my obligations under this Agreement will continue following the termination of my employment regardless of the manner of such termination and will be binding upon my heirs, executors and administrators.
14. **Disclosure to Future Employers**. I will provide a copy of this Agreement to any prospective employer, partner or co-venturer prior to entering into an employment, partnership or other business relationship with such person or entity .
15. **Successors**. The term “Company” shall include Yield10 Bioscience, Inc. , and any of its parents, subsidiaries, divisions, or affiliates. The Company shall have the right to assign this Agreement to its affiliates, successors and assigns, and all covenants and agreements hereunder shall inure to the benefit of and be enforceable by such successors and assigns. I expressly consent to be bound by the provisions of this Agreement for the benefit of the Company or any parent, subsidiary or affiliate to whose employ I may be transferred without the necessity that this Agreement be resigned at the time of such transfer.
16. **Governing Law; Jurisdiction; Venue; Waiver of Jury Trial**. I agree that this Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof. Any legal action or proceeding with respect to this Agreement shall be brought in the courts of the Commonwealth of Massachusetts or of the United States of America for the District of Massachusetts. By execution and delivery of this Agreement, each of the parties hereto accepts for itself and in respect of its property, generally and unconditionally, the exclusive jurisdiction of the aforesaid courts. **ANY ACTION, DEMAND, CLAIM OR COUNTERCLAIM ARISING UNDER OR RELATING TO THIS AGREEMENT SHALL BE RESOLVED BY A JUDGE ALONE AND EACH OF THE COMPANY AND YOU WAIVE ANY RIGHT TO A JURY TRIAL THEREOF.**

**BY SIGNING BELOW, I CERTIFY THAT I HAVE READ THIS AGREEMENT CAREFULLY AND AM SATISFIED THAT I UNDERSTAND IT COMPLETELY.**

EXECUTED as of the \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Signature \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Accepted and Agreed: \_\_\_\_\_

YIELD10 BIOSCIENCE, INC.

By: \_\_\_\_\_

Title:

**EXHIBIT A**

To: [ \_\_\_\_\_ ]

From: \_\_\_\_\_

Date: \_\_\_\_\_

SUBJECT: **Prior Inventions**

The following is a complete list of all inventions or improvements relevant to the subject matter of my employment by the Company that have been made or conceived or first reduced to practice by me alone or jointly with others prior to my engagement by the Company:

No inventions or improvements

See below:

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Additional sheets attached

The following is a list of all patents, patent applications and other patent rights that I invented:

None

See below:

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November 3, 2016

Joseph Shaulson  
[Address]  
[Address]

Re: Separation Agreement

Dear Joe:

This letter agreement (the “**Separation Agreement**”) confirms your understanding with Metabolix, Inc. (the “**Company**”) regarding the termination of your employment with the Company and the termination of your Employment Agreement with the Company dated December 19, 2013 (the “**Employment Agreement**”). In consideration of the mutual promises and covenants contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby mutually acknowledged, we have agreed as follows:

1. Resignation, Transition Support and Board Service. In connection with the Company’s ongoing transition to Yield10 Bioscience and the related reorganization of management, you resigned and the Company accepted your resignation as President and Chief Executive Officer of the Company effective October 17, 2016. You also have resigned and the Company accepts your resignation from all offices of the Company’s subsidiaries. Your employment with the Company will continue in a non-executive capacity from the date of this Separation Agreement through December 31, 2016 (the “**Transition Period**”), at which time your employment with the Company will terminate. During the Transition Period, you will remain an employee and provide such transition support to the Company and its management team as may be reasonably requested by the Board of Directors of the Company (the “**Board**”). To the extent such transitional support does not require a full time commitment, you may devote the remainder of your working time to seeking other employment or personal matters. During the Transition Period and thereafter, you will continue to serve as a Director on the Board for the remainder of your current term and any reelection term, subject to your earlier resignation or removal in accordance with applicable law and the Company’s governing documents. You will be entitled to the same compensation as other non-employee directors in respect of your continued service as a Director on the Board, including equity grants to the extent provided generally to Board members.
  2. Compensation and Benefits During Transition Period. You will continue to receive base compensation and standard employee benefits during the Transition Period. Base compensation will continue at the rate of \$350,000 per year through the second pay period in October and will reduce to the rate of \$175,000 per year beginning with the first pay period in November through the final pay period in December. You will continue to receive your temporary living and
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commuting allowance at the rate of \$5,000 per month through the second pay period in October. Thereafter you will no longer receive the allowance, but you will be reimbursed for reasonable Company related travel and entertainment expenses in accordance with the Company's policies and procedures for expense reimbursement. On the first payroll date after your employment ends, the Company shall pay you any remaining salary then due to you and all then accrued and unused vacation pay, with vacation pay calculated based on the salary rate of \$350,000 per year.

3. Compensation in Respect of Termination of Employment. The following will be provided in lieu of any Severance Pay that would have been due under Section 5 of the Employment Agreement if the Employment Agreement had remained in effect:

(a) Your outstanding non-qualified stock options covering 191,667 shares of Company common stock will become immediately vested and remain exercisable for the balance of their original term through December 19, 2023.

(b) Your outstanding restricted stock units covering 151,250 shares of Company common stock will become immediately vested, and in accordance with the terms of the restricted stock units, the Company will withhold shares and pay the minimum required withholding taxes due in connection with the vesting and conversion of the restricted stock units.

(c) Contemporaneously with the execution of this Separation Agreement, you will be granted new non-qualified stock options under the Company's stock option plan, pursuant to which you shall have the right to purchase 750,000 shares of Company common stock under the Company's stock option plan. The new options will have an exercise price equal to the closing price of the Company's common stock on the date of grant, will be fully vested when granted, will become exercisable on the effective date of the Release contemplated by Section 5 below and will remain exercisable through December 19, 2023. Notwithstanding the foregoing, a portion of the new options for 350,000 of the 750,000 shares of Company common stock shall be subject to approval by the Company's stockholders of certain amendments to the Company's stock option plan. In the event the stockholders do not approve such amendments, you and the Company will negotiate in good faith to reach a mutually agreeable alternative equity-based compensation arrangement in place of the affected stock options.

4. No 2016 Bonus. No bonus will be paid under the Company's annual bonus program or otherwise in respect of 2016.

5. Release. Contemporaneously with the execution of this Separation Agreement, you and the Company will enter into the attached Release Agreement (the "Release").

6. General.

(a) Notices. All notices, requests, consents and other communications hereunder which are required to be provided, or which the sender elects to provide, in writing, will be addressed to the receiving party's address set forth above or to such other address as a party may designate by notice hereunder, and will be either (i) delivered by hand, (ii) sent by overnight courier, or (iii) sent by registered or certified mail, return receipt requested, postage prepaid. All notices, requests, consents and other communications hereunder will be deemed to have been given either (i) if by hand, at the time of the delivery thereof to the receiving party at the address of such party set forth above, (ii) if sent by overnight courier, on the next business day following the day such notice is delivered to the courier service, or (iii) if sent by registered or certified mail, on the 5th business day following the day such mailing is made.

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(b) Entire Agreement. This Separation Agreement, together with any agreements between you and the Company governing your restricted stock units and stock options (the "Equity Documents"), including the new stock options contemplated by this Separation Agreement, your Employee Noncompetition, Confidentiality and Inventions Agreement with the Company, your Indemnification Agreement with the Company, and the Release, embodies the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof, including without limitation the Employment Agreement, which is hereby terminated. No statement, representation, warranty, covenant or agreement of any kind not expressly set forth in this Separation Agreement will affect, or be used to interpret, change or restrict, the express terms and provisions of this Separation Agreement. In the event of any inconsistency between agreements, this Separation Agreement will prevail.

(c) Modifications and Amendments. The terms and provisions of this Separation Agreement may be modified or amended only by written agreement executed by the parties hereto, which expressly states that it is an amendment to or modification of this Separation Agreement.

(d) Waivers and Consents. The terms and provisions of this Separation Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent will be deemed to be or will constitute a waiver or consent with respect to any other terms or provisions of this Separation Agreement, whether or not similar. Each such waiver or consent will be effective only in the specific instance and for the purpose for which it was given, and will not constitute a continuing waiver or consent.

(e) Assignment. (i) The Company will cause its rights and obligations hereunder to be assumed by any person or entity that succeeds to all or substantially all of the Company's business and (ii) neither you nor the Company may assign its rights and obligations under this Separation Agreement without the prior written consent of the other and any such attempted assignment by you or the Company without such prior written consent will be void; provided, however, in the event of your death, your rights, compensation and benefits under this Separation Agreement will inure to the benefit of your estate, such that, for example, stock issuable to you, and awards and payments payable to you, will be issued and paid to your estate.

(f) Governing Law. This Separation Agreement and the rights and obligations of the parties hereunder will be construed in accordance with and governed by the law of Massachusetts, without giving effect to the conflict of law principles thereof.

(g) Jurisdiction, Venue and Service of Process. Any legal action or proceeding with respect to this Separation Agreement will be brought in the courts of Massachusetts or of the United States of America for the District of Massachusetts. By execution and delivery of this Separation Agreement, each of the parties hereto accepts for itself and in respect of its property, generally and unconditionally, the exclusive jurisdiction of the aforesaid courts.

(h) Fees and Expenses. Each party will bear his or its own costs and expenses (including legal fees) in connection with the execution of this Separation Agreement. In the event that you are the prevailing party on one or more substantive claims that are based on an alleged breach of this Separation Agreement in any legal action to enforce the terms of this Separation Agreement, the Company will reimburse you for your reasonable attorneys' fees and related reasonable expenses incurred with respect to any reasonably asserted claims in such legal action that are based on an alleged breach of this Separation Agreement.

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(i) Indemnification and Insurance. The Company will indemnify you for any losses or claims against you relating to your service to the Company in accordance with the terms of your Indemnification Agreement with the Company, and as permitted by the Company's Certificate of Incorporation and By-laws in effect on the date hereof. From the date of this Separation Agreement until at least six years from the last date you serve as a Director on the Board, the Company will cover you on its directors and officers insurance policies to the same extent as other directors and officers are covered, if any such policies are in effect for other directors and officers.

(j) Jury Waiver. You and the Company agree to waive trial by jury in connection with any action arising from or relating to this Separation Agreement.

(k) Severability. The parties intend this Separation Agreement to be enforced as written. However, if any portion or provision of this Separation Agreement is to any extent declared illegal or unenforceable by a duly authorized court having jurisdiction, then the remainder of this Separation Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, will not be affected thereby, and each portion and provision of this Separation Agreement will be valid and enforceable to the fullest extent permitted by law.

(l) Headings and Captions. The headings and captions of the various subdivisions of this Separation Agreement are for convenience of reference only and will in no way modify or affect the meaning or construction of any of the terms or provisions hereof.

(m) Acknowledgments. You recognize and agree that the enforcement of the Employee Noncompetition, Confidentiality and Inventions Agreement may be necessary to ensure the preservation, protection and continuity of the business, trade secrets and goodwill of the Company. You agree that, due to the nature of the Company's business, the restrictions set forth in the Employee Noncompetition, Confidentiality and Inventions Agreement are reasonable as to time, scope, and subject matter.

(n) Taxes. All payments required to be made by the Company to you under this Separation Agreement will be subject to the withholding of such amounts for taxes and other payroll deductions as the Company may be required to withhold pursuant to any applicable law or regulation. To the extent applicable, it is intended that this Separation Agreement be exempt from, or comply with the provisions of Section 409A of the Code, and this Separation Agreement will be construed and applied in a manner consistent with this intent. In the event that any severance payments or benefits hereunder are determined by the Company to be in the nature of nonqualified deferred compensation payments, you and the Company hereby agree to take such actions as may be mutually agreed to ensure that such payments or benefits comply with the applicable provisions of Section 409A of the Code and the official guidance issued thereunder. Notwithstanding the foregoing, the Company does not guarantee the tax treatment or tax consequences associated with any payment or benefit arising under this Separation Agreement.

(o) Counterparts. This Separation Agreement may be executed in two or more counterparts, and by different parties hereto on separate counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

[signature page follows]

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If the foregoing accurately sets forth our agreement, please so indicate by signing and returning to us the enclosed this Agreement.

Very truly yours,

Metabolix, Inc.

By: /s/ Oliver P. Peoples

Name: Oliver P. Peoples

Title: President & CEO

**Accepted and Agreed:**

/s/ Joseph Shaulson

Joseph Shaulson

November 4, 2016

Date

## EXCLUSIVE LICENSE AGREEMENT

This Exclusive License Agreement (this "Agreement"), effective as of June 30, 2015 (the "Effective Date"), is made by and between the University of Massachusetts ("UMass"), a public institution of higher education of the Commonwealth of Massachusetts as represented by its Amherst campus having an office at 715 North Pleasant Street, Amherst, MA 01003, and Metabolix, Inc. ("Metabolix"), having a place of business at 21 Erie Street, Cambridge, MA 02139.

## RECITALS

WHEREAS, UMass is the owner by assignment of certain intellectual property rights relating to plants with enhanced photosynthesis developed by Dr. Danny Schnell and others at UMass ; and

WHEREAS , Metabolix is an advanced biomaterials company with an interest in developing and commercializing products that use or incorporate the above said UMass intellectual property rights, and is committed to developing, making and selling such products as reflected in the terms below, either directly or through a separate entity; and

WHEREAS, Metabolix desires to obtain an exclusive license to the above said UMass intellectual property rights, and UMass is willing to grant an exclusive license to its intellectual property rights under the following conditions so that these intellectual property rights may be developed and the benefits enjoyed by the general public; and

WHEREAS, by written notice given on May 6, 2015, Metabolix exercised its option to obtain such a license pursuant to the Option to License between the parties dated April 30, 2015; and

WHEREAS, the license that is granted in this Agreement promotes the development of publicly funded intellectual property to practical application for the public good;

NOW, THEREFORE, UMass and Metabolix agree as follows:

*Portions of the exhibit, indicated by the mark "[\*\*\*]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 under the Securities Exchange Act of 1934, as amended.*

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TABLE OF CONTENTS

Part I - Definitions	3
Part II - Rights and Obligations	6
Part III - Payments and Infringement	12
Part IV - General Terms and Conditions	20
Signature Page	27
Exhibit A	28

*Portions of the exhibit, indicated by the mark “[\*\*\*],” were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant’s application requesting confidential treatment pursuant to Rule 24b-2 under the Securities Exchange Act of 1934, as amended.*

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## Part I - Definitions

### I. Definitions.

1.1 "Affiliate" means, with respect to an entity, any other entity that, directly, or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with such first entity. For the purposes of this definition, the term "control" (including, with correlative meanings, the terms "controlled by" and "under common control with") means (i) the possession, directly or indirectly, of the power to direct the management or policies of an entity, whether through the ownership of voting securities, by contract relating to voting rights or corporate governance or otherwise, or (ii) the ownership, directly or indirectly, of at least fifty percent (50%) of the voting securities or other ownership interest of an entity (or, with respect to a limited partnership or other similar entity, its general partner or controlling entity). For purposes of this Agreement, all references to "Metabolix" shall be deemed to include Metabolix and its Affiliates unless otherwise expressly stated.

1.2. "Confidential Information" means any confidential or proprietary information furnished by one party (the "Disclosing Party") to the other party (the "Receiving Party") in connection with this Agreement that is specifically designated as confidential at the time of disclosure or within a reasonable time thereafter. However, Confidential Information excludes information which:

(a) was in the public domain prior to the time of its disclosure under this Agreement;

(b) entered the public domain after the time of its disclosure under this Agreement through means other than an unauthorized disclosure resulting from an act or omission by the Receiving Party;

(c) was already known or independently developed or discovered by the Receiving Party without use of the Confidential Information, as evidenced by contemporaneous written documents;

(d) is or was disclosed to the Receiving Party at any time, whether prior to or after the time of its disclosure under this Agreement, by a third party having no fiduciary relationship with the Disclosing Party and having no obligation of confidentiality with respect to the Confidential Information; or

(e) is required to be disclosed to comply with applicable laws or regulations or with a court or administrative order, provided that the Disclosing Party receives reasonable prior written notice of the disclosure and is given the opportunity to contest such requirements if law or regulation so permits.

*Portions of the exhibit, indicated by the mark "[\*\*\*]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 under the Securities Exchange Act of 1934, as amended.*

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1.3. "Combination Product" means a Licensed Product made using a proprietary germplasm or containing at least one additional proprietary trait and/or transgenic sequence that imparts commercial value to the Licensed Product, wherein the manufacture, use, offer for sale, sale or import of such other additional proprietary germplasm(s) or additional trait(s) and/or transgenic sequence(s) alone would not infringe one or more claims under the Patent Rights.

1.4. "Field" means transgenic plant seed or plant grown therefrom or transgenic plant material developed for sale to a farmer or grower for planting in the field, excluding plant seed or plants of any primary crop species that are excluded from the Field pursuant to 3.1.3(b).

1.5. "Licensed Product" means any transgenic plant seed or plant grown therefrom or transgenic plant material developed for sale to a farmer or grower for planting in the field, which transgenic plant seed or plant grown therefrom or transgenic plant material is covered by, embodies or is derived from (in whole or in part) one or more issued or pending claims contained in the Patent Rights.

1.6. "Milestones" means the events defined as Milestones (i), (ii), (iii) and (iv) in Section 3.1.2.

1.7. "Net Sales" means the gross amount billed or invoiced on sales by Metabolix and its Sublicensees of Licensed Products, less the following: (a) customary trade, quantity, or cash discounts to the extent actually allowed and taken; (b) rebates and amounts repaid or credited whether by reason of obsolescence, rejection or return or otherwise; and (c) to the extent separately stated on purchase orders, invoices, or other documents of sale, (i) any taxes or other governmental charges levied on the production, sale, transportation, delivery, or use of a Licensed Product which is paid by or on behalf of Metabolix or its Sublicensees, and (ii) outbound transportation costs prepaid or allowed and costs of insurance in transit.

Net Sales are calculated based on the final sale of the Licensed Product to an independent third party. If Metabolix or a Sublicensee receives non-monetary consideration for any Licensed Products, Net Sales are calculated based on the fair market value of that consideration. If Metabolix or its Sublicensees use or dispose of a Licensed Product in the provision of a commercial service, the Licensed Product will be considered as sold and the Net Sales will be calculated based on the sales price of such Licensed Product to an independent third party during the same Royalty Period or, in the absence of such sales, on the fair market value of such Licensed Product as determined by the parties in good faith.

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1.8 . "Patent Rights" means the United States patents and patent applications listed on Exhibit A and (a) any divisionals or (b) continuations thereof, and (c) any continuation-in-part of any of the foregoing to the extent the claims are directed to subject matter described therein as well as (d) any patents issued on these patent applications and (e) any reissues or reexaminations of the patents, and any foreign counterparts to any of the foregoing. The parties shall periodically amend Exhibit A to include any additional Patent Rights as defined above that arise; provided that such additional Patent Rights shall be included in the license granted hereunder, even if Exhibit A is not so amended.

1.9. "Royalty Period" means the partial calendar quarter commencing on the date on which the first Licensed Product is sold or used and every complete or partial calendar quarter thereafter during which either (a) this Agreement remains in effect or (b) Metabolix has the right to complete and sell work-in-progress and inventory of Licensed Products pursuant to Section 8.6.

1.10 . "Sublicense" means any agreement of any kind or combination of agreements of any kind pertaining to Licensed Products that singly or in combination (i) include a grant of the right under the Patent Rights to make, use, offer for sale, sell and/or import one or more Licensed Products, (ii) provide freedom from suit for infringement of the Patent Rights, or (iii) an option or other future right to obtain either of the foregoing.

1.11 . "Sublicense Income" means payments or other value that Metabolix receives from a Sublicensee in consideration for the Sublicense, including without limitation option fees, upfront fees, license fees, equity, release of debt, milestone payments, and license maintenance fees, but excluding the following payments: (a) payments made for purchase of equity, to the extent they do not exceed the fair market value of such equity at the time purchase occurs, (b) payments specifically committed to discreetly budgeted direct and indirect costs of specific and defined projects for the development of Licensed Products, commercially reasonable written documentation of which shall be provided to UMass at the time any such exclusion is sought, and (c) Sublicensee Royalties. For purposes hereof, "Sublicensee Royalties" means royalties paid to Metabolix by a Sublicensee with respect to Sublicensee Net Sales that are subject to the running royalty payable by Metabolix to UMass as set forth in Section 4.4.

1.12 . "Sublicensee" means any permitted non-Affiliate sublicensee of the rights granted Metabolix under this Agreement , as further described in Section 2.2.

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## Part II- Rights and Obligations

### 2. Grant of Rights.

2.1. License Grant. Subject to the terms and conditions of this Agreement and to the rights set forth in Section 2.3 below, UMass grants to Metabolix an exclusive, worldwide, royalty-bearing license under the Patent Rights to make, have made, use, offer for sale, sell, have sold and import Licensed Products in the Field.

2.2. Sublicenses. Metabolix may grant Sublicenses of its rights under Section 2.1 with the prior written consent of UMass, which consent may not be unreasonably withheld or delayed. All Sublicenses executed by Metabolix shall be consistent with the terms of this Agreement and expressly bind the Sublicensee to the applicable terms of this Agreement. Metabolix shall promptly furnish UMass with a fully executed and unredacted copy of all Sublicenses, which shall be treated as Confidential Information of Metabolix and UMass shall provide any assurances of confidentiality reasonably requested by Sublicensee. Upon any termination of this Agreement, any Sublicenses granted by Metabolix to Sublicensees in accordance with this Agreement shall survive. Any surviving Sublicenses shall be assigned to UMass as direct licensor to the Sublicensee, with whatever modifications may be necessary to reflect the end of Metabolix's involvement, the scope of the Patent Rights, and UMass' status as a tax-exempt educational and research institution and an agency of the Commonwealth of Massachusetts.

### 2.3. Retained Rights.

(a) UMass. UMass retains the right to make and use the inventions claimed in the Patent Rights for academic research and teaching purposes, without payment of compensation to Metabolix . UMass may license its retained rights under this Section to the inventors of same, other UMass faculty, postdocs, students and collaborators, and any non-for-profit employers of the foregoing as UMass may consider necessary to allow academic research and education to be continued.

(b) Federal Government. The Federal Government has funded research leading to the inventions claimed in the Patent Rights, and therefore this Agreement and the grant of any rights in Patent Rights are subject to and governed by federal law as set forth in 35 U.S.C. §§ 200-211 and the regulations promulgated thereunder, as amended, or any successor statutes or regulations. Metabolix acknowledges

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that these statutes and regulations reserve to the federal government a royalty-free, non-exclusive, non-transferable license to practice any government funded invention claimed in the Patent Rights and requires Metabolix to comply with the United States manufacturing obligation of Section 3.4(c). If any term of this Agreement fails to conform with those laws and regulations, the relevant term is an invalid provision and shall be modified by the parties pursuant to Section 10.7.

2.4. Option Right. Under the Intellectual Property Rights Agreement effective June 1, 2012, between UMass, Metabolix, Inc., The Regents of the University of California (Berkeley), and Washington State University, Metabolix, Inc. has first option to negotiate for an exclusive license to UMass inventions developed under ARPA-E award grant no. DE-AR0000200. The parties acknowledge that should additional UMass inventions arise under ARPA-E grant no. DE AR0000200 which cannot be practiced without infringing the Patent Rights, it would be common practice to add such inventions to the existing license agreement rather than negotiate separate license agreement(s). The parties also agree that it would be unusual for a licensee to pay multiple additive royalties if a Licensed Product is covered by more than one patent in the same patent family. For purposes of clarity, the aforementioned acknowledgement and agreement in no way obligates UMass to enter into an agreement with Metabolix that would provide for the licensing of such inventions to Metabolix, especially under terms that would not represent a fair market value for the inventions.

### 3. Metabolix's Obligations Relating to Commercialization.

3.1. Commercialization Requirements. Metabolix shall use diligent efforts, or shall cause its Sublicensees to use diligent efforts, to develop Licensed Products throughout the Field and to introduce such Licensed Products into the commercial market. Thereafter, Metabolix or its Sublicensees shall make such Licensed Products reasonably available to the public. Specifically, Metabolix shall fulfill the following obligations:

3.1.1 Reporting. Within sixty (60) days after the end of each calendar year, Metabolix shall furnish UMass with a written report on the progress of Metabolix's research and development, business development, manufacturing and marketing efforts during the prior year, which report shall include all information reasonably necessary for UMass to determine if the Milestones have been met by the Milestone Dates. The report shall also contain a discussion of intended efforts and sales projections for the current year.

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3.1.2 Milestones. Metabolix shall fulfill the following Milestones by the dates set forth below ("Milestone Dates"):

<b>Milestone</b>	<b>Milestone Date</b>
(i) Raise a minimum of [***]	Within [***] of the Effective Date
(ii) Create at least [***] viable transgenic plant strain for regulatory approval of at least one crop species selected from [***] expressing the transgene(s) of the Patent Rights	Within [***] of the Effective Date
(iii) Complete a multi-site field demonstration of a crop species selected from [***] expressing the transgene(s) of the Patent Rights	Within [***] of the Effective Date
(iv) File for a [***] regulatory approval of a crop species selected from [***] expressing the transgene(s) of the Patent Rights	Within [***] of the Effective Date

### 3.1.3 Consequences.

(a) If UMass determines that Metabolix has failed to achieve a Milestone by the relevant Milestone Date, UMass shall furnish Metabolix with written notice of the determination. Within [\*\*\*] days thereafter Metabolix will either (i) fulfill the relevant obligation or (ii) provide UMass with commercially reasonable evidence of an unforeseen, reasonable and good-faith business or technical difficulty that has caused the delay. Provided that Metabolix has made such a showing, UMass and Metabolix will negotiate in good faith to reasonably adjust the Milestone Date to allow Metabolix to overcome such difficulty, and also adjust downstream Milestone Dates as reasonably warranted. If within [\*\*\*] days after such written notice Metabolix and UMass are unable to reach agreement on any such adjustments, or reach agreement whether such adjustment(s) are justified, the unresolved issues will be considered in dispute, and will be resolved in accordance with the dispute resolution provisions in Section 9. Metabolix's failure to achieve any Milestone by the Milestone Date for same, followed by Metabolix's failure to timely provide the required showing, will constitute a breach of this Agreement; and UMass will have the right, but not the obligation, to terminate this Agreement in accordance with the termination provisions set forth below in Section 8.3.

(b) Should Metabolix fail to develop or begin implementing a plan to commercialize a primary crop species within [\*\*\*] after the Effective Date, then upon written notice from UMass to Metabolix, such primary crop species will thereafter be excluded from the Field.

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3.2. Indemnification.

(a) Indemnity. Metabolix shall indemnify, defend, and hold harmless UMass and its trustees, officers, faculty, students, employees, and agents and their respective successors, heirs and assigns (the "Indemnitees"), against any liability, damage, loss, or expense (including reasonable attorney's fees and expenses of litigation) incurred by or imposed upon any of the Indemnitees in connection with any claims, suits, actions, demands or judgments arising out of any theory of liability (including without limitation actions in the form of tort, warranty, product liability, strict liability, or infringement of third party intellectual property rights), regardless of whether the action has any factual basis, arising out of or related to the exercise of any rights granted under this Agreement. However, indemnification does not apply to any liability, damage, loss, or expense to the extent directly attributable to (i) the grossly negligent activities or intentional misconduct of the Indemnitees or (ii) the settlement of a claim, suit, action, or demand by Indemnitees without the prior written approval of Metabolix.

(b) Procedures. The Indemnitees shall provide Metabolix with prompt written notice of any claim, suit, action, demand, or judgment for which indemnification is sought under this Agreement. Metabolix agrees, at its own expense, to provide attorneys reasonably acceptable to UMass to defend against any such claim. The Indemnitees shall cooperate fully with Metabolix in the defense and will permit Metabolix to conduct and control the defense and the disposition of the claim, suit, or action (including all decisions relative to litigation, appeal, and settlement), except that Metabolix will not agree to any limiting interpretation of any Patent Rights patent or patent application without the prior written consent of UMass. However, any Indemnitee may retain its own counsel, at the expense of Metabolix, if representation of the Indemnitee by the counsel retained by Metabolix would be inappropriate because of actual or potential conflicts in the interests of the Indemnitee and any other party represented by that counsel. Metabolix agrees to keep UMass informed of the progress in the defense and disposition of the claim and to consult with UMass regarding any proposed settlement.

(c) Insurance. Commencing on the Effective Date, Metabolix shall maintain insurance that is reasonably sufficient to fulfill its obligations under this Agreement, including without limitation workers' compensation insurance with statutory limits as required by law, and commercial general liability insurance with coverage of not less than one million dollars (\$1,000,000.00) for any single occurrence and three million dollars (\$3,000,000.00) in the aggregate, which shall include without limitation product liability coverage. Metabolix shall provide UMass with written evidence of insurance.

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Such insurance shall list UMass as a named insured and additional insured.

3.3. Marking of Licensed Products. To provide notice of any and all applicable Patent Rights and in accordance with 35 U.S.C. §287 and as required in any other country, Metabolix shall mark and shall cause its Sublicensees to mark all Licensed Products that are manufactured or sold under this Agreement to the extent commercially feasible and consistent with prevailing business practices.

3.4. Compliance with Law. Metabolix shall comply with, and shall ensure that its Sublicensees comply with, all local, state, federal, and international laws and regulations relating to the development, manufacture, use, sale, and importation of Licensed Products. Metabolix expressly agrees to comply with the following:

(a) Metabolix or its Sublicensees shall obtain all necessary approvals, where required, from United States Government agencies and any similar governmental authorities of any foreign jurisdiction in which Metabolix or Sublicensee intends to make, use, sell, or import Licensed Products.

(b) Metabolix and its Sublicensees shall comply with all United States laws and regulations controlling the export of commodities and technical data, including without limitation all Export Administration Regulations of the United States Department of Commerce. Among other things, these laws and regulations prohibit or require a license for the export of certain types of commodities and technical data to specified countries. Metabolix hereby gives written assurance that it will comply with and will cause its Sublicensees to comply with all United States export control laws and regulations, that it bears sole responsibility for any violation of those laws and regulations by itself or its Sublicensees, and that it will indemnify, defend, and hold the Indemnitees harmless (in accordance with Section 3.2) for the consequences of any violation.

(c) The inventions claimed in the Patent Rights have been partially funded by the United States government. To the extent required by applicable laws and regulations, inter alia 35 U.S.C. §§ 200-211, Metabolix agrees that any Licensed Products used or sold in the United States will be manufactured substantially in the United States or its territories. Current law provides that if domestic manufacture is not commercially feasible under the circumstances, UMass may seek a waiver of this requirement from the relevant federal agency on behalf of Metabolix.

3.5. Patent Term Extension. Metabolix hereby agrees that in the event one or more Licensed

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Product is subject to a regulatory review period before its commercial marketing and use (a "Regulated Licensed Product"), the term of the Patent Rights will be extended in accordance with 35 U.S.C. § 156. Metabolix agrees to keep UMass apprised of progress toward regulatory approval, will notify UMass immediately upon approval, and will provide UMass with all information and assistance needed to file a request for patent term extension. Metabolix acknowledges that such extensions are time critical, and that extension applications must be filed within sixty (60) days after regulatory approval or the right to extend is irrevocably lost.

Metabolix acknowledges that it will be liable to UMass at law for failure to so extend.

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### Part III -Payments and Infringement

#### 4. Consideration for Grant of Rights.

In partial consideration of the rights and license granted Metabolix under this Agreement, Metabolix agrees to pay each of the following:

4.1. License Fee. Within thirty (30) days of the Effective Date, Metabolix shall pay to UMass a license fee of fifty thousand dollars (\$50,000.00). The license fee payment is nonrefundable and not creditable against any other payments due to UMass under this Agreement.

4.2. Milestone Payments. Metabolix shall pay UMass the following milestone payments within thirty (30) days after the occurrence of each listed event:

Payment Event	Amount
Milestone (iv) and each additional filing for regulatory approval of a crop species expressing the transgene(s) of the Patent Rights	For each such crop species, a one-time payment of [***] Dollars [***]
Obtaining regulatory approval of a crop species expressing the transgene(s) of the Patent Rights	For each such crop species, a one-time payment of [***] Dollars [***]

These milestone payments are nonrefundable and are not creditable against any other payments due to UMass under this Agreement.

4.3. Base Royalty on Metabolix Net Sales. Metabolix shall pay to UMass a royalty of [\*\*\*] percent [\*\*\*] of Metabolix Net Sales, subject to adjustments as provided in Sections 4.7 and 4.8. However, in no event will royalties to UMass under this Section 4.3 be reduced below [\*\*\*] percent [\*\*\*] of Metabolix Net Sales for any reason.

4.4. Royalties on Sublicensee Net Sales. Metabolix shall pay to UMass a royalty no less than [\*\*\*] percent [\*\*\*] of each Sublicensee's Net Sales, irrespective of what such Sublicensee's royalty obligations to Metabolix may be, and even if Metabolix receives no Sublicensee Royalties from a Sublicensee. If Metabolix receives a Sublicensee Royalty greater than [\*\*\*] percent [\*\*\*] of a Sublicensee's Net Sales, then the UMass royalty on Sublicensee Net Sales will be [\*\*\*] percent [\*\*\*] of such Sublicensee's Net Sales, plus an additional percentage of Sublicensee Royalties over [\*\*\*] percent

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[\*\*\*] depending on when the applicable Sublicense is executed and according to the following formula:

<b>Sublicense Executed:</b>	<b>For Sublicense Royalties greater than [***] percent [***] Metabolix shall pay UMass:</b>
Prior to the achievement of Milestone (i)	[***] plus [***] percent [***] of Sublicensee Royalties greater than [***]
After achievement of Milestone (i) but before the achievement of Milestone (ii)	[***] plus [***] percent [***] of Sublicensee Royalties greater than [***]
After the achievement of Milestone (ii) but before the achievement of Milestone (iii)	[***] plus [***] percent [***] of Sublicensee Royalties greater than [***]
After the achievement of Milestone (iii)	[***] plus [***] percent [***] of Sublicensee Royalties greater than [***]

Neither Sublicensee Net Sales nor Sublicensee Royalties are subject to adjustment as provided in Sections 4.7 and 4.8.

#### 4.5. Sublicense Income.

(a) UMass Share of Sublicense Income. Metabolix shall pay UMass a percentage of Sublicense Income according to the following schedule:

Execution of Sublicense	Percent of Sublicense Income
Prior to the achievement of Milestone (i)	[***] Percent [***]
After the achievement of Milestone (i) but prior to the achievement of Milestone (ii)	[***] Percent [***]
After the achievement of Milestone (ii) but prior to the achievement of Milestone (iii)	[***] Percent [***]
After the achievement of Milestone (iii)	[***] Percent [***]

The parties acknowledge that the sliding scale of UMass' share of Sublicense Income reflects the expectation that Metabolix's intellectual property will over time constitute an increasing proportion of the intellectual property rights to be granted in a Sublicense. For their mutual convenience, the parties agree that the sliding scale provides consideration for this and all other factors whatsoever. Sublicense Income will not be subject to apportionment or reduction of any kind for any reason prior to

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calculation of UMass' share except as provided in Section 4.5(b) below.

(b) Excluded Research and Development Support. In the event that Metabolix requests an exclusion from Sublicense Income for Sublicensee development cost payments as provided in Section 1.11(b), the parties will negotiate in good faith to sub-contract research activities to UMass in an amount equal to the sliding scale percentages of clause 4.S(a) above multiplied by the excluded amounts; provided UMass can perform research activities commensurate with the goals and timelines under which Metabolix receives such funding.

4.6. Minimum Annual Royalty. Metabolix shall make the following minimum annual royalty payments to UMass:

Calendar Year	Amount
[***]	[***]
[***] and [***]	[***]
[***] and thereafter	[***]

If the total royalties calculated under Section 4.3 and 4.4 and the Sublicense Income under 4.5(a), for any year during the term of the Agreement are less than the minimum amount shown above for such year, Metabolix shall pay UMass the difference between (i) the actual royalties paid pursuant to Sections 4.3, 4.4 and 4.5(a), and (ii) the required minimum annual royalty for that year. Such payment will be due within sixty (60) days following each December 31 during the term of the Agreement.

4.7. Anti-stacking Deduction. In the event that Metabolix is legally required to make running royalty payments to one or more third parties for license(s) of third party intellectual property rights necessary or useful to making, using, offering for sale, selling or importing a given Licensed Product, Metabolix may deduct up to two-thirds of such third-party royalties from any running royalty payments that are due to UMass under Section 4.3 on Metabolix Net Sales of such Licensed Product in the same Royalty Period. However, in no event will royalties to UMass be less than [\*\*\*] percent [\*\*\*] of Net Sales. Such deduction cannot be taken together with a Combination Product royalty adjustment. This provision does not apply to the royalties payable on Sublicensee Net Sales under Section 4.4.

4.8. Royalty Adjustment for Combination Product. Royalties payable under Section 4.3 on

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Metabolix Net Sales of Combination Products will be reduced as follows. The royalty shall equal (i) the royalties otherwise payable on such Net Sales, multiplied by (ii) a factor of [\*\*\*], where [\*\*\*] is the [\*\*\*] sales price of the Combination Product, and [\*\*\*] is the sum of the [\*\*\*] sales price of all other transgenic sequences contained in a given Combination Product that impart a commercially valuable crop trait, when such sequences are sold separately from the Licensed Product at the time such Licensed Product sales are made. The aforementioned [\*\*\*] sales price of transgenic sequences shall be calculated as the difference between [\*\*\*] sales price of plants or seed with and without such transgenic sequences. However, in no event will royalties to UMass under Section 4.3 be reduced below [\*\*\*] percent [\*\*\*] of Combination Product Net Sales for any reason. Such adjustment cannot be made together with an anti-stacking deduction under Section 4.7 above. If the adjustment factor above cannot be calculated for any reason (e.g. transgenic seed not sold separately), the parties will negotiate in good faith an alternative mechanism for an equitable adjustment of the running royalties payable on Metabolix Net Sales of the Combination Products. This provision does not apply to the royalty on Sublicensee Net Sales.

5. Royalty Reports; Payments; Records.

5.1. First Sale. Metabolix shall report to UMass the date of first commercial sale of each Licensed Product within thirty (30) days after occurrence in each country.

5.2. Reports and Payments. Within sixty (60) days after the conclusion of each Royalty Period, Metabolix shall deliver to UMass a report detailing Metabolix's method of calculation of the amount of license fees and royalties and the UMass share of any Sublicensee Income owed. Such report will at a minimum provide cumulative sales amounts for each Licensed Product sold during the Royalty Period and will detail Metabolix's calculation of payments owed. If royalties are paid on sales by a Sublicensee, Metabolix will provide UMass with copies of such Sublicensee's sales reports. If no royalties or license fees are due to UMass for any Royalty Period, the report shall so state. Concurrent with this report, Metabolix shall remit to UMass any payment due for the applicable Royalty Period.

5.3. Records. Metabolix shall maintain and shall cause its Sublicensees to maintain complete and accurate records of Licensed Products that are made, used, sold, or imported under this Agreement and any amounts payable to UMass hereunder, which records shall contain sufficient information to permit UMass to confirm the accuracy of any reports delivered to UMass under Section 5.2. The relevant party shall retain records relating to a given Royalty Period for at least three (3) years after the conclusion of that Royalty Period, during which time UMass shall have the right, at its expense, to cause its internal

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accountants or an independent, certified public accountant to inspect records during normal business hours for the sole purpose of verifying any reports and payments delivered under this Agreement. Metabolix shall pay to UMass any underpayment hereunder within thirty (30) days after the accountant delivers the results of the audit. If any audit performed under this Section reveals an underpayment in excess of ten percent (10%) in any Royalty Period, Metabolix shall bear or reimburse to UMass the full cost of the audit. UMass may exercise its rights under this Section only once every year and only with reasonable prior notice to Metabolix.

5.4. Method of Payment. All payments under this Agreement should be made to the "University of Massachusetts" in United States dollars and sent to the address identified below. All currency corrections will be made using the final exchange rate listed in The Wall Street Journal for the Royalty Period, and exchange fees if any will be borne by Metabolix. Each payment should reference this Agreement and identify the obligation under this Agreement that the payment satisfies.

Office of Technology Commercialization and Ventures

University of Massachusetts

225 Franklin Street, 12<sup>th</sup> Floor

Boston, MA 02110

Attention: Executive Director, OTCV

## 6. Patents and Infringement.

6.1. Responsibility for Patent Rights. As of the Effective Date, UMass has primary responsibility at the expense of Metabolix for the preparation, filing, prosecution, and maintenance of all Patent Rights, using patent counsel reasonably acceptable to Metabolix. UMass shall consult with Metabolix as to the preparation, filing, prosecution, and maintenance of all Patent Rights reasonably prior to any deadline or action with the United States Patent & Trademark Office or any foreign patent office and shall furnish Metabolix with copies of relevant documents reasonably in advance of consultation. UMass will instruct its counsel to communicate directly with patent counsel for Metabolix, and to accept any suggestions or revisions that would tend to support or expand the scope of claims sought. However, any actions or revisions that would tend to narrow the scope of claims sought would be subject to approval by UMass. Provided that Metabolix has timely paid Patent Expenses under Section 6.3 and has not elected to cease payment, UMass will not abandon any patent or patent application comprising the Patent Rights without

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Metabolix 's written approval. However, UMass will have no obligation to file foreign patent applications unless Metabolix so requests in writing at least 30 days prior to the deadline for such filings.

6.2. Cooperation . Metabolix shall cooperate fully in the preparation, filing, prosecution, and maintenance of all Patent Rights. Cooperation includes, without limitation, (a) promptly executing all papers and instruments or requiring employees of Metabolix to execute papers and instruments as reasonable and appropriate to enable UMass to file, prosecute, and maintain Patent Rights in any country; and (b) promptly informing UMass of matters that may affect the preparation , filing, prosecution , or maintenance of Patent Rights.

6.3. Payment of Patent Expenses .

(a) Within thirty (30) days after UMass invoices Metabolix, Metabolix shall reimburse UMass for all patent-related expenses incurred on or after the Effective Date by UMass pursuant to Section 6.1. Alternatively, at UMass' option, UMass may direct its counsel to bill Metabolix directly for some or all of such patent-related expenses, and Metabolix hereby agrees that in such case UMass will continue to be the sole client of such counsel, and that Metabolix will not be a client. In its discretion, UMass may obtain an estimate of significant upcoming patent expenses from the patent counsel and, following thirty (30) days prior written notice to Metabolix, Metabolix shall remit advance payment of those expenses to the retainer account of the patent counsel; provided that Metabolix shall not be require to prepay more than three (3) months of estimated expenses. Metabolix may elect, upon sixty (60) days written notice to UMass, to cease payment of the expenses associated with obtaining or maintaining patent protection for one or more Patent Rights patents or patent applications in one or more countries. If Metabolix elects to cease payment of any patent expenses, Metabolix loses all rights under this Agreement with respect to such Patent Rights and UMass shall be free to license same to third parties. UMass will be under no obligation to pay any patent costs that Metabolix declines to pay.

6.4. Infringement and Patent Challenges .

(a) Notification of Infringement. Each party agrees to provide written notice to the other party promptly after becoming aware of any infringement of the Patent Rights.

(b) Metabolix's Right to Prosecute. As long as Metabolix remains the only licensee of the Patent Rights in the Field, Metabolix may, under its own control and at its own expense, prosecute any

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third party infringement of the Patent Rights in the Field and defend the Patent Rights in any declaratory judgment action brought by a third party which alleges invalidity, unenforceability, or non-infringement of the Patent Rights, including pre- or post grant review or reexamination in the United States Patent and Trademark Office. Prior to commencing any action, Metabolix shall consult with UMass and shall consider the views of UMass regarding the advisability of the proposed action and its effect on the public interest. In the event UMass becomes a party to such case at Metabolix 's request or in response to a court order that UMass is an essential party, UMass will be represented by its own counsel at Metabolix's expense, and such counsel will work with Metabolix's counsel to promote common interests in such matter. Metabolix may not enter into any settlement, consent judgment, or other voluntary final disposition of any infringement action under this Subsection without the prior written consent of UMass, which consent may not be unreasonably withheld or delayed. Notwithstanding the foregoing, UMass will be under no obligation to consent to any express or implied limiting interpretation of any Patent Rights patent or patent application.

(c) Distribution of Recovery. Any recovery obtained in an action under Subsection 6.4(b) shall be distributed as follows: (i) each party shall be reimbursed for any expenses incurred in the action (including the amount of any royalty payments withheld from UMass as described below); (ii) All remaining damages will be shared equally between Metabolix and UMass. Metabolix may offset a total of fifty percent (50%) of any expenses incurred under Subsection 6.4(b) against any royalty payments due to UMass under this Agreement, including without limitation minimum royalties under Section 4.6 and sublicensing payments under Section 4.5. However, royalty payments under Section 4 may never be reduced by more than fifty percent (50%) in any Royalty Period, and the royalty payments withheld shall be reimbursed to UMass from the recoveries obtained in the action, if any, as set forth in clause (c)(i) above.

(d) Reimbursement of UMass Costs. With respect to any action contemplated or initiated by Metabolix pursuant to Subsection 6.4(b), Metabolix shall indemnify, defend and hold harmless the Indemnitees (in accordance with Section 3.2) from and against any reasonable costs, expenses, or liability (including reasonable attorneys' fees and expenses of litigation) that UMass may incur in connection with its support or participation in the action.

(e) UMass Right to Pursue Infringers and Defend the Patent Rights. If Metabolix fails to initiate an infringement action within a reasonable time after it first becomes aware of the basis for the action, or to answer a declaratory judgment action and file compulsory counter claims within a

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reasonable time after the action is filed, UMass may prosecute the infringement and answer the declaratory judgment action under its sole control, and any recovery obtained shall be retained by UMass. If UMass initiates an action under this Subsection 6.4(e), UMass shall keep Metabolix reasonably informed of material actions undertaken by UMass, except in the event of a declaratory judgment action brought by Metabolix.

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## Part IV - General Terms and Conditions

### 7. Confidential Information and Publicity.

#### 7.1 Confidential Information.

(a) Designation. Confidential Information that is disclosed in writing shall be marked with a legend indicating its confidential status (such as, "Confidential" or "Proprietary"). Confidential Information that is disclosed orally or visually shall be documented in a written notice prepared by the Disclosing Party and delivered to the Receiving Party within thirty (30) days of the date of disclosure. The notice shall summarize the Confidential Information disclosed to the Receiving Party and reference the time and place of disclosure.

(b) Obligations. For a period of five (5) years after disclosure of any Confidential Information, the Receiving Party shall (i) maintain such Confidential Information in confidence, except that the Receiving Party may disclose or permit the disclosure of any Confidential Information to its trustees or directors, officers, employees, attorneys, consultants, and advisors (collectively, "Representatives") who are obligated to maintain the confidential nature of Confidential Information and who need to know Confidential Information for the reasonable business purposes of the Receiving Party; (ii) use Confidential Information solely for the purposes of this Agreement; and (iii) allow its Representatives to reproduce the Confidential Information only to the extent necessary for the purposes of this Agreement, with all reproductions being Confidential Information.

(c) Ownership and Return. The Receiving Party acknowledges that the Disclosing Party (or a third party entrusting its own information to the Disclosing Party) owns the Confidential Information in the possession of the Receiving Party. Upon expiration or termination of this Agreement, or at the request of the Disclosing Party, the Receiving Party shall return to the Disclosing Party all originals, copies, and summaries of documents, materials, and other tangible manifestations of Confidential Information in the possession or control of the Receiving Party, except that the Receiving Party may retain one copy of the Confidential Information in the possession of its legal counsel solely for the purpose of monitoring its obligations under this Agreement.

7.2. Publicity and Use of Name Restrictions. Metabolix may not use the name, likeness or logo of UMass or any of its trustees, officers, faculty, students, employees, or agents, or any adaptation of their

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names, or any terms of this Agreement in any press release or other public announcement or disclosure without the prior written consent of UMass. The foregoing notwithstanding, Metabolix may disclose that information without the consent of UMass in any prospectus, offering memorandum, or other document or filing required by applicable securities laws or other applicable law or regulation, provided that Metabolix provides UMass, as soon as reasonably practicable, prior written notice of the proposed text for the purpose of giving UMass a reasonable opportunity to comment on the text. Metabolix may only disclose factual information hereunder, and shall not use the name, likeness or logo of UMass or any employee of UMass in a manner that reasonably could be viewed as an endorsement of a commercial product or service.

## 8. Term and Termination.

8.1. Term. Unless sooner terminated as otherwise provided in this Agreement, the term of this Agreement shall commence on the Effective Date hereof and shall continue in full force and effect until the expiration of the last to expire of the Patent Rights.

8.2. Voluntary Termination by Metabolix. Metabolix may terminate this Agreement for any reason upon ninety (90) days prior written notice to UMass.

8.3. Termination for Default. If either party commits a material breach of its obligations under this Agreement and fails to cure that breach within sixty (60) days after receiving written notice of the breach, the other party may terminate this Agreement immediately upon written notice to the party in breach. Failure to make any payment hereunder shall constitute a material breach. If the alleged breach involves nonpayment of any amounts due UMass under this Agreement, Metabolix will have only one cure period applicable to such breach. Any subsequent such material breach by Metabolix will entitle UMass to terminate this Agreement immediately upon written notice to Metabolix, without the sixty-day cure period.

8.4. Termination for Patent Challenge. The parties acknowledge and agree that Metabolix is not estopped from contesting the validity or enforceability of the Patent Rights. However, Metabolix hereby agrees that if it decides to assert its right to contest the Patent Rights, in whole or in part, that UMass shall have the right, at UMass' option, to terminate this License Agreement with respect to the contested Patent Rights by giving written notice thereof to Metabolix, which termination shall have immediate effect. In the event UMass does not terminate, Metabolix agrees to meet its obligations hereunder, and

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that any payments due will be made to UMass, and not diverted to escrow or otherwise; and such payment shall not be refundable for any reason.

8.5. Force Majeure. Neither party is responsible for delays resulting from causes beyond its reasonable control, including without limitation fire, explosion, flood, war, strike, or riot, provided that the nonperforming party uses commercially reasonable efforts to avoid or remove those causes of nonperformance and continues performance under this Agreement with reasonable dispatch whenever the causes are removed.

8.6. Effect of Termination. Articles 1, 7 and 9; Sections 3.2, 3.4, 5.2, 5.3, 6.3 (with respect to expenses incurred prior to the effective date of termination), 6.4, 8.6, 10.5, 10.6, any other Articles and Sections hereof which by their nature are inherently intended to survive, shall survive any termination of this Agreement. Upon the early termination of this Agreement, Metabolix and its permitted Sublicensees may complete and sell any work-in-progress and inventory of Licensed Products that exist as of the effective date of termination, provided that (a) Metabolix is current in payment of all amounts due UMass under this Agreement, (b) Metabolix pays UMass the applicable percentage of all Sublicense Income and the applicable royalty on Net Sales of Licensed Products and applicable royalties on Net Sublicensee Sales in accordance with the terms of this Agreement, and (c) Metabolix and its Sublicensees complete and sell all work-in-progress and inventory of Licensed Products within six (6) months after the effective date of termination. Upon termination for any reason other than breach by UMass, Metabolix hereby agrees to provide to UMass the right to access to files, data and procedures for regulatory approval of any Licensed Products in any country that may have been created or commenced by Metabolix during the term hereof, and agrees to license such access or sell same to any subsequent UMass licensee, on commercially reasonable terms.

## 9. Dispute Resolution.

9.1. Procedures Mandatory. The parties agree that any dispute arising out of or relating to this Agreement will be resolved solely by means of the procedures set forth in this Article, and that these procedures constitute legally binding obligations that are an essential provision of this Agreement.

### 9.2. Dispute Resolution Procedures.

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(a) Negotiation. In the event of any dispute arising out of or relating to this Agreement, the affected party shall notify the other party, and the parties shall attempt in good faith to resolve the matter within ten (10) days after the date of notice (the "Notice Date"). Any disputes not resolved by good faith discussions shall be referred to senior executives of each party, who shall meet at a mutually acceptable time and location within thirty (30) days after the Notice Date and attempt to negotiate a settlement.

(b) Mediation. If the matter remains unresolved within sixty (60) days after the Notice Date, or if the senior executives fail to meet within thirty (30) days after the Notice Date, either party may initiate mediation upon written notice to the other party, whereupon both parties shall engage in a mediation proceeding under the then current International Institute for Conflict Prevention and Resolution, Inc. ("CPR") Mediation Procedure then in effect, except that specific provisions of this Section override inconsistent provisions of the CPR Mediation Procedure. The mediator will be selected from the CPR Panels of Neutrals. If the parties cannot agree upon the selection of a mediator within ninety (90) days after the Notice Date, then upon the request of either party, the CPR shall appoint the mediator. The parties shall attempt to resolve the dispute through mediation until one of the following occurs: (i) the parties reach a written settlement; (ii) the mediator notifies the parties in writing that they have reached an impasse; (iii) the parties agree in writing that they have reached an impasse; or (iv) the parties have not reached a settlement within one hundred twenty (120) days after the Notice Date.

(c) Trial Without Jury. If the parties fail to resolve the dispute through mediation, or if neither party elects to initiate mediation, each party may pursue any other remedies legally available to resolve the dispute. However, the parties expressly waive the right to a jury trial in such legal proceeding.

### 9.3. Preservation of Rights Pending Resolution.

(a) Performance to Continue. Each party shall continue to perform its obligations under this Agreement pending final resolution of any dispute arising out of or relating to this Agreement. However, a party may suspend performance of its obligations during any period in which the other party fails or refuses to perform its obligations.

(b) Statute of Limitations. The parties agree that all applicable statutes of limitation and time-based defenses (including without limitation estoppel and laches) are tolled while the procedures set

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forth in Subsections 9.2(a) and 9.2(b) are pending. The parties shall take any actions necessary to effectuate this result.

10. Miscellaneous.

10.1. Representations and Warranties. UMass represents that its employees have assigned to UMass their entire right, title, and interest in the Patent Rights and that it has authority to grant the rights and licenses set forth in this Agreement. UMASS DISCLAIMS AND MAKES NO OTHER WARRANTIES CONCERNING THE PATENT RIGHTS, INCLUDING WITHOUT LIMITATION ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SPECIFICALLY, WITHOUT LIMITATION, UMASS DISCLAIMS AND MAKES NO WARRANTY OR REPRESENTATION (A) REGARDING THE VALIDITY OR SCOPE OF THE PATENT RIGHTS, (B) THAT THE EXPLOITATION OF THE PATENT RIGHTS OR ANY LICENSED PRODUCT WILL NOT INFRINGE ANY PATENTS OR OTHER INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY, AND (C) THAT ANY THIRD PARTY IS NOT CURRENTLY INFRINGING OR WILL NOT INFRINGE THE PATENT RIGHTS.

10.2. Counterparts. This Agreement may be executed in one or more counterparts, each of which is an original, and all of which together are one instrument.

10.3. Assignment. This Agreement may not be assigned by either party without the prior written consent of the other party, which consent shall not be unreasonably withheld or delayed, except that Metabolix may assign this Agreement to an Affiliate or in connection with the sale, disposition or spinout of its crops research program ; a merger; or acquisition or sale of all or substantially all its business to which the Patent Rights relate to an entity which has the financial and technical capacity to satisfy Metabolix's commercialization obligations under this Agreement.

10.4. Amendment and Waiver. This Agreement may be amended, supplemented, or otherwise modified only by means of a \written instrument signed by both parties. Any waiver of any rights or failure to act in a specific instance relates only to that instance and is not an agreement to waive any rights or fail to act in any other instance.

10.5. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts irrespective of any conflicts of law principles.

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10.6. Notice. Any notices required or permitted under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be sent by recognized national overnight courier, or registered or certified mail, postage prepaid, return receipt requested, to the following addresses:

If to UMass:

Technology Transfer Office University  
of Massachusetts Amherst Arnold  
House, Room 232  
715 North Pleasant Street  
Amherst, MA 01003

Attention: Director, TTO

If to Metabolix:

Metabolix  
21 Erie Street  
Cambridge, MA 02139

Attention: Chief Scientific Officer

All notices under this Agreement are effective upon receipt. A party may change its contact information immediately upon written notice to the other party in the manner provided in this Section.

10.7. Severability. If any provision of this Agreement is held invalid or unenforceable for any reason, the invalidity or unenforceability does not affect any other provision of this Agreement, and the parties shall negotiate in good faith to modify the Agreement to preserve (to the extent possible) their original intent. If the parties fail to reach a modified agreement within sixty (60) days after the relevant provision is held invalid or unenforceable, then the dispute shall be resolved in accordance with the procedures set forth in Article 9. While the dispute is pending resolution, this Agreement shall be

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construed as if the provision were deleted by agreement of the parties.

10.8. Entire Agreement. This Agreement, together with the Intellectual Property Rights Agreement effective June 1, 2012, constitutes the entire agreement between the parties with respect to its subject matter and supersedes all prior agreements or understandings between the parties relating to its subject matter. In the event of any inconsistency between this Agreement and said Intellectual Property Rights Agreement, the provisions of this Agreement shall govern.

10.9. Headings. All headings herein are provided for convenience only, and the parties agree that such headings shall not be construed to vary, interpret or constitute part of any contract terms hereunder.

[SIGNATURE PAGE TO FOLLOW]

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IN WITNESS WHEREOF, each party has caused this Agreement to be executed by its duly authorized representative as of the Effective Date.

UNIVERSITY OF MASSACHUSETTS AMHERST

METABOLIX, INC.

By: /s/ Robert S. MacWright  
Name: Robert S. MacWright, Ph.D., Esq.  
Title: Director, Technology Transfer Office  
Date: 6/30/2015

By: /s/ Oliver P. Peoples  
Name: Oliver P. Peoples Ph.D.  
Title: Founder, CEO & Director  
Date: 7/5/2015

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EXHIBIT A

List of Patent Rights

PCT Application No. PCT/ US2014/072347, entitled "PLANTS WITH ENHANCED PHOTOSYNTHESIS AND METHODS OF MANUFACTURE THEREOF," filed on December 24, 2014, which claims priority to U.S. Provisional Application No. 61/922, 141, filed on December 31, 2013.

Inventors: Danny Schnell, Michelle Dacosta, Mine Canaki, Bibin Palouse

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## SUBLEASE

THIS SUBLEASE is made as of the 16th day of September, 2016, by and between METABOLIX, INC., a Delaware corporation (“**Sublandlord**”), with an address of 19 Presidential Way, Woburn, Massachusetts, and CJ Research Center LLC (“**Subtenant**”), with an address of 3530 Wilshire Blvd., Suite 1220, Los Angeles, CA 90010, Attn: Legal Department.

### RECITALS

A. Sublandlord is the Tenant under that certain Lease Agreement with ARE-MA Region No. 20, LLC, as Landlord (“**Master Landlord**”), dated January 20, 2016 (the “**Master Lease**”), of premises located at 19 Presidential Way, Woburn, Massachusetts and more particularly described in the Master Lease (the “**Premises**”).

B. Subtenant wishes to sublease from Sublandlord and Sublandlord wishes to sublease to Subtenant a portion of the Premises, subject to the terms and conditions of this Sublease.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. Subleasing. Sublandlord hereby subleases to Subtenant and Subtenant hereby subleases from Sublandlord the premises consisting of approximately 9,874 rentable square feet located on the third (3<sup>rd</sup>) floor of the building known as and numbered 19 Presidential Way, Woburn, Massachusetts, being a portion of the Premises located on the third (3<sup>rd</sup>) floor of said building (the “**Subleased Premises**”), together with (a) the right of access to the Subleased Premises in accordance with Section 1 of the Master Lease, (b) the right to exercise, in common with Sublandlord and others entitled thereto, Sublandlord’s right to use the Common Areas as defined under the Master Lease necessary or appropriate to Subtenant’s use of the Subleased Premises, including, without limitation, thirty-one (31) of the parking spaces allocated to Sublandlord under Section 10 of the Master Lease, and (c) the right to use, in common with Sublandlord, approximately 2,000 square feet (the “**Shared Space**”), which Shared Space is located within the Premises as shown on Exhibit A hereto, in connection with its use of the Shared Equipment (defined below), as more fully discussed in Section 10 below. The Shared Space does not constitute a part of the Subleased Premises.

2. Term. The term (“**Term**”) of this Sublease shall commence on the later of (i) full execution of this Sublease or (ii) the date that Sublandlord delivers to Subtenant Master Landlord’s written consent to this Sublease (the later being, the “**Commencement Date**”), and shall terminate on the last day of the Base Term of the Master Lease (the “**Termination Date**”). Subtenant shall have no right to extend the term of this Sublease; provided, that in the event Master Landlord and Landlord agree to extend the Base Term of the Master Lease, Subtenant shall, at Subtenant’s option (exercisable in its sole discretion), have the right to extend the term of this Sublease commensurate with such extension of the Master Lease.

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3. Master Landlord's Consent. The effectiveness of this Sublease and Subtenant's and Sublandlord's obligations hereunder shall be conditioned on and are subject to Sublandlord's receipt of Master Landlord's written consent to this Sublease on terms acceptable to Sublandlord and Subtenant.

4. Base Rent. The base rent for the Subleased Premises (the "**Base Rent**") shall be \$25.00 per rentable square foot of the Subleased Premises per year, which the parties agree shall be \$20,570.83 per month adjusted as of each Adjustment Date as set forth in the Master Lease. Notwithstanding the foregoing, for any period during the term of the Sublease that Sublandlord's Base Rent is reduced by the last paragraph of Section 3(a) of the Master Lease, Subtenant's Base Rent shall be one-third (1/3<sup>rd</sup>) of Sublandlord's reduced Base Rent. Base Rent shall be payable in equal monthly installments, in advance, on the first day of each and every calendar month during the term of this Sublease, to Sublandlord at Sublandlord's address set forth above or at such other place as Sublandlord shall from time to time designate. Base Rent for any partial month shall be pro-rated on a daily basis.

5. Additional Rent. In addition to Base Rent, Subtenant agrees to pay Sublandlord one-third (1/3) of (i) all Additional Rent for Operating Expenses (as defined in Section 5 of the Master Lease), including Taxes (as defined in Section 9 of the Master Lease), and (ii) any and all other amounts Sublandlord assumes or agrees to pay under the provisions of the Master Lease that directly serve the Subleased Premises (including, without limitation, payments to amortize the additional tenant improvement allowance as provided in Section 4(b) of the Master Lease. In addition, Subtenant shall pay for one-third (1/3<sup>rd</sup>) of any charges for services provided to the Premises by Master Landlord, which services directly serve or benefit the Subleased Premises, and specifically billed to the Premises by Master Landlord, within thirty (30) days of receiving Master Landlord's invoice therefor, or, if Sublandlord has previously paid the same, to Sublandlord within thirty (30) days after receiving Sublandlord's invoice therefor, as well as any additional rent charged under the Master Lease to the extent that the additional rent arises out of any default of Subtenant under this Sublease or any damage (subject to the waiver of subrogation contained in the Insurance provision of this Sublease) caused by Subtenant or any of its employees, officers, agents, contractors or invitees, except to the extent of any default or damage caused by Sublandlord, its employees, officers, agents, contractors or invitees. All payments of Additional Rent to Sublandlord by Subtenant as required herein shall be made as set forth in Paragraph 3 above with respect to Base Rent. In the event any services are provided by Master Landlord that do not directly serve, in whole or in part, the Subleased Premises, Subtenant shall not be responsible for its pro-rata share of the same and, in the event any services serve only the Subleased Premises, Subtenant shall pay all of the costs of such services.

6. Security Deposit. Subtenant shall deposit with Sublandlord, upon full execution of this Sublease and receipt of Master Landlord's written consent, a security deposit in the amount of \$102,333.95 (the "**Security Deposit**") for the performance of all of Subtenant's obligations in this Sublease, which Security Deposit shall be in the form of a letter of credit meeting the requirements of Section 6 of the Master Lease. Such Security Deposit will be held in accordance with the provisions of Section 6 of the Master Lease (as if references to Tenant were references to Subtenant and references to Landlord were references to Sublandlord in such

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Section).

7. Incorporation of Provisions. Subtenant agrees that it will do nothing in, on or about the Subleased Premises which would result in the breach by Sublandlord of its undertakings and obligations under the Master Lease. Except for the following provisions, this Sublease shall be subject to and on all of the terms and conditions as are contained in the Master Lease and the provisions of the Master Lease are hereby incorporated into this Sublease as if Sublandlord were the landlord thereunder and Subtenant the tenant thereunder:

- The defined economic terms for “Base Rent,” “Base Term,” “Premises,” “Rentable Area of the Premises,” “Tenant’s Share of Operating Expenses,” “Target Commencement Date,” “Address for Rent Payment,” and “Tenant’s Notice Address” and the like are inapplicable, except where used to reference such defined term with respect to the Master Lease;
  - Section 3(b) of the Master Lease (relating to additional rent) are applicable, as modified by the provisions of Paragraph 4 of this Sublease, except where used to reference such defined term with respect to the Master Lease;
  - Section 4(b) (relating to additional tenant improvement allowance) is inapplicable, except where used to reference such defined term with respect to the Master Lease;
  - The first and second full paragraphs of Section 17 (Insurance) are inapplicable;
  - Section 22 of the Master Lease (relating to assignment and subletting) is inapplicable;
  - Section 35 (Brokers) is inapplicable;
  - Exhibit C of the Master Lease (relating to Landlord’s Work), Exhibit D (Commencement Date) and Exhibit F (Tenant’s Personal Property) are inapplicable;
  - Where appropriate, references to “Landlord” in the Master Lease shall be deemed to mean “Sublandlord” hereunder and references to “Tenant” in the Master Lease shall be deemed to mean “Subtenant” hereunder, it being understood and agreed that Sublandlord will not be acting as, or assuming any of the responsibilities of, Master Landlord, and all references in the Master Lease to Landlord-provided services or Landlord insurance requirements, and any other references which by their nature relate to the owner or operator of the Building, rather than to a tenant of the Building subleasing space to a subtenant, shall continue to be references to Master Landlord and not to Sublandlord.
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8. Direct Performance. At any time by written notice to Subtenant in advance (no less than thirty (30) days), Sublandlord may elect to require Subtenant to perform Subtenant's obligations under this Sublease directly to Master Landlord, provided such performance directly to Master Landlord is reasonable under the circumstances and does not require Subtenant to incur additional costs or expenses greater than would be required if Subtenant were to perform such obligations to Sublandlord, Subtenant shall do so on Sublandlord's reasonable prior written election, in which event Subtenant shall send to Sublandlord from time to time copies of all notices and other communications that it shall send to and receive from Master Landlord with respect to the Subleased Premises. Subtenant may also perform Sublandlord's obligations as required hereunder with respect to the Subleased Premises if directed in writing by Master Landlord and thereafter shall be released of the obligation to perform such obligations to Sublandlord until directed in writing by Master Landlord.

9. Delivery. Sublandlord shall deliver the Subleased Premises to Subtenant with all personal property of Sublandlord removed and in broom clean condition, except for (i) the Office Equipment (defined below), and (ii) the personal property purchased by Subtenant from Sublandlord pursuant to that certain Asset Purchase Agreement dated September 16, 2016 between Sublandlord and Subtenant. Except as provided by the preceding sentence or as otherwise stated herein (or in the Asset Purchase Agreement), Sublandlord has made no representations, warranties or undertakings as to the present or future condition of the Subleased Premises or the fitness and availability of the Subleased Premises for any particular use. The acceptance of the Subleased Premises by Subtenant shall constitute an acknowledgment by Subtenant that the Subleased Premises are in the condition they are required to be in by this Sublease. Except as provided for in this Paragraph, Subtenant shall perform all work to make the Subleased Premises complete for Subtenant's use in Subtenant's discretion, subject to the provisions of Sections 7 and 12 of the Master Lease, as incorporated in this Sublease by reference including, without limitation, the requirement to obtain Sublandlord's and Master Landlord's prior written consent thereto. Subtenant agrees it shall be responsible for the costs in connection with the performance of such work, including without limitation, the costs to (i) divide and demise the Subleased Premises from the Premises, (ii) install doors, locks and/or card strikes (or similar apparatus) to provide Subtenant adequate access to and from the Subleased Premises to the Shared Space and the main entrance of the Building and (iii) install any other improvements to the Subleased Premises necessary for Subtenant's use, in Subtenant's discretion, including any other security measures or devices.

10. Shared Space; Shared Equipment. Subtenant shall have access to the Shared Space at all times as necessary in connection with Subtenant's operations under this Sublease to utilize that certain equipment described and depicted in Exhibit B, attached hereto and made a part hereof (the "**Shared Equipment**"), which Shared Equipment shall remain the personal property of Sublandlord, but shall be utilized by both Sublandlord and Subtenant, upon the terms and conditions contained herein.

a. **Shared Space**. Subtenant shall be permitted to access the Shared Space at all reasonable times to use the Shared Equipment in the manner set forth herein.

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b. **Shared Equipment** . Sublandlord and Subtenant shall each have the right to use the Shared Equipment in connection with each party's respective use under the Master Lease and Sublease.

c. **Interference and Use** . Sublandlord and Subtenant each agree that it will use the Shared Equipment in a manner that will not interfere with the use of the Shared Equipment by the other party.

d. **Maintenance** . Sublandlord and Subtenant each agree that it shall maintain and repair the Shared Equipment during the Term of this Sublease. In the event either Sublandlord or Subtenant determines that maintenance and/or repairs to the Shared Equipment are required, then it shall advise the other party in writing. Thereafter, the parties shall agree in writing that such maintenance and repairs are required and shall further agree in writing as to the cost of such repairs and maintenance. Each party agrees to reimburse to the other party, respectively, an amount equal to one-half (1/2) of the cost of such maintenance and repair actually paid within thirty (30) days after receipt of an invoice including all reasonable supporting documentation, provided such costs are previously approved by all parties in writing. Notwithstanding the foregoing, neither party shall have any obligation to reimburse the other party for any repair costs resulting from damage to the Shared Equipment caused by the negligent acts or omissions or intentional misconduct of the other party or its employees, officers, agents or contractors. In the event the Shared Equipment are damaged by the negligent acts or omissions or intentional misconduct of Sublandlord or Subtenant, then the party which caused such damage shall repair the Shared Equipment at its sole cost and expense within thirty (30) days after the date of such damage. In the event such party does not repair the Shared Equipment within such thirty (30) day period, then the other party (Sublandlord or Subtenant, as the case may be) may repair the Shared Equipment and the party which caused the damage shall reimburse to the other party, an amount equal to one hundred percent (100%) of the cost of such repair actually paid within thirty (30) days after receipt of an invoice including all reasonable supporting documentation.

e. **Indemnity** . Each party shall indemnify and hold the other harmless against any claim of liability or loss (including reasonable attorneys' fees and costs) from personal injury or property damage resulting from or arising out of the use and occupancy of the Shared Space or the Shared Equipment by the indemnifying party, its employees, officers, contractors, agents or invitees, excepting, however, such claims or damages as may be due to or caused by the acts or omissions of the other party, or its employees, officers, contractors, agents or invitees.

11. **Office Equipment** . Sublandlord and Subtenant acknowledge and agree that Sublandlord owns certain desks, chairs and related office equipment (the "**Office Equipment**"), which Office Equipment is located within the Subleased Premises and will be utilized by Subtenant throughout the Term of this Sublease. Such Office Equipment shall remain Sublandlord's personal property during the Term of this Sublease but will be made available to Subtenant, in its "as-is" condition, for Subtenant's use within the Subleased Premises. Subtenant shall have the obligation to maintain such Office Equipment in reasonably good condition at

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Subtenant's sole cost and expense. Upon expiration or earlier termination of this Sublease, Subtenant shall not be required to remove the Office Equipment, and shall surrender the same in good, clean condition, reasonable wear and tear excepted.

12. Removal. Upon expiration or earlier termination of this Sublease, Subtenant shall surrender the Subleased Premises in good, broom clean condition, reasonable wear and tear excepted in accordance with Section 28 of the Master Lease. Subtenant shall not be required to remove the Office Equipment or Shared Equipment or restore the Shared Space, which obligations shall be borne by Sublandlord in accordance with Section 28 of the Master Lease.

13. Insurance. The second full paragraph of Section 17 of the Master Lease is replaced and superseded by the following: Subtenant, at its sole cost and expense, shall maintain during the Term of this Sublease: (i) all risk property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Subleased Premises by Subtenant at Subtenant's expense; (ii) worker's compensation insurance with no less than the minimum limits required by law; (iii) employer's liability insurance with such limits as required by law; and (iv) commercial general liability insurance, with a minimum limit of not less than \$2,000,000 per occurrence for bodily injury and property damage with respect to the Subleased Premises. The commercial general liability insurance policy shall name Alexandria Real Estate Equities, Inc., Sublandlord and Master Landlord, its officers, directors, employees, managers, agents, invitees and contractors (collectively, "Master Landlord Parties"), as additional insureds; insure on an occurrence and not a claims' made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; shall not be cancelable for nonpayment of premium unless thirty (30) days prior written notice shall have been given to Sublandlord from the insurer; and provide primary coverage to Sublandlord (any policy issued to Sublandlord providing duplicate or similar coverage shall be deemed excess over Subtenant's policies). Copies of such policies (if requested by Sublandlord as an additional insured, along with reasonable evidence of the payment of premiums for the applicable period, additional insured, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Sublandlord by Subtenant on or prior to the Commencement Date, or the date that Subtenant accesses the Subleased Premises under this Sublease, and each renewal of said insurance. Subtenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Subtenant shall, at least 5 days prior to the expiration of such policies, furnish Sublandlord with renewal certificates.

14. Rules and Regulations. Subtenant shall abide by the Rules and Regulations from time to time established by Master Landlord under the Master Lease of which Subtenant receives prior written notice.

15. Notices. All notices which may or are required to be given by either party to the other under this Sublease shall be in writing and shall be personally delivered or sent by recognized commercial delivery service providing for next day delivery and a return receipt, charges prepaid, in each case addressed to the addresses of Sublandlord and Subtenant as set

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forth above or such other address as either party may indicate by advanced written notice to the other party given as provided herein. Any such notice shall be deemed or received upon the earliest of actual delivery or receipt or refusal of delivery, as evidenced by the return receipt, if sent by one of the methods described above providing for a return receipt.

16. Recording. Unless otherwise approved by Sublandlord and Master Landlord, in the event that this Sublease or a copy hereof or any notice hereof shall be recorded by Subtenant, then such recording shall constitute a default by Subtenant entitling Sublandlord to immediately terminate this Sublease, without notice or opportunity to cure such default.

17. Brokers. Each party represents to the other that it has not dealt with any real estate broker, finder or other person with respect to this Sublease in any manner. Each party shall hold harmless the other party from all damages resulting from any claims that may be asserted against the other party by any broker, finder or other person with whom the indemnifying party has or purportedly has dealt.

18. Subject to Master Lease. This Sublease is subject and subordinate to the Master Lease. Subtenant shall not permit any violation of any of the provisions of the Master Lease. A true and complete copy of the Master Lease is attached hereto as Exhibit C. If the Master Lease terminates, this Sublease shall terminate, subject to Section 19 below, and the parties shall be relieved from all liabilities and obligations under this Sublease, except that if this Sublease terminates as a result of a default of one of the parties under this Sublease or the Master Lease or both, the defaulting party shall be liable to the non-defaulting party for all damage suffered by the non-defaulting party as a result of termination. In the event of casualty or condemnation, Sublandlord may exercise any right to terminate the Master Lease without regard to this Sublease, and in the event of such a termination, Subtenant shall have no recourse against Sublandlord with respect to such termination. Sublandlord shall not terminate the Master Lease prior to the expiration of its term without providing Subtenant at least thirty (30) days prior written notice of termination. In the event Sublandlord receives any notice of failure to pay or failure to perform any covenant, agreement or obligation under the Master Lease, Sublandlord shall notify Subtenant of such notice as soon as the notice is received by Sublandlord pursuant to the terms of the Master Lease and Subtenant may take any such actions to cure any such failure under the Master Lease. Subtenant shall be under no obligation to take such action but may do so solely at its own discretion. In the event Subtenant pays any amount or performs any obligations on behalf of Sublandlord pursuant to the terms of the Master Lease, Subtenant may deduct such amounts paid from the amount that would otherwise be due from Subtenant to Sublandlord pursuant to this Sublease.

19. Certain rights of Master Landlord and Subtenant.

(a) Master Landlord shall have no liability to Subtenant under the Master Lease or this Sublease, and neither the Master Lease nor this Sublease shall be deemed to grant Subtenant any rights against Master Landlord.

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(b) In the event of Master Lease Termination (as hereinafter defined) during the Sublease term, Subtenant shall, at Subtenant's option to be exercised in Subtenant's sole discretion, attorn to Master Landlord and recognize Master Landlord as Subtenant's landlord under the Master Lease upon the terms and conditions and at the rent specified in the Master Lease to lease the Premises for the then remaining term of the Master Lease and to pay a security deposit to Master Landlord as required by and in accordance with the Master Lease, provided, however, as a condition precedent to Subtenant being required to subordinate its interest in this Sublease and attorn to Master Landlord under the Master Lease, Master Landlord and Subtenant shall execute a non-disturbance and attornment agreement in a form reasonably satisfactory to Master Landlord and Subtenant, which shall recognize Subtenant's right to remain in occupancy of and have access to the Premises as long as Subtenant is not in default of the Master Lease beyond applicable notice and cure periods. Alternatively, if Subtenant does not exercise such option to attorn to Master Landlord under the terms and conditions of the Master Lease and at the rent specified in the Master Lease to lease the Premises as stated above, Master Landlord and Subtenant shall negotiate in good faith to enter into a new lease agreement upon terms and conditions mutually agreeable to Master Landlord and Subtenant. If Subtenant shall attorn to Master Landlord as provided herein, Subtenant agrees to execute and deliver from time to time upon request of Master Landlord any commercially reasonable instruments which may be necessary or appropriate to evidence such attornment. Master Landlord shall not (i) be liable to Subtenant for any act, omission or breach of this Sublease by Sublandlord, provided that Master Landlord shall be obligated to cure defaults of a continuing nature, (ii) be subject to any offsets or defenses which Subtenant might have against Sublandlord, (iii) be bound by any Base Rent or Additional Rent which Subtenant might have paid in advance to Sublandlord unless actually received by Master Landlord, or (iv) be bound to honor any rights of Subtenant in any security deposit made with Sublandlord except to the extent Sublandlord has turned over such security deposit to Master Landlord. If Master Landlord and Subtenant mutually do not elect to have Subtenant attorn to Master Landlord either under the Master Lease or upon a new agreement mutually acceptable to Master Landlord and Subtenant, this Sublease shall terminate on the date of Master Lease Termination. "Master Lease Termination" means any event, voluntary or involuntary or by operation of law, which causes the Master Lease to terminate prior to the end of its stated term. In the event of an attornment hereunder, Master Landlord's liability shall be limited to matters arising after such attornment, and shall in all events be limited to the interest of Master Landlord in the property of which the Premises constitutes a part (which interest shall include all rents and profits, insurance proceeds and condemnation awards thereof).

(c) In addition to Master Landlord's rights under paragraph (b) hereof, in the event Sublandlord is in default under the Master Lease, Master Landlord may elect to receive directly from Subtenant all sums due or payable to Sublandlord by Subtenant pursuant to this Sublease, and upon receipt of Master Landlord's notice, Subtenant shall thereafter pay to Master Landlord any and all sums becoming due or payable under this Sublease. In complying with such direction from Master Landlord, Subtenant shall be entitled to rely solely on such notice from Master Landlord and Sublandlord agrees that Subtenant shall be entitled to full credit under the Sublease for any rents paid to Master Landlord in accordance with the provisions of this Section to the same extent as if such rents were paid directly to Sublandlord. The consent and approval of Sublandlord to this Sublease shall constitute an authorization for Subtenant to make such

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payments to Master Landlord following receipt of such notice and a release and discharge of all liability to Sublandlord for any such payments made to Master Landlord in accordance with this Section. Neither the service of such written notice nor the receipt of such direct payments shall cause Master Landlord to assume any of Sublandlord's duties, obligations and/or liabilities under this Sublease, nor shall such event impose upon Master Landlord the duty or obligation to honor this Sublease, nor subsequently to accept Subtenant's attornment pursuant to paragraph(b) hereof.

20. Consequential Damages. Notwithstanding any provision to the contrary contained in this Sublease, under no circumstances shall either party be liable to the other for any injury or damage to, or interference with, the others business, including loss of profits, loss of rents or other revenues, loss of business opportunity, loss of goodwill or loss of use, or for any form of special or consequential damage, though nothing in this Section 20 shall limit or reduce the amount of damages to which Sublandlord is expressly entitled under Section 21 of the Master Lease (as incorporated herein and as applicable to Subtenant defaults) for any Subtenant default .

21. Execution. Each individual executing this Sublease on behalf of Sublandlord or Subtenant represents and warrants that he or she has been duly authorized to do so.

22. Modification; Successors and Assigns. This Sublease may only be modified or amended by written agreement executed by each of the parties and consented to by Master Landlord subject to the limitations on transfer provided for by this Sublease. This Sublease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

23. Assignment and Subletting. Subtenant shall not assign this Sublease in whole or in part or sublet the Subleased Premises in whole or in part without the prior written consent of Sublandlord, which may be withheld or conditioned by Sublandlord in Sublandlord's sole and absolute discretion. No such sublease or assignment shall be effective without the consent of Master Landlord under the Master Lease. If, as to any sublease or assignment for which consent is necessary, Subtenant receives rent or other consideration in excess of the Base Rent and Additional Rent payable under this Sublease, Subtenant shall pay to Sublandlord all of such excess, after deducting Subtenant's reasonable legal and brokerage and fit-up expenses paid for by Subtenant at the time of such subleasing or assignment. Amounts received by Sublandlord under the immediately preceding sentence shall, after deducting Sublandlord's reasonable legal expenses incurred in connection therewith, be divided evenly between Master Landlord and Sublandlord. If Sublandlord and Master Landlord consent to any such assignment or subletting, Subtenant shall remain fully and primarily liable to Sublandlord, in all respects, under this Sublease.

Notwithstanding the foregoing, Sublandlord's prior written consent shall not be required in connection with an assignment, sublease, transfer and/or use of all or a portion of the Subleased Premises (a "Subtenant Transfer") by Subtenant to, or by, any entity controlling, controlled by or under common control with Subtenant, or to, or by, any corporation or other entity which is a successor-in-interest to Subtenant by way of merger, consolidation or corporate

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reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Subtenant; provided that, the terms of this sentence shall not affect or modify the requirement that Subtenant obtain Master Landlord's prior written consent to all assignments, sublets and Subtenant Transfers.

24. Defined Terms. Capitalized terms used herein and not otherwise defined shall have the meaning ascribed to such terms in the Master Lease.

[Signatures appear on the following page.]

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EXECUTED as an instrument under seal as of the day and year first set forth above.

SUBLANDLORD:

**METABOLIX, INC. ,**  
a Delaware corporation

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

SUBTENANT:

**CJ RESEARCH CENTER LLC**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

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EXHIBIT A

See attached.

EXHIBIT B  
Shared Equipment

EXHIBIT C

Master Lease

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Forms S-8 (Nos. 333-138631, 333-145232, 333-155115, 333-157869, 333-165405, 333-172724, 333-181268, 333-187589, 333-194858, 333-194859, and 333-202983) of Yield10 Bioscience, Inc. (formerly known as Metabolix, Inc.) of our report dated March 29, 2016, except for the effects of discontinued operations discussed in Note 15 to the consolidated financial statements as to which the date is March 30, 2017, relating to the financial statements, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts  
March 30, 2017



CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on S-8 (Nos. 333-138631, 333-145232, 333-155115, 333-157869, 333-165405, 333-172724, 333-181268, 333-187589, 333-194858, 333-194859, and 333-202983) of Yield10 Bioscience, Inc. of our report dated March 30, 2017, relating to our audit of the consolidated financial statements for the year ending December 31, 2016 of Yield10 Bioscience, Inc. (which report expresses an unqualified opinion and includes an explanatory paragraph relating to the company's ability to continue as a going concern), which appears in this Annual Report on Form 10-K of Yield10 Bioscience, Inc. for the year ending December 31, 2016.

/s/ RSM US LLP

Boston, Massachusetts  
March 30, 2017

## CERTIFICATIONS

I, Oliver P. Peoples certify that:

1. I have reviewed this annual report on Form 10-K of Yield10 Bioscience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 30, 2017

/s/ OLIVER P. PEOPLES

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Name: Oliver P. Peoples  
*President and Chief Executive Officer*  
Title: *(Principal Executive Officer)*

## CERTIFICATIONS

I, Charles B. Haaser, certify that:

1. I have reviewed this annual report on Form 10-K of Yield10 Bioscience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 30, 2017

/s/ CHARLES B. HAASER

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Name: Charles B. Haaser  
*Chief Accounting Officer*  
 Title: *(Principal Financial and Accounting Officer)*

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

In connection with the annual report on Form 10-K of Yield10 Bioscience, Inc. (the "Company") for the year ended December 31, 2016 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Oliver P. Peoples, President, Chief Executive Officer and Principal Executive Officer of the Company and Charles B. Haaser, Chief Accounting Officer and Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to my knowledge that:

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

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

YIELD10 BIOSCIENCE, INC.

Date: March 30, 2017

By: /s/ OLIVER P. PEOPLES

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Oliver P. Peoples  
*President and Chief Executive Officer (Principal Executive Officer)*

Date: March 30, 2017

By: /s/ CHARLES B. HAASER

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Charles B. Haaser  
*Chief Accounting Officer (Principal Financial and Accounting Officer)*