MARRONE BIO INNOVATIONS INC
Form 10-K
April 03, 2017

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

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
For the transition period from to

Commission File Number: 001-36030

Marrone Bio Innovations, Inc.

(Exact name of registrant as specified in its charter)

Delaware	20-5137161
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1540 Drew Avenue, Davis, California 95618

(Address of principal executive offices and zip code)

(530) 750-2800

(Registrant’s telephone number, including area code)

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

Class	Exchange on which registered
Common Stock, $0.00001 par value	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 Web site, 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 or Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of the 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.

Large accelerated filer	Accelerated filer
Non-accelerated filer (Do not check if a smaller reporting company)	Smaller reporting company

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

As of June 30, 2016, the last day of the registrant's most recently completed second quarter, the aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates was $15,449,219 based upon the closing price of the common stock as reported on the Nasdaq Global Market. This calculation excludes the shares of common stock held by each officer, director and holder of 5% or more of the outstanding common stock as of June 30, 2016. This calculation does not reflect a determination that such persons are affiliates for any other purposes.

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Shares Outstanding at March 27, 2017
Common Stock, $0.00001 par value	24,766,703

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for its 2017 Annual Meeting of Stockholders are incorporated by reference in Part III of this Annual Report on Form 10-K where indicated. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2016.

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Special Note Regarding Forward-Looking Statements and Trade Names

This Annual Report on Form 10-K includes a number of forward-looking statements that involve many risks and uncertainties. Forward-looking statements may be identified by the use of the words “would”, “could”, “will”, “may”, “expect” “believe”, “should”, “anticipate”, “outlook”, “if”, “future”, “intend”, “plan”, “estimate”, “predict”, “potential”, “targets”, “seek similar words and phrases, including the negatives of these terms, or other variations of these terms, that denote future events. These forward-looking statements include: our plans to target our existing products or product variations for new markets and for new uses and applications; our plans and expectations with respect to growth in sales of our product lines and with respect to Bio-Tam 2.0; our ability and plans to develop, register and commercialize additional new product candidates and bring new products to market across multiple categories faster and at a lower cost than other developers of pest management products, including research, development and field trial plans; our expectations regarding registering new products and new formulations and expanded use labels for existing products, including submitting new products to the EPA; our belief that challenges facing the use of conventional chemical pesticides will continue to grow; our beliefs regarding the growth of markets for, and unmet demand for, bio-based products; our beliefs regarding market adoption of our products and our ability to compete in our target markets; our intention to maintain existing, and develop new, supply, sales and distribution channels and extend market access; expectations regarding potential future payments under strategic collaboration and development agreements; our plans and expectations relating to our debt agreements; management’s belief regarding our access to capital resources through equity offerings, debt financings, strategic collaborations or other means; our plans to grow our business while improving efficiency, including by focusing on a limited number of product candidates, taking measures to reduce expenses and expanding our sales and marketing team; our plans and expectations with respect to manufacturing and production; our plans to seek third-party collaborations to develop and commercialize more early stage product candidates; our intention to continue to devote significant resources toward our proprietary technology and research and development; our expectations that sales will be seasonal and the impact of continued drought and other weather-related conditions; our ability to protect our intellectual property in the United States and abroad; our beliefs regarding the effects of the outcome of certain legal matters; our anticipated impact of certain accounting pronouncements; our ability to use carryforwards; our expectations regarding market risk, including interest rate changes, foreign currency fluctuations and commodity price changes; our expectations with respect to future regulatory restrictions on competing products or product ingredients and our future expenditures, available cash and other financial and operating results. These statements reflect our current views with respect to future events and our potential financial performance and are subject to risks and uncertainties that could cause our actual results and financial position to differ materially and adversely from what is projected or implied in any forward-looking statements included in this Annual Report on Form 10-K. These factors include, but are not limited to, the risks described under Part I–Item 1A—“Risk Factors,” Part II–Item 7—“Management’s Discussion and Analysis of Financial Condition and Results of Operations,” elsewhere in this Annual Report on Form 10-K and those discussed in other documents we file with the U.S. Securities and Exchange Commission (“SEC”). We make these forward-looking statements based upon information available on the date of this Annual Report on Form 10-K, and we have no obligation (and expressly disclaim any such obligation) to update or alter any forward-looking statements, whether as a result of new information or otherwise except as otherwise required by securities regulations.

As used herein, “MBI”, the “Company”, “we”, “our” and similar terms refer to Marrone Bio Innovations, Inc., unless the context indicates otherwise.

Except as context otherwise requires, references in this Annual Report on Form 10-K to our product lines, such as Regalia, refer collectively to all formulations of the respective product line, such as Regalia Maxx, Regalia Rx or Regalia SC, and all trade names under which our distributors sell such product lines internationally, such as Sakalia, Sentry R or Milsana. Our logos, Grandevo®, Regalia®, Venerate®, Zequanox®, Haven™, Majestene® and other trade names, trademarks or service marks of Marrone Bio Innovations, Inc. appearing herein are the property of Marrone Bio Innovations, Inc. This Annual Report on Form 10-K contains additional trade names, trademarks and service marks of other companies, such as Bio-Tam® 2.0. We do not intend our use or display of other companies’ trade names, trademarks or service marks to imply relationships with, or endorsement or sponsorship of us by, these other

companies.

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PART I

ITEM 1. BUSINESS

We make bio-based pest management and plant health products. Bio-based products are comprised of naturally occurring microorganisms, such as bacteria and fungi, and plant extracts. Our current products target the major markets that use conventional chemical pesticides, including certain agricultural and water markets, where our bio-based products are used as alternatives for, or mixed with, conventional chemical products. We also target new markets for which (i) there are no available conventional chemical pesticides or (ii) the use of conventional chemical pesticides may not be desirable or permissible either because of health and environmental concerns (including for organically certified crops) or because the development of pest resistance has reduced the efficacy of conventional chemical pesticides. All of our current products are approved by the United States Environmental Protection Agency ("EPA") and registered as "biopesticides." We expect our future products will include plant health products qualified as "biostimulants," which may require state registrations, but do not require EPA registration. We believe our current portfolio of products and our pipeline address the growing global demand for effective, efficient and environmentally responsible products to control pests, increase crop yields and reduce crop stress.

We primarily sell our products to the crop protection market. Our four commercially available crop protection product lines are Regalia, for controlling plant disease and increasing plant health, Grandevo and Venerate, for insect and mite control, and Majestene, for nematode control. These products can be used in both conventional and organic crop production, and are sold to growers of specialty crops such as grapes, citrus, tomatoes, vegetables, nuts, leafy greens and ornamental plants. We have had some sales of Regalia for large-acre row crops such as corn and soybeans. In March 2016, we also entered into an agreement with Isagro USA to distribute Bio-Tam 2.0 for soil-borne disease control and grapevine trunk disease control, which complements our existing products, particularly Regalia, and in March 2017, we launched Haven, a plant health product that reduces plant stress in drought and intense sunlight. In addition, we have developed Zequanox, a commercially available product line that we sell to the water treatment market. Zequanox selectively controls invasive mussels that cause significant infrastructure and ecological damage across a broad range of in-pipe and open-water applications, including hydroelectric and thermoelectric power generation, industrial applications and recreation. We believe that our existing crop protection and plant health products, or variations thereof, can also be specifically targeted for industrial and institutional, turf and ornamental, home and garden and animal health uses such as controlling grubs, ants, flies and mosquitoes in and around schools, parks, golf courses and other public-use areas.

We have implemented a prioritization plan that focuses our resources on continuing to improve and promote our commercially available products, advancing product candidates that are expected to have the greatest impact on near-term growth potential and expanding our international presence and commercialization. Our goal has been to reduce expenses, conserve cash and improve operating efficiencies, to extract greater value from our products and product pipeline and to improve our communication to and connection with the global sustainability movement that is core to our cultural values.

In connection with this strategy, we have significantly reduced overall headcount, while building a new sales and marketing organization with increased training and ability to educate and support customers in specialty crop markets, as well as providing our product development staff with greater responsibility for technical sales support, field-trials and demonstrations to promote sales growth. For markets other than high-value specialty crops, such as row crops and seed treatments, we are seeking to expand our network of distribution partners, focusing on regional and national distributors operating in countries that present a significant opportunity for near-term revenue generation. In addition, our research and development efforts are now focused on supporting existing commercial products with a focus on reducing cost of product revenues, further understanding the modes of action, manufacturing support and improving formulations. Accordingly, while we believe that we have developed a robust pipeline of novel product candidates, we are currently limiting our internal development efforts to three product candidates (having recently launched our MBI-505 product candidate as Haven): MBI-010, a bioherbicide that is based on the same microorganism in Venerate

and Majestene, which we plan to submit to the EPA in 2017; MBI-110, a biofungicide, which we submitted to the EPA in January 2016; and MBI-601, a biopesticide that produces gaseous natural compounds that function as a "biofumigant," which was approved by the EPA in November 2016. Simultaneously, we are seeking collaborations with third parties to develop and commercialize more early stage candidates on which we have elected not to expend significant internal resources.

We believe that, collectively, these measures will best position us to respond to the business challenges reflected in our financial results for recent periods, but our long-term, global vision for our business and our commitment to that vision remains fundamentally unchanged.

Industry Overview

Pest management and plant health is an important global industry. Phillips McDougall, an independent advisory firm, estimates the 2015 agrichemical market (crop protection) at $51.8 billion, falling 8.5% from 2014, with Latin America ranking first at $14.5 billion in sales, followed by Asia at $14.1 billion, Europe at $11.7 billion and the NAFTA region at $9.4 billion. The total agrichemical market including non-crop pesticides fell by 8% to $58.2 billion. Non-crop pesticides fell by 3.2% to $6.3 billion. Most of the markets we currently target or plan to target primarily rely on conventional chemical pesticides, plant growth regulators and plant health products, supplemented in certain agricultural markets by the use of genetically modified crops. Conventional chemical pesticides are generally synthetic materials that directly kill or inactivate pests. Some chemicals can also increase or regulate plant growth and have other plant health effects in absence of pests and plant diseases

However, demand for effective and environmentally responsible bio-based products continues to increase. The global market for biopesticides, which control pests by non-toxic mechanisms such as attracting pests to traps or interfering with their ability to digest food, was valued at $3.7 billion in 2015 and has been projected to grow to $7.7 billion in 2021, reflecting a 14.1% compound annual growth rate of over the period, according to BCC Research, an independent market research firm. In addition, Zion Market Research estimates the market for biostimulants, which can increase plant growth, quality and yield, at approximately $1.6 billion in 2015, with expectations to reach $2.9 billion in 2021, reflecting a compound annual growth rate of 10.2%. In comparison, BCC Research projects only a 4.8% compound annual growth rate for the global synthetic pesticide market over the same period. We believe these trends will continue as the benefits of using bio-based pest management and plant health products become more widely known.

Crop Protection

Conventional Production. Growers are constantly challenged to supply the escalating global demand for food, while reducing the negative impact of crop protection practices on consumers, farm workers and the environment. The dominant technologies for crop protection are conventional chemical pesticides and genetically modified crops. Major agrichemical companies have invested billions of dollars to develop genetically modified crops that resist pests or have high tolerance to conventional chemical pesticides. The market for genetically modified crops was estimated at $21.0 billion in 2014, according to Phillips McDougall. In addition, according to the International Service for the Acquisition of Agri-biotech Applications, a third-party not-for-profit organization, in 2014, 182 million hectares (484 million acres) were planted with genetically modified crops in 28 countries, with the United States, Brazil, Argentina, India and Canada planting the most (in that order). Soybean, corn, cotton and canola plantings have made the greatest inroads, accounting for 50%, 30%, 14% and 9%, respectively, of genetically modified seeds planted globally.

Conventional chemical pesticides and genetically modified crops have historically been effective in controlling pests. However, there are increasing challenges facing the use of conventional chemical pesticides such as pest resistance and environmental, consumer and worker safety concerns. Governmental agencies are further pressuring growers, distributors and manufacturers by restricting or banning certain forms of conventional chemical pesticide usage, particularly in the European Union, as some conventional chemical pesticide products are being phased out, as well as at local levels, where many city and county governments have prohibited the sale of certain conventional chemical pesticide products, magnifying the complexity of agrichemical companies' distribution and regulatory compliance. At the same time, a number of supermarket chains, food processors and key purchasers of specialty fruits, nuts and vegetables are imposing synthetic chemical residue restrictions, limiting options available to growers close to harvest. Consumers, scientists and environmental groups have also voiced concerns about the unintended effects of genetically modified crops, including pest resistance and contamination of non-genetically modified crops. In response to

consumer and environmental group concerns and restrictions by importing countries, several large-scale food purchasers have demanded that their contracted growers supply them only non-genetically modified crops.

These factors are significant market drivers for conventional producers, and their impact is continuing to grow. An increasing number of growers are implementing integrated pest management ("IPM") programs that, among other things, combine bio-based pest management products and crop cultivating practices and techniques such as crop rotation, with conventional chemical pesticides and genetically modified crops. Bio-based pest management products are becoming a larger component of IPM programs due in part to the challenges associated with conventional chemical pesticides and genetically modified crops.

Organic Production. Certified organic crops such as food, cotton and ornamental plants, are produced without the use of synthetic chemicals, genetic modification or any other bioengineering or adulteration. As such, organic growers are limited in the number of alternatives for pest management. The U.S. Department of Agriculture, or the USDA, approved national production and labeling standards for organic food marketed in the United States in late 2000. These standards have contributed to the growth of organic food consumption in the United States, and other countries have implemented similar programs. According to the Organic Trade Association, a business association, consumer demand for organic food has outpaced the available acreage in the United States, with $1.4 billion of organic food imported in 2013 and $43.3 billion of domestic organic sales in 2015, or nearly 5% of all food sales, up 11% over 2014. Organic fruits and vegetables comprised $14.4 billion in 2015, up 10.5% from 2014. In addition, U.S. sales of non-GMO-labeled foods were estimated at $8.5 billion across 2,100 brands and 22,000 verified items in 2014, according to SPINS, a third party consulting firm. Globally, organic food sales reached $80.0 billion in 2014, with 43.7 million hectares planted, according to a study by the Research Institute of Organic Agriculture performed on behalf of the International Foundation for Organic Agriculture. We believe this growing demand is primarily driven by concerns about food safety and the adverse environmental effects of conventional chemical pesticides and genetically modified crops.

Water Treatment

Global demand for water treatment products was estimated to be $48.0 billion in 2012, according to The Freedonia Group, an independent market research firm, and the global market for specialty biocide chemicals for water treatment was projected to be $5.2 billion in 2013, according to BCC Research. Invasive and native pest species are increasingly a concern in diverse applications such as hydroelectric and thermoelectric power generation, industrial applications, drinking water, aquaculture, irrigation and recreation. However, discharge of water treatment chemicals to target these pests is highly regulated, and in many cases, such as with management of open waters and sensitive environmental habitats, use of conventional chemicals is prohibited.

One particular area of concern has been the damage caused by invasive zebra and quagga mussels, which clog pipes, disrupt ecosystems, encrust infrastructure and blanket beaches with razor-sharp shells. These species initially infested the Great Lakes region and have spread across the United States. Industry reports estimate that these mussels cause approximately $1.0 billion in damage and associated control costs annually in parts of the United States alone. There are limited treatment options available, many of which are toxic to aquatic flora and fauna. To date, most treatment options have been focused either on manual removal of the mussels, which is time consuming and costly, or conventional chemical treatments, which potentially jeopardize the environment and are thus heavily controlled by regulatory agencies.

The water treatment market also includes products to control algae, aquatic weeds and unwanted microorganisms. For example, one of the most effective and popular methods for controlling algae and unwanted microorganisms is chlorination. One of the major concerns in using chlorination in surface water supplies is that chlorine combines with various organic compounds to form by-products, some of which are considered possible carcinogens.

Other Target Markets

We are also taking steps through strategic collaborations to commercialize our existing crop protection products, or variations thereof, for other markets. Although conventional chemical pesticides have traditionally serviced the

industrial and institutional, professional turf and ornamental, home and garden and animal health markets, governmental regulations are restricting their use, and reports indicate that end users increasingly value environmentally friendly products, with some households willing to forego pest control treatments entirely if alternatives to conventional chemical pesticides are not available.

Benefits of Bio-Based Pest Management and Plant Health Products

While conventional chemical pesticides are often effective in controlling pests, some of these chemicals are acutely toxic, some are suspected carcinogens and some can have other harmful effects on the environment and other animals. Health and environmental concerns have prompted stricter legislation around the use of conventional chemical pesticides, particularly in Europe, where the use of some highly toxic or endocrine-disrupting chemical pesticides is banned or severely limited and the importation of produce is subject to strict regulatory standards on pesticide residues. In addition, the European Union has passed the Sustainable Use Directive, which requires EU-member countries to reduce the use of conventional chemical pesticides and to use alternative pest management methods, including bio-based pest management products. Over the past two decades, U.S. regulatory agencies have also developed stricter standards and regulations. Furthermore, a growing shift in consumer preference towards organic and sustainable food production has led many large, global food retailers to require their supply chains to implement these practices, including the use of bio-based pest management and fertilizer solutions, water and energy efficiency practices and localized food product sourcing.

Aside from the health and environmental concerns, conventional chemical pesticide users face additional challenges such as pest resistance and reduced worker productivity as workers may not return to the fields for a certain period of time after treatment. Similar risks and hazards are also prevalent in the water treatment market, as chlorine and other chemicals used to control invasive water pests contaminate and endanger natural waterways. Costs of using conventional chemical pesticides are also increasing due to a number of factors, including raw materials costs, stringent regulatory requirements and pest resistance to conventional chemical pesticides, which requires increasing application rates or the use of more expensive alternative products.

As the cost of conventional chemical pesticides increases, the use of conventional chemical pesticides and genetically modified crops meets increased opposition from government agencies and consumers and the efficacy of bio-based pest management and plant health products becomes more widely recognized among growers, bio-based pest management products are gaining popularity and represent a strong growth sector within the market for pest management technologies. Growers are increasingly incorporating bio-based pest management products into IPM programs, and bio-based pest management products help create the type of sustainable agriculture programs that growers and food companies increasingly emphasize.

Bio-based pest management products include biopesticides, as well as minerals such as copper and sulfur. The EPA registers biopesticides in two major categories: (i) microbial pesticides, which contain a microorganism such as a bacterium or fungus as the active ingredient and (ii) biochemical pesticides, which are naturally occurring substances such as insect sex pheromones, certain plant extracts and fatty acids. Biostimulants, which are not registered by the EPA absent additional pest control usages, are microorganisms or natural substances derived from microorganisms or plants that growers use to reduce plant stress, stimulate plant physiology to increase yield, manage pest resistance and reduce chemical residues.

We believe many bio-based pest management products perform as well as or better than conventional chemical pesticides. When used in rotation or in spray tank mixtures with conventional chemical pesticides, bio-based pest management products can increase crop yields and quality over chemical-only programs. Agricultural industry reports, as well as our own research, indicate that bio-based pest management products can affect plant physiology and morphology in ways that may improve crop yield and can increase the efficacy of conventional chemical pesticides. In addition, pests rarely develop resistance to bio-based pest management products due to their complex modes of action. Likewise, bio-based pest management products have been shown to extend the product life of conventional chemical pesticides and limit the development of pest resistance, a key issue facing users of conventional chemical pesticides, by eliminating pests that survive conventional chemical pesticide treatments. Most bio-based pest management products are listed for use in organic farming, providing those growers with compelling pest control options to protect yields and quality. Given their generally lower toxicity compared with many conventional chemical pesticides, bio-based pest management products can add flexibility to harvest timing and worker re-entry times and

can improve worker safety. Many bio-based pest management products are also exempt from conventional chemical residue tolerances, which are permissible levels of chemical residue at the time of harvest set by governmental agencies. Bio-based pest management products may not be subject to restrictions by food retailers and governmental agencies limiting chemical residues on produce, which enables growers to export to wider markets.

In addition to performance attributes, bio-based pest management products registered with the EPA as biopesticides can offer other advantages over conventional chemical pesticides. From an environmental perspective, biopesticides have low toxicity, posing low risk to most non-target organisms, including humans, other mammals, birds, fish and beneficial insects. Biopesticides are biodegradable, resulting in less risk to surface water and groundwater and generally have low air-polluting volatile organic compound content. Because biopesticides tend to pose fewer risks than conventional pesticides, the EPA offers a more streamlined registration process for these products, which generally requires significantly less toxicological and environmental data and a lower registration fee. As a result, both the time and money required to bring a new product to market are reduced.

Our Solution

We produce bio-based pest management and plant health products that are effective and generally designed to be compatible with existing pest control equipment and infrastructure. This allows them to be used as alternatives for, or mixed with, conventional chemical pesticides, as well as in markets for which there are no available conventional chemical pesticides or the use of conventional chemical products may not be desirable or permissible because of health and environmental concerns. We believe that compared with conventional chemical pesticides, our products:

- can be competitive in both price and efficacy;
- provide viable alternatives where conventional chemical pesticides and genetically modified crops are subject to regulatory restrictions;
- comply with market-imposed requirements for pest management programs by food processors and retailers;
- are environmentally friendly;
- meet stringent organic farming requirements;
- improve worker productivity by shortening field re-entry times after spraying and allowing spraying up to the time of harvest;
- are exempt from residue restrictions applicable to conventional chemical pesticides in both the agriculture and water markets; and
- are less likely to result in the development of pest resistance.

In addition, our experience has shown that when our products are mixed with conventional chemical pesticides, they can:

- increase the effectiveness of conventional chemical pesticides while reducing their required application levels;
- increase levels of pest control and consistency of control;
- increase crop yields;
- increase crop quality, including producing crops with higher levels of protein, better taste and color and more attractive flowers; and
- delay the development of pest resistance to conventional chemical pesticides.

We believe that the benefits of our products will encourage sustained adoption by end users. For example, we have seen that growers that have used our products on a trial basis in one year have generally continued to use our products in higher levels in subsequent years.

Our Competitive Strengths

Focus on Bio-Based Products

Our belief in and commitment to our vision is our greatest strength. We believe that the world needs more organic and sustainable products and practices, and our goal is to champion that cause. Our experience has shown that by using bio-based pest management and plant health products, growers can benefit the environment and produce more healthy food while improving yields. However, bio-based products have application methods and modes of action that differ fundamentally from conventional chemical products. While major agrichemical companies sell bio-based products, we do not believe that those companies have sufficiently prioritized bio-based products or invested in the internal and external education that is essential to successfully promote these products, and those companies are often conflicted when marketing both conventional chemical products and bio-based products. In contrast, we believe MBI has long been recognized as a thought leader in the bio-based product industry, and we have consistently sought to educate growers in the use and benefits of these products, both alone and mixed with conventional chemical products. We believe our drive to convert acres to these sustainable practices will make us disruptive.

Commercially Available Products

We have six commercially available product lines: Regalia, Grandevo, Venerate, Majestene, Haven and Zequanox. All six of these product lines are EPA approved, except Haven, which as a biostimulant is exempt from EPA registration. Regalia is also approved in Canada, ten Latin American countries (including Mexico, Brazil and Chile), South Africa, Turkey and Morocco. As of May 2016, Grandevo and Venerate are also registered in Mexico. Zequanox is approved in Canada for hydropower facilities, with a label expansion to other industrial and open water uses pending, and is the only product EPA-approved for open water application other than copper, which is rarely used due to its negative environmental effects and uneven efficacy in open water applications. All five of these commercialized lines are subject to patents and trade secrets related to the work we have done to characterize, formulate, develop and manufacture marketable products. In March 2016, we entered into an agreement with Isagro USA to distribute Bio-Tam 2.0, an EPA-approved biofungicide that complements our existing product lines, particularly Regalia. We believe these product lines, along with our other EPA-approved and EPA-submitted products and other pipeline product candidates, provide us with the foundation for continuing to build the leading portfolio of bio-based pest management and plant health products.

Robust Pipeline of Novel Product Candidates

Our pipeline of early-stage discoveries and new product candidates extends across a variety of product types for different end markets, including herbicides, fungicides, nematicides, insecticides, algaecides (for algae control), molluscicides (for mussel and snail control) and plant growth and plant stress regulators. Our product candidates are developed both internally and sourced from third parties. Our research and development process enables us to discover, source and develop multiple products in parallel, which keeps our pipeline robust. We are developing the microorganism in Venerate and Majestene, a Burkholderia rinojensis bacterium that we isolated using our discovery process, as MBI-010, a bioherbicide. We also have additional product candidates at various other stages of development, including MBI-601, a fungus that produces volatile compounds and works as a soil biofumigant, which was approved by the EPA in November 2016 and MBI-110, a new Bacillus-based fungicide, that has demonstrated activity against downy mildew, Sclerotinia and other crop diseases, which we submitted to the EPA in January 2016. In August 2014, we received EPA approval of MBI-011, a weed-controlling biochemical, sarmentine, discovered and isolated from a pepper plant species, and we are currently pursuing third-party manufacturers to synthesize a “natural identical” Sarmentine compound at a cost that would allow us to introduce the product to the market in the future.

Rapid and Efficient Development Process

We believe we can develop and commercialize novel and effective products faster and at a lower cost than many other developers of pest management products. For example, we have moved each of Regalia, Grandevo, Venerate, Majestene, Haven and Zequanox through development, EPA approval and first U.S. launch in approximately four years or less at a cost of $3.0 million to $6.0 million. Thereafter, we have continued to develop and refine these products, producing new formulations, applying for expanded use labels and seeking new markets, in each case at a

cost of less than $10.0 million per product line. In comparison, a report from Phillips McDougall shows that the average cost for major agrichemical companies to bring a new crop protection product to market has been over $280.0 million, and these products have historically taken an average of eleven years to move through development, regulatory approval and market launch.

Proprietary Discovery Process

Our discovery process allows us to efficiently discover microorganisms and plant extracts that produce or contain compounds that display a high level of pesticidal activity against various pests and target specific unmet market needs. After we identify pesticidal activity, we subject the microorganisms and plant extracts to tests to determine effects on plant growth, nutrient uptake and drought and salt stress. We then use various analytical chemistry techniques to identify and characterize the natural product chemistry of the compounds, which we optimize and patent. Four of our product candidates, one of which is EPA-approved, are what we believe to be newly identified microorganism species. We believe that four of our product candidates produce novel compounds that we identified, and four of our product candidates have been found to have, or produce compounds with, a novel mode of action. Our proprietary discovery process is protected by patents on the microorganisms, their natural product compounds and their uses for pest management, as well as a patent application we have filed on a screening process to identify enzyme-inhibiting herbicides. We also maintain trade secrets related to the discovery, formulation, process development and manufacturing capabilities. By conducting our own discovery with a focus on unmet market needs, as well as working with outside collaborators, we are able to access the broadest range of products for commercialization, giving us an advantage over other natural bio-based pest management companies. For example, we identified MBI-110 in our discovery screen by targeting downy mildews, a problem for which there are few biological and chemical solutions.

Management Team with Significant Industry Experience

Our management team has extensive experience in bio-based pest management products and the broader agriculture industry. Our chief executive officer and other key employees average over 25 years of experience and include individuals who have led agrichemical sales and marketing organizations, top scientists and industry experts, some of whom have served in leadership roles at large multinational corporations and governmental agencies, commercialized multiple products, brought multiple products through EPA, state and foreign regulatory processes, filed patent applications and received patents, led groundbreaking research studies and published numerous scientific articles. In addition, our chief financial officer brings over 30 years of financial management experience spanning a variety of industries, including over 13 years of service as several public companies' chief financial officer. Our general counsel has over 30 years of experience, including over 25 years with public companies, in senior legal, sales and operating roles, including general counsel, vice president of sales and chief operating officer.

Our Growth Strategy

Accelerate Adoption of New Products, Product Applications and Product Lines

Our goal is to provide growers of specialty and row crops with complete and effective solutions to a broad range of pest management and plant health needs. Due to the competitive nature of the industry and the seasonality of crop growing, speed is essential to ensure widespread adoption. Accordingly, we have launched targeted placements of our products with early adopters in the United States relatively early in the product commercialization cycles and for a limited number of crop and pest applications. These growers, many of whom have unmet market needs, help us to troubleshoot and refine our products and to maximize their value proposition, enabling us to efficiently develop new formulations and expand uses and market penetration with minimal up-front capital investment per product line. We also believe we will be able to leverage growers' positive experiences using our Regalia, Grandevo, Venerate and Majestene product lines to accelerate adoption of new products, product applications and product lines, including Bio-Tam 2.0. We believe product diversity allows us to compete with larger companies, to strengthen relationships with growers and distributors and to not be dependent on any one product or product category. Further, by offering

and developing multiple products simultaneously, we believe we are perceived as a technology leader and can gain the benefits of increased momentum with distributors and end users. We will continue to target early adopters of new pest management and plant health technologies with controlled product launches and educate growers and

water resource managers about the benefits of bio-based pest management products through demonstrations to accelerate commercial adoption of our products.

Deliberately Expand Applications of Our Product Lines

We want growers to know and trust that our products work. Although our initial EPA-approved master labels cover our products' anticipated crop-pest use combinations, we launch early formulations of our pest management and plant health products to targeted customers under commercial labels that list a limited number of crops and applications that our initial efficacy data can best support. We then gather new data from experiments, field trials and demonstrations, gain product knowledge and get feedback to our research and development team from customers, researchers and agricultural agencies. Based on this information, we enhance our products, refine our recommendations for their use in optimal IPM programs, expand our commercial labels and submit new product formulations to the EPA and other regulatory agencies. For example, we began sales of Regalia SC, an earlier formulation of Regalia, in the Florida fresh tomatoes market in 2008, while a more effective formulation of Regalia with an expanded master label, including listing for use in organic farming, was under review by the EPA. When approved, we launched this new formulation into the Southeast United States in 2009 and nationally in 2010. In 2011, we received EPA approval of a newly expanded Regalia master label covering hundreds of crops and various new uses for applications to soil and through irrigation systems, and we recently expanded Regalia for use in large-acre row crops as a plant health product, in addition to its beneficial uses as a fungicide. Similarly, ongoing field development research on the microbe used in our insecticide product Venerate led to our October 2015 registration of Majestene as a nematicide. In addition, as Grandevo has shown activity against larval and adult mosquitos, we intend to expand testing to determine if the application of Grandevo can be expanded to include this important disease vector. We believe we have opportunities to broaden the commercial applications and expand the use of our existing products lines into several key end markets, including large-acre row crop applications, seed treatment, forestry and public health to help drive significant growth for our company.

Focus on Proven Technology Families

We discover and develop more than one product line based on the same technology. For example, the Burkholderia microbe on which Venerate is based is also active against a broad range of nematodes, enabling development as our bionematicide product, Majestene, and, when fermented under different conditions, produces several herbicidal compounds, enabling development as our bioherbicide product candidate, MBI-010. In addition, our product candidates MBI-110 and MBI-507 are based on microbial fermentations of a newly identified Bacillus strain we isolated using our proprietary screening platform, and the Chromobacterium species on which Grandevo is based may also yield a promising bionematicide product, which we have developed as MBI-304 with positive results, both as a seed treatment and with in-furrow applications, over the course of two growing seasons. Developing multiple products based on the same microbe allows for a more efficient use of research, development and manufacturing resources and enables us to leverage capital invested in existing technologies.

Continue to Develop and Commercialize New Products in Both Existing and New Markets

Our goal is to rapidly and efficiently develop, register and commercialize new products each year, with the goal of developing a full suite of pest management and plant health products. For example, while our current crop protection products address plant diseases, insects and nematodes, we are developing products that control weeds as well as products for improving fertilizer efficiency and reducing drought and salt stress. Our bioassay screening has identified at least four microbes that display activity against blue-green algae associated with toxic algal blooms, which have resulted in seasonal closures of some drinking water supplies in the Great Lakes region, and we are seeking partners to move these early-stage discoveries forward.

Target International Markets

Expanding international sales is an important component of our growth strategy, but the global markets for pest management products are intensely competitive and highly regulated. Our plan is to focus on key countries and regions with the largest and fastest growing biopesticide and plant health product markets for specialty crops and select row crops. We are working with regional distributors and distributors in key countries who have brand

recognition and established customer bases and who can conduct field trials and grower demonstrations and lead or assist in regulatory processes and market development.

Leverage Manufacturing Capabilities

We initially used third-party manufacturers to produce all of our products on a commercial scale. In 2014, we completed the repurpose of a manufacturing facility that we purchased in July 2012 by installing three 20,000 liter fermentation tanks and constructing a dedicated building to house them, which has enabled us to manufacture in-house certain of our products. We believe that greater control of our own manufacturing capacity allows us to scale-up processes and institute process changes more quickly and efficiently while ultimately lowering manufacturing costs over time to achieve desired margins and protecting the proprietary position of our products. We continue to use third party manufacturers for Venerate, Majestene and Haven and for spray-dried powder formulations of Grandevo and Zequanox. We are also developing plans to expand our manufacturing facility capacity in order to handle increased production volumes overall and to enable our production of a granulation line for Grandevo WDG by the end of 2017.

Our Products

Commercially Available Products

The table below summarizes our current portfolio of commercially available biopesticide products, which have been able to move through development, EPA approval and first U.S. market launch in four years or less and at a cost of $3.0 million to $6.0 million. We have continued to develop and refine these products after initial launch, producing new formulations, applying for expanded use labels and seeking new markets.

NAME	MARKET	TARGET	USE	STATUS
Regalia	Crop Protection, Home and Garden, Turf	Plant Disease/Plant Health	Protects against fungal and bacterial diseases and enhances yields	Commercially Available Domestically and Internationally
Grandevo (dry formulation)	Crop Protection, Home and Garden, Turf and Ornamentals, Public Health, Forestry	Insects and Mites	Controls a broad range of sucking and chewing insects through feeding	Commercially Available Domestically; International Expansion Efforts Underway
Venerate (liquid formulation)	Crop Protection, Home and Garden, Turf and Ornamentals, Animal Health, Forestry	Insects and Mites	Controls sucking and chewing insects on contact	Commercially Available Domestically; International Expansion Efforts Underway
Majestene	Crop Protection, Turf	Plant Parasitic Nematodes	Controls soil-dwelling nematodes by preventing and reducing root galls, and by reducing adult reproduction and egg hatch	Commercially Available Domestically
Haven	Crops, Turf and Ornamentals	Plant Health / Plant Vigor	Reduces plant stress and dehydration	Commercially Available Domestically
Zequanox	Water Treatment	Invasive Mussels (In-Pipe and Open Water Habitat Restoration)	Controls invasive mussels that restrict water flow in industrial and power facilities and harm recreational waters	Commercially Available Domestically and in Canada

Regalia

- Biofungicide
- Crop Protection, Home and Garden, Turf: Controls Plant Disease,, Improves Plant Health, Increases Yields
- Commercially Available Domestically and Internationally

Regalia, a plant extract-based fungicidal biopesticide, or "biofungicide," is EPA-registered for crop and non-crop uses and approved for use on foliage and roots in all states in the United States, including California and Florida, where the majority of the specialty crops are grown. It is also approved for sale in Brazil (tomatoes, potatoes, dried beans), Ecuador (flowers), Mexico (citrus and tree fruit, berries, tomatoes, peppers, potatoes, cucurbits, flowers, potatoes and grapes), Turkey (covered vegetables), Canada (tomatoes, grapes, strawberries, cucurbits, apples, turf, blueberries, hops (emergency use), ornamental plants and wheat), Peru (grapes and quinoa), South Africa (grapes), Morocco (cucurbits, tomatoes and grapes), Tunisia (tomatoes) and Panama, Dominican Republic, El Salvador, Guatemala and Honduras (potatoes, tomatoes, peppers, tobacco, cucurbits, beans, avocados, citrus, peanuts, papayas and strawberries), Chile (table and wine grapes, blueberries and walnuts). Registration efforts are currently underway in China, with Regalia demonstrating efficacy in government-conducted trials on tomatoes, cucurbits, strawberries and grapes. University researchers have extensively tested the product against several important plant diseases, especially against mildews. We, and our commercial partners, have also conducted hundreds of trials in the United States and abroad, including five years of crop trials in Europe. The data show that Regalia is an effective addition to a disease management program against a broad range of diseases and can increase yields in crops such as strawberries, tomatoes, potatoes, soybeans, rice, wheat, alfalfa, sugarcane and corn.

Regalia is made from an extract of the giant knotweed plant and acts by turning on a plant's "immune system," a process called induced systemic resistance. Regalia also enhances the efficacy of major conventional chemical fungicides, and we have received issued patents on this synergism. Regalia also is effective for seed treatment of soybean, corn and cotton, for which we have filed a patent application, and we have received an issued patent on the effects on root growth and yield when Regalia is applied to the seed or as a root stimulant. For example, in field tests and in actual grower use, Regalia has shown significant yield increases on strawberries, tomatoes, potatoes, soybeans, rice, wheat, alfalfa, sugarcane and corn, with less irrigation required for strawberries treated with Regalia.

We obtained an exclusive license relating to the technology used in our Regalia product line while Regalia was in the process development and formulation stage of product development. In addition to developing the supply chain to commercially market the product, using our natural product chemistry expertise, we developed an analytical method to measure and characterize the major compounds in the plant extract, and we enhanced these compounds several times in new formulations, providing Regalia with a broader spectrum of activity and better efficacy than the original licensed product. In addition, we improved the physical properties of our Regalia formulations and developed four formulations that meet organic farming standards. We have filed several patent applications with respect to these innovations. In addition, we have received a U.S. patent for modulating plant growth by treating roots of plants with Regalia (or other compounds or extracts of knotweed) and transplanting the plants into soil. We have also received a patent on the synergistic combination of Regalia or knotweed extract and some important chemical fungicides.

We launched Regalia SC, an earlier formulation of Regalia, into the Florida fresh tomatoes market in December 2008. This formulation had a limited label with a few crops and uses on the label and it was not compliant for organic listing. In 2009, we began selling Regalia-based plant health products in the United Kingdom (under the name Sentry R by Plant Health Care) and Ecuador (under the name Milsana), and we later received a revised, broader label with hundreds of crops for a new organic formulation, which we subsequently launched into the Florida vegetables and Arizona leafy greens markets. In January 2010, we received state approval in California and immediately launched Regalia into the leafy greens and walnuts markets. Key markets include vegetables in the southeast, citrus in Florida, leafy greens and vegetables in California and Arizona, walnuts and stone fruit in California and pome fruit and grapes in California and the Pacific Northwest. In December 2011 and August 2012, we received EPA approval and California regulatory approval, respectively, for an expanded Regalia label that includes new soil applications, instructions for yield improvement in corn and soybeans and additional crops and target pathogens. Our product for

row crops is sold separately as Regalia Rx and for international markets, where the

Regalia trademark is allowed, as Regalia Maxx. We submitted Regalia for registration in the European Union, which is one of the largest fungicide markets in the world. We received regulatory approval for Regalia in South Africa in June 2013, in El Salvador, Guatemala and Honduras in December 2013, in Peru in March 2014, in Colombia in June 2014, in Tunisia and Morocco in late 2014 and in Brazil, for tomato, potato and dry beans, in December 2014 and in Chile for grapes (table and wine), blueberries and walnuts, in November 2016. In 2013, 2014 and 2015, we received EPA approval for three new formulations (12%, 16% and 5% that eliminated the solvent, hexanol), which will be used for market segmentation and replacement of existing formulations. In 2016, we launched the new alternative formulation of Regalia 5% that eliminated hexanol, a solvent that is difficult to source and is likely to experience future regulatory restrictions. This new formulation disperses better in water and is easier to mix and rinse from containers and spray equipment.

Regalia, Regalia Maxx and Regalia Rx are USDA National Organic Program compliant and OMRI-USA/OMRI-Canada listed.

Grandevo

- Bioinsecticide
  - Crop Protection, Home and Garden, Turf and Ornamentals, Public Health, Forestry: Targets Insects and Mites
- Commercially Available Domestically and in Mexico, International Expansion Efforts Underway

Grandevo is based on a new species of microorganism, Chromobacterium subtsugae, which was discovered by a scientist at the USDA in Beltsville, Maryland, and which we have licensed and commercialized. Grandevo is a powerful feeding inhibitor: insects and mites become agitated when encountering it and will not feed and starve, or, if they do ingest it, die from disruption to their digestive system. Grandevo also has repellent effects on and reduces egg hatching and reproduction of target insects and mites. Grandevo is particularly effective against chewing insects (such as caterpillars and beetles) and sucking insects (such as stinkbugs and mealybugs, as well as thrips and psyllids, which are respectively known as “corn lice” and “plant lice”). Trials to date and reports from grower use have shown instances of commercial levels of efficacy as good as the leading conventional chemical pesticides on a range of chewing and sucking insect and mite pests, including two invasive species of psyllid affecting citrus and potato crops. Grandevo has also shown significant control of other pests such as plant-feeding fly larvae, mosquitoes, white grubs in turf grass, “leafmining” caterpillar larvae and other leaf-eating caterpillars. Grandevo has also shown efficacy against corn rootworm, a major pest of corn, which has reportedly been resistant to corn engineered for rootworm control. Grandevo has shown efficacy against other soil pests, including wireworms, root maggots and nematodes. Field trials are ongoing to further characterize Grandevo’s activity against new foliar and soil-borne pests.

We obtained a co-exclusive license for the bacterial strain used in our Grandevo product line while Grandevo was undergoing primary screening as a potential product candidate. Since licensing the microorganism, we completed the testing and development necessary to produce and commercialize an EPA-approved product and have filed our own patent applications with respect to the microorganism, including its genome, synergistic combinations with conventional chemical pesticides, product formulations containing the bacterial strain as well as the chemistry produced by the microorganism upon which Grandevo is based. We have issued U.S. patents on one of these novel compounds produced by the bacteria and novel insecticidal and nematicidal uses.

We placed a prototype liquid formulation of Grandevo on a targeted basis under a limited label into the Florida citrus crop market in 2011. Commencing in the summer of 2012, we launched a dry formulation of Grandevo in markets across the United States where state registrations have been approved, targeting key markets, including citrus, tomatoes, peppers, strawberries, potatoes, leafy greens and other fruits and vegetables. This dry formulation was approved by the EPA in May 2012 and has been registered in all 50 states as well as Puerto Rico. In May 2013, we received EPA approval for a revised label reflecting Grandevo’s safety for bees. In May 2016, Grandevo was approved in Mexico for use on tomatoes, peppers, potatoes, tobacco and berries, and local sales have since commenced. Recently completed trials in Mexico and Brazil against Asian citrus psyllid, the vector for citrus

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greening disease, demonstrate that Grandevo is an effective tool for the citrus industry, and with this data completed, MBI has applied for a label expansion for this crop-pest combination in Mexico.

Grandevo has received completeness determination from the European Commission and is now cleared to begin the evaluation for Annex 1 listing and commercialization in the European Union with a draft decision completed by the Netherlands in 2016 that recommends some new toxicology studies that are being completed in 2017. A June 2015 policy decision by the European Commission, the European Food Safety Authority and a Working Group of EU Member States has allowed Grandevo, which contains only non-viable Chromobacterium subtsugae cells, to be evaluated as a microbial pesticide. Until this recent EU decision, only pesticides containing live microbes could be evaluated under EU regulation. Grandevo is being assessed under the Netherlands Government's "Green Deal" Initiative, which has been created with an aim to "speed up the sustainability of PPPs (plant protection products) in agriculture and horticulture by facilitating the authorization of green PPPs with a low risk for humans, animals and the environment." Efficacy trials recently completed in Europe will be used to support uses of Grandevo for the control of whitefly and thrips in Solanaceae (tomato, pepper and aubergine) and Cucurbitaceae (melon, cucumber and squash) crops.

Studies being conducted by an outside toxicology laboratory completed to support EU registration will also be used to support Grandevo registration in Canada.

Grandevo is USDA National Organic Program compliant and OMRI-USA/OMRI-Canada listed.

Venerate

- Bioinsecticide
- Crop Protection, Home and Garden, Turf and Ornamentals, Animal Health, Forestry: Targets Insects and Mites
- Commercially Available Domestically, International Expansion Efforts Underway

Venerate is based on a microbial fermentation of a new bacterial species we isolated using our proprietary discovery process. We have identified compounds produced by the microorganism in Venerate that control a broad range of chewing and sucking insects and mites, as well as flies and plant parasitic nematodes, on contact, which is complementary to the anti-feeding effects of Grandevo. In addition, because we currently sell Venerate in a liquid formulation and Grandevo in a powder formulation, we are seeking to exploit opportunities for market segmentation, including for combinations with liquid fertilizer and for low-volume aerial applications. Venerate was approved by the EPA in February 2014 and we began to sell Venerate in May 2014. We are completing studies to support our submission of Venerate to the Canadian Pest Management Regulatory Agency and expect to submit our registration dossier to Canada in 2018. Venerate was recently approved in Mexico and along with Grandevo, is being distributed by AgriStar. As with Grandevo, Venerate has also shown to be effective against Asian citrus psyllid in citrus, and MBI has accordingly applied for a label expansion for Venerate beyond its current uses in tomatoes, peppers, strawberries, cole crops and potatoes.

We have conducted field trials on several crops and insects and mites, many of which show efficacy as good as leading conventional chemical pesticides. Venerate has shown positive results in field trials against soil insects of corn, wheat and soybeans applied both in-furrow and as seed treatments, and has shown broad spectrum activity across a wide range of pests, including Asian citrus psyllid, corn rootworm, stinkbugs, caterpillars and weevils. Field trials of both Grandevo and Venerate again conducted in 2016 indicated good control of corn rootworms and nematodes in corn and soybeans.

We have received notice of allowance for US patent on the microorganism and received a patent on the natural product compounds that demonstrate insecticidal and nematicidal activity, and have filed applications on product formulations containing the microorganism. Venerate is USDA National Organic Program compliant and OMRI-USA/OMRI-Canada listed.

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Majestene

- Bionematicide
- Crop Protection, Turf: Targets Plant Parasitic Nematodes
- Commercially Available Domestically

Majestene is a bionematicide we have developed based on the microorganism used in Venerate. This nematicide is active against a broad range of nematodes, and in field trials it has been as effective as or better than the leading conventional chemical nematicide against soybean cyst, root knot, lesion, stunt, reniform, lance and burrowing nematodes. Crops tested include soybean, corn, cotton, strawberry, turf, tomato, pepper, squash, potato and banana. Usage for Majestene as a nematicide was approved by the EPA in connection with its approval of the labels for Venerate in 2014, and a modified label with refined rates, nematode species and crops was approved in October 2015. We have been issued a U.S. patent for use of the bacterial strain in Majestene for use as a nematicide. We conducted a targeted placement of Majestene with key, early adopter growers in 2015, with our first sales in January 2016. Since then, sales of Majestene have increased rapidly.

Haven

- Anti-transpirant
- Crops, Turf and Ornamentals: Enhances Crop Yields, Plant Health and Plant Vigor against Environmental Stresses
- Commercially Available Domestically

Haven is an “anti-transpirant” plant health product that is applied to the leaves of plants to reduce transpiration, the evaporation of water from leaves to cool plants. In stressful environments, such as intense sunlight or drought, excess transpiration causes significant damage to crops. Haven is based on a technology of naturally-derived, plant-based compounds that we licensed from Kao Corporation for use in the United States. The licensed patents are directed to methods of promoting plant growth and increasing biomass and crop yield. Haven reflects light and heat from leaves, which lowers plant temperatures and reduces plant water loss, resulting in less stress to the crops and higher yields and quality. Field trials in 2014 in the United States and Chile demonstrated a reduction in sun-stressed fruit and an increase in quality characteristics on citrus, apples and grapes, increased yields on walnuts, almonds and wheat, often equal to or better than the commercial standard, and increased turf growth. Unlike competing products, Haven does not leave an undesirable deposit or residue on crops. Field trials in 2016 demonstrated increased yields, plant growth and/or quality of almonds, walnuts, apples, corn, tomatoes and citrus. As a biostimulant, Haven did not require EPA registration, but state submissions were made in the first quarter of 2017 and we launched Haven commercially in March 2017.

Zequanox

- Biomolluscicide
- Water Treatment: Targets Invasive Mussels (In-Pipe and Open Water Habitat Restoration)
- Commercially Available in United States and Canada
- USDA “BioPreferred” Program Certified Product

Zequanox addresses the problem of invasive zebra and quagga mussels, which clog pipes, disrupt ecosystems, encrust infrastructure and blanket beaches with razor-sharp shells. These mussels cause approximately $1.0 billion in damage and associated control costs annually in parts of the United States alone. There are limited treatment options available, many of which are time-consuming and costly, or harm aquatic flora and fauna. Zequanox is a biomolluscicide derived from a common microbe found in soil and water bodies, Pseudomonas fluorescens. Zequanox is an environmentally friendly, bio-based pest management product that is designed to kill over 75% of invasive mussels in treated pipe systems without causing collateral ecological damage. In July 2012, we conducted an open water trial in Deep Quarry Lake, Illinois, where the Zequanox treatment killed more than 90% of the tested

mussels on the lake bed. This level of control in open water treatments was repeated in 2013. We generated revenues for treating an Oklahoma Gas & Electric facility in 2012 and 2013 and a First Light & Power facility along the Housatonic River in Connecticut in 2014. In addition, Zequanox was used by the Minnesota Department of Natural Resources and the Minnehaha Creek Watershed District's Aquatic Invasive Species Program in 2014 to treat an infestation of these invasive mussels in Christmas Lake, resulting in 100% control of the mussels in the tested area. Zequanox is approved in Canada and is the only product EPA-approved for open water application in the United States other than copper, which is rarely used due to its negative environmental effects.

At recommended application rates, Zequanox is not toxic to other aquatic life, including ducks, fish, crustaceans and other bivalve species such as native clams or mussels. Zequanox is safe to workers, less labor intensive and requires shorter treatment times as compared to conventional chemical pesticides. Zequanox can be used by power plants and raw water treatment facilities as an alternative to conventional chemical treatments such as chlorine, or as a complement to those products.

We entered into a license agreement with The University of the State of New York pursuant to which we were granted an exclusive license under the University's rights relating to the bacterial strain used in our Zequanox product line while the product's natural product chemistry was still under investigation. Since then, we have developed dry powder formulations, significantly improved the fermentation process for higher cell yield, allowing us to increase manufacturing scale, and filed patent applications relating to natural product compounds in the Zequanox cells we have identified and product formulations we have developed. In addition, we have received $1.1 million in grants from the National Science Foundation for work needed to commercialize the bacterial strain in Zequanox, which is currently being marketed and sold directly to U.S. power and industrial companies. In the fourth quarter of 2015, we implemented a new process at our manufacturing plant that reduced the cost of product revenues to be more competitive with other mussel treatment chemicals.

Due to our prioritization plan, we have not committed sufficient resources to Zequanox in order to market it full-scale and substantially improve margins. However, we are currently in discussions with large water treatment companies to further develop Zequanox and expand it commercially. In addition, we continue to work with state, federal and bi-national partners via the Great Lakes Commission's Invasive Mussel Collaborative and the EPA's Great Lakes Restoration Initiative ("GLRI") to further develop Zequanox in the Great Lakes/Upper Mississippi River Basin as a habitat restoration tool and potential harmful algal bloom management tool as zebra and quagga mussels selectively feed on beneficial algae while rejecting toxic blue-green algae. In 2016, the GLRI awarded a grant of more than $600,000 to support a 2017 large-scale, open water evaluation of Zequanox in Michigan. This "Tip of the Mitt" project is being jointly administered by the U.S. Geological Survey and state and local government agencies in Michigan, with MBI serving as a technical collaborator and provider of Zequanox.

Product Pipeline

Our pipeline consists of product candidates in various stages of development, including products submitted to the EPA for registration and other, as well as other early-stage discoveries. We have implemented a prioritization plan for our pipeline candidates, focusing first on those that are expected to have the greatest near-term growth potential. We are seeking collaborations with third parties to develop and commercialize more early stage candidates.

Under Development

MBI-601

- Biofumigant
- Crop Protection, Home, Industrial: Targets Plant Disease, Nematodes and Insects
- Under Development

MBI-601 is a biofumigant based on a novel and proprietary genus of fungus, Muscodor, which was discovered by a professor at Montana State University. We obtained a co-exclusive license for several strains and species of this fungus, which produces a suite of gaseous natural product compounds that have been shown to control certain species of harmful fungi and bacteria that cause plant diseases and to control nematodes and some insect species.

We believe that MBI-601 may be used for agricultural and industrial applications, including post-harvest control of fruit and flower decay and pre-planting control of plant diseases and nematodes as a viable alternative to methyl bromide and other chemical fumigants, which are subject to significant regulatory restrictions and for which few effective, non-toxic alternatives are available. We submitted MBI-601 to the EPA in April 2014 and received approval in November 2016. In 2014, we obtained a license to an artificial mixture of the gaseous compounds produced by the Muscodor fungus, which extends the potential uses of this technology by enabling development of products at a potentially lower cost and better shelf stability than versions using the living fungus. We are currently conducting field trials and demos in selected crops where we see the best initial fit for launch.

MBI-110

- Biofungicide and Plant Health
- Crop Protection, Home and Garden: Targets Plant Disease, Improves Plant Health
- Under Development

MBI-110 is based on microbial fermentations of a newly identified Bacillus strain we isolated using our proprietary screening platform. MBI-110 is being developed as a biofungicide, targeting difficult to control plant diseases such as Sclerotinia white molds, gray mold and downy mildews. We have identified compounds, some of which are novel, produced by the microorganism in MBI-110 that control a broad range of plant diseases. We have filed a U.S. patent application covering fungicidal uses and have been issued a U.S. patent on related claims. We submitted MBI-110 to the EPA in January 2016. Several field trials were conducted in Europe in 2014 and the United States in 2013 and 2014 that showed good efficacy against white molds and downy mildews. Trials since that time continue to confirm efficacy against these diseases. MBI has also completed sufficient field trials in Europe to support uses on potatoes, grapes and sugar beets. MBI anticipates submitting MBI-110 to European authorities in 2018. We are currently assessing possible manufacturing sites for an initial launch into selected crops in Arizona and Florida in the fall of 2017.

MBI-010

- Bioherbicide
- Crop Protection, Home and Garden, Turf: Targets Weeds
- Under Development

MBI-010 is based on the same species of bacteria used to produce Venerate and Majestene, which we isolated using a proprietary discovery process that identifies herbicides that inhibit a certain plant enzyme. MBI-010 produces several herbicidal compounds, some of which are novel, that are rapidly taken up by germinating seeds and by the roots of seedling and mature weeds. MBI-010 has demonstrated effectiveness against a range of weeds, including weeds resistant to leading conventional chemical herbicides, either after or before the weeds' emergence. MBI-010 has also demonstrated a novel mode of action (inhibiting histone deacetylase enzymes), and some of its active compounds are transmitted systemically through the vascular structure of weeds. We have filed a patent application with respect to the MBI-010 formulation uses and its associated natural product compounds as an herbicide. We also received an issued U.S. patent on the process we used to discover MBI-010 and certain other bioherbicides. In 2016, we confirmed that MBI-010 can enhance glyphosate (the active ingredient in Monsanto Company's widely-distributed herbicide, Roundup), providing better control than glyphosate alone on gluyphosate resistant palmer pigweed. In addition, our field trials demonstrated pre-emergence efficacy against palmer pigweed. Due to the biodegradability of the herbicidal compounds, our formulation group needed to develop new formulations that stabilized these compounds in order to develop a product that can be competitive in the marketplace. The new formulations and new manufacturing processes to provide better yields and efficacy required us to perform additional toxicology, which is currently in progress. As a result, our submission of MBI-010 to the EPA has been delayed and we are currently targeting submission for the second half of 2017.

Other Products and Candidates

In addition to the above, pursuant to an agreement with Isagro USA, we distribute Bio-Tam 2.0, a biofungicide for soil-borne disease control and grapevine disease control that complements our existing products, particularly Regalia. Bio-Tam 2.0 recently gained EPA registration for grapevine trunk diseases caused by Eutypa, Botyrosphaeria (Esca), Phomopsis and other fungi, which are responsible for significant economic losses to the wine and grape industry worldwide, including the Western United States, and for which there are few registered conventional chemical pesticides.

We have also developed patented technology relating to a number of other product candidates, including MBI-304, a bionematicide product candidate based on the microorganism used in Grandevo; MBI-011 and MBI-005, bioherbicides that have received EPA approval; and MBI-302, a bionematicide with an EPA registration package that is nearly complete. We are also developing MBI-507 in combination with Regalia, a plant health product and plant root and growth biostimulant based on the living spores of a new Bacillus amyloliquefaciens strain, for which we have received an issued U.S. patent on these claims. We are seeking collaborations with third parties to develop and commercialize some of these and other promising early-stage candidates, but as resources permit, we may choose to move some of these product candidates forward internally.

We have also discovered several microorganisms with algaecidal activity, certain of which are being tested by third-party collaborators for efficacy, and over 25 additional fungicide, herbicide, insecticide and nematicide candidates using our proprietary screening platform. In addition, we have produced a collection of microorganisms from taxonomic groups that research suggests may enhance nutrient uptake in plants, reduce stress and otherwise increase plant growth.

Our Discovery and Product Development Process

Our proprietary technology comprises a sourcing process for microorganisms and plant extracts, an extensive proprietary microorganism collection, microbial fermentation technology, screening technology and a process to identify and characterize natural compounds with pesticidal activity. Our technology enables us to isolate and screen naturally occurring microorganisms and plant extracts in an efficient manner and to identify those that may have novel, effective and safe pest management or plant health promoting characteristics. We then analyze and characterize the structures of compounds either produced by selected microorganisms or found in plant extracts to identify product candidates for further development and commercialization. We have screened more than 18,000 microorganisms and 350 plant extracts, and we have identified multiple product candidates that display significant levels of activity against insects, nematodes, weeds, plant diseases and invasive species such as zebra and quagga mussels, aquatic weeds and algae. We also have produced a collection of microorganisms from taxonomic groups that may enhance nutrient uptake in plants, reduce stress and otherwise increase plant growth. Our product candidates come primarily from our own discovery and development, as well as in-licensed technology from universities, corporations and governmental entities.

Our proprietary product development process includes several important components. For all of our product candidates, we develop an analytical method to detect the quantity of the active natural product compounds that are produced by the microorganism or that are extracted from plants. For microbial products, we develop unique proprietary fermentation processes that increase the active natural compounds produced by the microorganisms. We also scale-up fermentation volumes to maximize yields consistently in each batch. Similarly, for our plant extract-based products, we develop a manufacturing process that increases the amount of active natural compounds extracted from plant materials.

Our deep understanding of natural product chemistry allows us to develop fermentation and formulations that optimize the concentrations, efficacy and stability of compounds produced by microorganisms or plants. These methods allow us to produce products that are highly effective and of a consistent quality on a commercial scale. With

the successful commissioning of our manufacturing facility, we have added a wealth of know-how and have demonstrated an ability to manufacture products that are effective and of a consistent quality on a commercial scale.

Our commercial products are sold in various formulations and are tailored to meet customers' needs and display performance characteristics such as effectiveness, shelf life, compatibility with other pesticides and ease of use. Our

senior management's numerous years of experience in the development of commercial products and formulations have resulted in a highly efficient product development process.

Our discovery and development process is illustrated in the following diagram:

Discovery

We have found over 25 candidates for commercial development from our proprietary discovery process, including Venerate, a new bacterial species and bioinsecticide, MBI-011, a burndown bioherbicide, MBI-010, a systemic bioherbicide, MBI-302 and MBI-303, bionematicides, MBI-110, a biofungicide, and MBI-507, for plant health, as well as several bioalgaecides, additional biofungicides, bioherbicides, bionematicides and plant growth enhancers. Key aspects of our discovery process include:

Collection and isolation. Using our years of experience, we target selected habitats and niches of high biodiversity to collect soil, compost, insects, flowers or other biological matter from which we isolate our proprietary microorganisms on proprietary media. We capture information in a microorganism database such as taxonomic groups, geographical locations, types of samples, niches and habitats where collected and biological activity. We also isolate microorganisms that improve the efficiency of plants to uptake nitrogen and phosphorous. In addition to isolating our own microorganisms, which make up approximately 90% of our collection, we have had collaborations with three companies plus the Scripps Institution of Oceanography to diversify our sourcing of microorganisms.

Fermentation . For our microbial products, before testing the selected microorganisms for activity against pests, we ferment them to produce sufficient quantities for testing. We grow the selected microorganisms in proprietary media, which maximizes their pesticidal properties. In addition, we use proprietary fermentation processes that are designed to replicate those that would be required for large-scale fermentation and commercial production, avoiding the time and expense of an unsuccessful scale-up.

Primary screening. We use automated, miniaturized biological assays to test the selected microorganism's or plant extract's effectiveness against several weed, insect and nematode pests and plant pathogens and algae. We compare those results to conventional chemical pesticide standards. When a microorganism shows a high level of pesticidal activity, we conduct further tests to determine the spectrum of activity, mode of action, stability and activity on plants. We also test for the microorganisms' ability to reduce plant stress and promote growth.

Novel and proprietary screening methods for weeds and nematodes. We have used proprietary assays based on specific enzymes that find systemic herbicidal compounds from microorganisms, one of which is the subject of an issued patent covering identification of compounds that act systemically through plants' vascular systems. We have developed a rapid, efficient method to find microorganisms that produce compounds with a high level of activity against plant parasitic nematodes.

Natural product chemistry. Using high-performance liquid chromatography ("HPLC") with diode array detection technology, liquid chromatography-mass spectroscopy ("LCMS"), gas chromatography-mass spectroscopy ("GC-MS") and nuclear magnetic resonance ("NMR"), we compare the natural product compounds produced by each of the selected microorganisms with known compounds. This allows us to eliminate those microorganisms that produce known toxins and to select those that we believe are novel and safe. From the selected microorganisms, we identify and characterize the natural product compounds responsible for their pesticidal activity by using HPLC, LCMS, GC-MS and NMR equipment. We then develop analytical methods to measure the quantity of these compounds in individual fermentation batches, determine the quantities needed to maximize efficacy and to ensure consistent levels of these compounds from batch to batch.

Genetic identification. After confirming pesticidal activity during our primary screen, we perform the initial genetic identification of the microorganisms. Further characterization of the genome of our early stage candidates is contracted with one of several genome sequencing service companies. This characterization allows us to determine novelty compared to discoveries from others, the relatedness to human or animal pathogens, genes for compounds that are not expressed in fermentation or detected by our chemists, and information about the possible mode of action on the target pest. We also file additional patent applications based on the results of these genetic identification processes.

Product Development

We believe that by maintaining a strong reputation in the industry, many opportunities come to us for development in addition to our own discoveries from our in-house efforts. Once we discover or are brought an opportunity, we make a preliminary assessment of the commercial potential of a natural product determined through laboratory, greenhouse and initial field tests. We then select product candidates we have discovered in-house or in-licensed for further development. Key aspects of our product development process include:

Development of the manufacturing process that maximizes the active natural product compounds. For our microbial biopesticide products, we develop proprietary processes that increase the yield of both the microorganism and the active natural product compounds produced by the microorganism during fermentation. Similarly, for our plant extract-based products, we develop proprietary processes that increase the amount of active natural compounds

extracted from plant materials. This process development allows us to produce products that have superior performance. For our microbial products, we then scale-up these proprietary processes in progressively larger fermentation tanks. We develop quality control methods based on the active natural product compounds rather than just the microorganisms or plant extracts. This approach results in a more consistent and effective product.

Formulation. We are able to develop proprietary wettable powder, liquid and granule formulations that allow us to tailor our products to customers' needs. This allows us to develop product formulations with enhanced performance characteristics such as effectiveness, value, shelf life, suitability for organic agriculture, water solubility, rain resistance, compatibility with other pesticides and ease of use. Formulation is critical to ensuring a bio-based pest management and plant health product's performance. Our understanding of the natural product chemistry allows us to develop formulations that maximize the effectiveness and stability of the compounds produced by the microorganisms or plants.

Field testing. We conduct numerous field trials for each product candidate that we develop. These field trials are conducted in small plots on commercial farms or research stations by our own field development specialists as well as private and public researchers to determine large-scale effectiveness, use rates, spray timing and crop safety. We conduct crop protection product field trials globally in both hemispheres to accelerate the results of our field trials and provide alternate season learning opportunities. As the crop protection product candidate nears commercialization, we conduct demonstration trials on the farm. These trials are conducted with distributors, influential growers and food processors on larger acreages. For Zequanox, we worked with large power and industrial customers both in the United States and Canada to obtain field trial data to help with product commercialization efforts and to obtain efficacy data.

Sales, Marketing and Distribution

In the United States, we sell our products through our own internal sales force, which consists of nine employees focused on managing distributor relationships and creating grower demand for our products. In addition, a dedicated team of four employees provide technical service support to both our customers and sales representatives on the use of our products in IPM programs, both for conventional growers as well as for an expanding number of organic growers and two employees to help create demand at the grower level.. Our sales force covers all major regions in the United States, including California and the Pacific Northwest, the Southeast, the Northeast, the Mid-Atlantic and the Great Lakes regions, with an emphasis on high-value specialty crops (fruits, nuts and vegetables). We currently sell our crop protection product lines, Regalia, Grandevo, Venerate and Majestene, through leading agricultural distributors, such as Crop Production Services, Helena Chemical and Aligned Ag Distributors. These are the same distribution partners that most major agrichemical companies use for delivering solutions to growers across the country. For our water treatment product line, Zequanox, we are seeking sales and distribution partners for in-pipe and open water uses. Zequanox is currently being marketed and sold directly to a selected group of U.S. power and industrial companies.

With respect to sales outside of the United States, we have signed exclusive international distribution agreements for Regalia with major international distributors such as FMC (for certain markets in Latin America), Syngenta (for specialty crop markets in Europe) and Engage Agro (for Regalia Maxx markets in Canada) and Nufarm (for Grandevo for certain markets in New Zealand and Australia). We also intend to work with regional distributors and distributors in key countries who have brand recognition and established customer bases and who can conduct field trials and grower demonstrations and lead or assist in regulatory processes and market development. For example, we are in discussions and have testing agreements with distributors in Central America, South Africa, West Africa, Brazil and Europe.

We have also recently entered into an agreement with Isagro USA with respect to distribution of their Bio-Tam 2.0 product line in California, Oregon, Washington and Arizona. We believe we can leverage our existing sales, marketing and distribution network to bring in additional revenues from sales of this product, while enhancing our overall product portfolio.

We derived approximately 74%, 89% and 91% of our total revenues from Regalia and Grandevo for the years ended December 31, 2016, 2015 and 2014, respectively. In addition, we currently rely, and expect to continue to rely, on a limited number of distributors for a significant portion of our revenues since we sell through highly concentrated,

traditional distribution channels. For the year ended December 31, 2016, our top two distributors accounted for 30% of our total revenues.

While the biopesticide industry has been growing, customers in the crop production and water treatment sectors are generally cautious in their adoption of new products and technologies and may perceive bio-based pest management products as less attractive than conventional chemical pesticides. Growers often require on-farm demonstrations of a given pest management or plant health product, and given the relative novelty of our water treatment products, consumers of those products will continue to require education on their use. We are implementing the following strategies to accelerate adoption rates and promote sales of our bio-based pest management and plant health products:

Maintain a focused and effective sales and marketing team that shares our values. We were significantly negatively impacted by the tenure of our former chief operating officer, who led our sales and marketing teams, and the departure of significant members of our sales staff in the third quarter of 2014. During 2015, we rebuilt our sales and marketing teams, including hiring highly experienced personnel to train our sales force and a new head of marketing to guide an expanded marketing department. In addition, we are now more effectively organizing the data and educational material that we have amassed over nine years of operations on our bio-based products as well as organic and sustainable agricultural practices in order to train and equip our sales staff to communicate with and educate distributors and growers. We believe that hiring and training a sales and marketing staff with a high level of technical expertise and knowledge regarding the capabilities of our bio-based products is essential to expanding adoption of our products by growers and sales to distributors. In addition, we have expanded our field development team to include more technical service activities to support sales. These concerted efforts to rebuild and train our sales and marketing teams are yielding positive results, including growth in sales.

Develop an extensive demonstration program. We believe that for growers to be convinced that a bio-based pesticide or plant health product works, they often must see it for themselves. Growers risk their crop each time they try a new product, and often produce only one crop per year on any given plot of land. Further, bio-based pesticide and plant health products are often applied differently and at different times than conventional chemical pesticides and so may be used incorrectly by an inexperienced grower or advisor, decreasing efficacy. We typically conduct on-farm demonstrations with growers in the first year they try one of our products on smaller plots of land to ensure successful application, promoting the continued use of our products in future years across more acres. In addition, we work with distributors to determine which crops to emphasize in a given year and which area to maximize the effectiveness of our demonstration program.

Target early adopters of new pest management technologies. For crop protection products, we target large commercial growers in the United States, who generally set industry standards through more widespread adoption of new pest management technologies they initially test on portions of their crops. We also target organic growers, who are more willing to take risks on new products as they have had few alternatives and great demand for increased yields. We plan to continue to recruit these growers and their consultants to participate in demonstrations and field trials, enabling them to become familiar with our bio-based pest management and plant health products, to experience their benefits firsthand and to promote the use of our products with other growers in their regions. For Zequanox, we have developed strategic relationships with early adopters in the power generation business to do efficacy demonstrations while perfecting the formulations and application of the product.

Educate growers and water resource managers about the benefits of our bio-based pest management products. We will continue to perform on-farm and in-facility demonstrations and provide field data packages to support and validate our product claims. We will also continue to participate in trade shows and conferences to educate growers, their licensed pest control advisors and water resource managers about the benefits of our bio-based pest management products. When in the field, our sales and technical service team members have access to a wealth of information regarding our products and on pre-loaded tablet computers to assist in solving growers' and distributors' problems real-time. We have provided a free application for mobile phone users to assist in calculating tank mix quantities, as well as webinars and an online course on bio-based pest management products, which can be taken by growers for

continuing education credit to maintain crop protection product applicator licenses. We intend to continue to expand our efforts to work with utilities, especially through potential distribution partners, which we believe will create increased demand for Zequanox in adjacent market spaces beyond the power and industrial treatment opportunities we are currently targeting.

Develop and leverage relationships with key industry influencers. We will continue to develop relationships early in the product development process with influential members within our target markets, including large innovative growers, technical experts at leading agricultural universities, licensed pest control advisors, wineries, food processors, produce packers, retailers and power facilities. We believe that educating industry influencers about the benefits of Regalia, Grandevo, Venerate, Majestene, Haven, Zequanox and our future products increases the likelihood that they will recommend our products to our distributors and end users.

Focus our own sales and marketing on the United States, while signing strategic agreements for international markets, turf, ornamental plants and consumer retail. Because of the concentration of large growers in the United States, we can access these customers through our own sales force. For international markets for Zequanox, we intend to develop strategic partnerships with large suppliers and distributors of water products. For Regalia, Grandevo, Venerate and Majestene, we have distribution agreements with leading agrichemical companies and national and regional distributors. For future products, distribution agreements will be developed with regional and national distributors or large multinationals on a case-by-case basis, depending on their expertise in the regions. We have engaged distributors that are selling Regalia in Canada for specialty crops and in parts of the Midwestern United States and Canada for row crops and Venerate in the United States one of our nematicide/insecticides for seed treatment.

Manufacturing

We have substantially transitioned our manufacturing processes in-house to our Bangor, Michigan facility, which was formerly used as a biodiesel plant prior to our acquisition in July 2012. Biopesticide formulation, microbial fermentation and product packaging are among the facility’s core competencies. We believe in-house manufacturing enhances control and flexibility in production while lowering manufacturing costs over time to achieve desired margins, in addition to strengthening intellectual property security. The facility has significant room for expansion to install drying capacity and larger fermenters to accommodate production of multiple products at higher volumes. We are also developing plans to expand our manufacturing facility capacity in order to handle increased production volumes overall and to enable our production of a granulation line for Grandevo WDG by the end of 2017.

We now ferment our Grandevo and Zequanox products in our manufacturing facility, but use a third-party contractor for formulating them into spray-dried powders. The facility also accommodates full-scale production of Regalia. While we have the ability to produce the majority of our products using our own manufacturing capacity, we currently exclusively use third parties to manufacture Venerate and Majestene as a result of regulatory requirements that would require additional capital investment to produce these products in-house. With necessary permitting now in place, we are currently working to commence manufacturing Venerate and Majestene at the MMM plant using existing capacity. We anticipate ramping up production volumes as we expand the facility in the future. We expect to continue to utilize third-party manufactures in North America and the EU for supplemental production capacity to meet excess seasonal demand. As needed, we will also use our own facility or third parties to package and label products. We currently engage toll manufacturers to produce Haven (launched in March 2017),MBI-601 for field and demos trials) and MBI-110 (intended for trial placement with select customers in fall 2017). The active ingredient in our Regalia product line is derived from the giant knotweed plant, which we obtain from China. We have scaled production of Regalia using a single supplier to acquire raw knotweed from numerous regional sources and perform an extraction process on this plant and create a dried extract that is shipped to our manufacturing plant for production and packaging. We do not maintain a long-term supply contract with this supplier. While there can be no assurance that we will continue to be able to obtain dried giant knotweed plant extract from our supplier in China at a competitive price point, we estimate that our current supply of the ingredient will be sufficient to manufacture product to meet the next 9-12 months’ demand. Should we elect or be required to do so, we do not believe that we would have substantial difficulty in finding an alternative supplier as we have identified and received quality knotweed from a number of new possible suppliers, although there can be no assurance that we will continue to be able to obtain dried extract from China at a competitive price point.

Research and Development

As of December 31, 2016, we had 38 full-time equivalent employees dedicated to research and development and patent related activities, 11 of whom hold Ph.D. degrees, plus 4 sales and field development personnel who focus on

technical support and demonstration and research field trials. Our research and development team has technical expertise in microbiology, natural product and analytical chemistry, biochemistry, fermentation, entomology, nematology, weed science, plant physiology, plant pathology and aquatic sciences. Our research and development activities include discovery, product development, product support, regulatory, patent and field trial activities, which are principally conducted at our Davis, California facility as well as by our field development specialists on crops and mussel-infested facilities in their respective regions. We have reduced the size of our research and development staff compared to prior periods as part of our measures to streamline business operations, but we have made, and will continue to make, substantial investments in research and development. Our research and development expenses, including patent expenses, were $9.7 million, $13.5 million and $19.3 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Intellectual Property Rights

We rely on patents and other proprietary right protections, including trade secrets and proprietary know-how, to preserve our competitive position. As of December 31, 2016, we had 34 issued U.S. patents and 153 issued foreign patents (of which 4 U.S. patents and 36 foreign patents were in-licensed), 25 pending U.S. provisional and non-provisional patent applications (of which 1 was in-licensed), and 162 pending foreign patent applications (of which 5 were in-licensed) relating to microorganisms and natural product compounds, uses and related technologies. As of December 31, 2016, we had received 17 U.S. trademark registrations and had 5 trademark applications pending in the United States. As of December 31, 2016, we also had received 617 trademark registrations and had 37 trademark applications pending in various other countries.

When we find a microbial product in our screen that kills or inhibits one or more pests or pathogens in at least three replicated tests and identify the microorganism and its associated chemistry, we file a patent application claiming any one or more of the following:

- the microorganism, its DNA products, as well as mutations and other derivatives;
- the use of the microorganism for pest management;
- novel natural product compounds, their analogs and unique mixtures of compounds produced by the microorganism;
- the new use of known natural product compounds for pest management;
    - formulations of the microorganism or compounds; and
- synergistic mixtures of the microorganism or compounds with conventional chemical or other pesticides.

One of our commercially available products and certain of our lead product candidates are based on microbes we have identified using our proprietary discovery process, including Venerate, Majestene and MBI-010, which are based on a Burkholderia bacterium, with respect to which we have 19 issued patents and 34 pending patent applications (both U.S. and foreign), and MBI-110 and MBI-507, which are based on a Bacillus strain, with respect to which we have 3 issued patents and 10 pending patent applications (both U.S. and foreign).

We have also entered into in-license and research and development agreements with respect to the use and commercialization of Regalia, Grandevo, Haven and Zequanox, as well as certain products under development, including MBI-601. Under the licensing arrangements for our commercially available products, we are obligated to pay royalty fees between 2% and 5% of net sales of these products, subject in certain cases to aggregate dollar caps. The exclusivity and royalty provisions of these agreements are generally tied to the expiration of underlying patents. For Regalia, the licensed patent is related to a method of extraction of knotweed. These patents acquired for Regalia and in-licensed for Zequanox will expire in or around 2017, although we have filed separate patent applications with respect to both product lines and have been issued four U.S. patents with respect to Regalia and three for Zequanox. In addition, the in-licensed U.S. patent for Grandevo is expected to expire in or around 2024, but there is a pending patent application relating to Grandevo that could expire later than 2024, if issued, and we have also filed separate patent applications for Grandevo of which five have been issued on a novel compound and uses for nematodes, corn rootworm and a variety of insects. While third parties thereafter may develop products using the technology under

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the expired patents, we do not believe that they can produce competitive products without infringing other aspects of our proprietary technology, and we therefore do not expect the expiration of the patents or the related exclusivity obligations to have a significant adverse financial or operational impact on our business. Certain additional information regarding the intellectual property associated with commercially available products based in part on in-licensed technology follows:

- Regalia. We entered into an exclusive license agreement with a company co-founded by Dr. Hans von Amsberg, a former employee of German chemical producer BASF, in May 2007 for U.S. and limited international use of a U.S. patent and technology used in our Regalia product line. Two U.S. patents have been issued on the synergistic combinations with biopesticides and conventional chemical pesticides, one patent has been issued on the new uses for soil and roots, and one patent has been issued on the new formulations of Regalia.
- Grandevo. We entered into a co-exclusive license agreement with the USDA in November 2007 for the use in the United States of a U.S.-issued patent and a U.S. patent application relating to the Chromobacterium subtsugae bacteria used in our Grandevo product line. We have filed patent applications on the compounds produced in the bacterial cells, gene sequences and new uses for the Chromobacterium subtsugae bacteria, and for new uses and new formulations of our Grandevo product line. Five U.S. patents have been issued on a novel compound produced by the bacteria for uses on a variety of insects, use for corn rootworm populations and for nematode control. While a second company has licensed the USDA's patent with respect to the Chromobacterium subtsugae bacteria and could develop products based on the same underlying intellectual property, we have not provided this company access to the proprietary technology we have developed relating to Grandevo.
- Zequanox. We entered into a license agreement with The University of the State of New York in December 2009 pursuant to which we were granted an exclusive license under the University's rights for the worldwide use of a U.S.-issued patent and a Canadian-issued patent relating to the Pseudomonas fluorescens bacteria used in our Zequanox product line. Four U.S. patents have been issued on the natural, mussel-killing compounds in the bacteria, and we have filed patent applications relating to various Zequanox active ingredients.

Regulatory Considerations

Our activities are subject to extensive federal, state, local and foreign governmental regulations. These regulations may prevent us or our collaborators from developing or commercializing products in a timely manner or under technically or commercially feasible conditions and may impose expenses, delays and other impediments to our product development and registration efforts. In the United States, the EPA regulates our bio-based pest management products under the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Federal Food, Drug and Cosmetics Act ("FFDCA") and the Food Quality Protection Act ("FQPA"). In addition, some of our plant health products are regulated as fertilizers or biostimulants in each of the fifty states.

In 2004, the United States Congress passed the Pesticide Registration Improvement Renewal Act, which was reauthorized in 2007 and 2012, a result of efforts from an industry coalition of pesticide companies and environmental groups, to codify pesticide approval times in return for user fees. This law facilitates faster approval times for biopesticides, with EPA approvals typically received within 16 to 24 months, compared with 36 months or longer for conventional chemical pesticides. Registration processes for state and foreign governments vary between jurisdictions and can take up to 12 months for state governments, such as California and New York, and up to 36 months or more for foreign governments. In some instances, California and Canada will conduct joint reviews with the EPA, which allows some pesticides to receive concurrent approvals in California, Canada and the United States. However, in most instances, most foreign government submissions will not occur until after a U.S. registration has been secured. To register a crop protection product with the EPA, companies must demonstrate the product is safe to mammals, non-target organisms, endangered species and the environment. To demonstrate the bio-based pest management product's safety, required studies must be conducted that evaluate mammalian toxicology, toxicological effects to non-target organisms in the environment (ecotoxicological exposures) and physical and chemical properties of the product. The registration dossier is subject to both scientific and administrative reviews by EPA scientists and management before registration approval. The scientific review involves thorough evaluation of submitted data and completion of risk assessments for human dietary and ecotoxicological exposures. Upon

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completion of this process, the registration package, including the proposed label, is sent to the Office of General Council for legal review. The final step in the registration process is administrative sign-off by the EPA director of the Biopesticides and Pollution Prevention Division.

In addition to EPA approval, we are required to obtain regulatory approval from the appropriate state regulatory authority in individual states and foreign regulatory authorities before we can market or sell any pest management product in those jurisdictions. Foreign governments typically require up to two seasons of locally generated field efficacy data on crop-pest combinations before a product dossier can be submitted for review. California and foreign jurisdictions also require us to submit product efficacy data, which the EPA historically has not required, but may request.

While these regulations substantially increase the time and cost associated with bringing our products to market, we believe that our management team's significant experience in bringing our and other companies' technologies through EPA, state and foreign regulatory approval, efficient development process and ability to leverage our strategic collaborations to assist with registrations, particularly in Europe and Latin America, will enable us to overcome these challenges.

Since our plant health products (which are classified by the EPA as biostimulants) are not used to control pests, they currently fall outside the legal scope of FIFRA, FFDCA and FQPA and, therefore, we do not need to submit applications for EPA registrations for such products. However, we must still submit state registrations for our plant health products, including Haven, for which registrations were submitted in the first quarter of 2017, and those containing microbes of foreign origin may also need to be "deregulated" (or determined not to be a plant pest) under the Plant Protection Act by the USDA Animal and Plant Health Inspection Service prior to use in field trials or for large scale release. Nevertheless, the regulatory process is significantly accelerated compared to that for biopesticides.

Regalia. The EPA granted approval for the Regalia SC formulation in August 2008, for the Regalia 5% ("Regalia") formulation in May 2009, for the Regalia 20% ("Regalia Maxx") formulation in January 2010 and for a "ready to use" consumer formulation in January 2010. In January 2016, we launched a new formulation of Regalia that no longer contains hexanol, which is difficult to source and is likely to experience future regulatory restrictions. This new formulation of Regalia disperses better in water and is easier to mix and rinse from containers and spray equipment. Regalia is currently registered in all U.S. states and Puerto Rico. We have also registered Regalia Maxx in Brazil, Mexico, Canada, South Africa, Ecuador, Turkey, Panama, El Salvador, Guatemala, Honduras, Peru, the Dominican Republic, Morocco and Tunisia.

In November 2011, we submitted an Annex 1 registration dossier to the European Union. Our Regalia registration package has completed initial review by regulatory authorities in the United Kingdom, which is serving as lead for completing the Annex 1 (active substance) listing of Regalia for the European Union. The UK-generated risk assessment has completed its technical review by the European Food Safety Authority, and it is currently being reviewed by the European Commission for Annex 1 listing consideration. In addition to obtaining the Annex 1 listing, we must obtain Annex 3 authorization approval from each country in which we plan to market and sell products. The EU regulatory process remains unpredictable and slow, but recent EU decisions on guidance for botanical pesticides and a proposed new process for biopesticide approvals in recent months indicate that the European Union may become more invested in expediting the approvals of reduced risk biopesticides. Regalia Maxx would be marketed as "Sakalia" by Syngenta throughout Europe and certain parts of the Middle East and Africa.

In 2016, we successfully completed regulatory field trials China, with good results on the targeted crops of grapes, strawberries, cucurbits and tomatoes. A required second season of repeated field trials are scheduled in 2017, and MBI anticipates submitting Regalia 5% for regulatory review in China by the end of 2017. Similarly, regulatory field trial efforts to support product approvals are underway in Kenya, the Philippines and Vietnam, and MBI continues to discuss distribution partnerships with other countries in Asia, Africa and the Middle East. Grandevo. In August 2011 and May 2012, the EPA granted approval for the Grandevo insecticide "technical grade active ingredient" and a wettable

powder formulation, respectively. The wettable powder formulation is registered in all 50 states as well as Puerto Rico and the District of Columbia. In May 2013, we received EPA approval for a revised label reflecting Grandevo's safety for bees. In addition, in 2016, we received approval for registration dossier for Grandevo in Mexico and we also received permission to field test Grandevo in Brazil, Australia, New Zealand,

South Africa, and certain west African countries, allowing us to prepare the dossiers for submission in those countries. We submitted dossiers for Grandevo registration in Europe and Canada in 2015, with the Netherlands recently finding the Grandevo dossier meeting “completeness check” requirements in July 2015 and officially starting the dossier review for the EU. Grandevo is also currently being field evaluated in a Brazilian government sponsored emergency use program to control an outbreak of Heliocoverpa armigera infestations in cotton and soya. Grandevo was submitted to the emergency use program in October 2014 and is under active review and field evaluation by Brazilian regulatory agencies. Concurrently, we continue to conduct field trials in Brazil on a variety of insect pests in order to have additional crop-pest uses added to the regulatory dossier and label.

Venerate. In February 2014, the EPA granted approval for Venerate. Venerate is currently registered in 48 states and Puerto Rico, with registration pending in New York and Hawaii. In 2014, we submitted Venerate registration dossiers in Canada and Mexico, receiving approval in Mexico in 2016. Several key regulatory efficacy trials to support Venerate Annex 1 listing in Europe have been completed and ongoing work, including additional toxicology studies we expect will be required will enable us to submit a dossier for Venerate in 2018. As with Grandevo, Venerate is also currently being field evaluated in a Brazilian government sponsored emergency use program to control an outbreak of Heliocoverpa armigera infestations in cotton and soya. Venerate also was submitted to the emergency use program in October 2014 and is under active review by Brazilian regulatory agencies. Concurrently, we continue to conduct field trials in Brazil on a variety of insect pests in order have broader uses available.

Majestene. In October 2015, the EPA granted product registration for Majestene. Majestene is currently registered in more than 25 states, including key states of Florida, Georgia, South Carolina, North Carolina, Wisconsin, Idaho, Washington and Oregon. We are currently preparing 2015 efficacy trial data to support product registration in California, with a regulatory submission to support tomato, strawberry, potato and corn uses in California made in the first quarter of 2016. With additional efficacy trial data generated in 2016, we expect to submit an expanded crop label to states in early 2017.

Zequanox. In July 2011, the EPA granted a conditional approval of the “technical grade active ingredient” in an early formulation of Zequanox. A spray-dried powder formulation, which is an improvement over the “end product” approved in July 2011, was approved with an unconditional registration in March 2012, and this formulation is now commercially available. We also received approval for Zequanox for use in hydroelectric plants in Canada in November of 2012. We received EPA approval for open water uses in June 2014. Currently, Zequanox is being evaluated by several U.S. and Canadian federal, state and provincial entities as an invasive mussel eradication, native mussel habitat restoration and harmful algal bloom prevention tool in the Great Lakes region under the auspices of government programs. In-pipe and open water labels have been approved in all targeted states, with the exception of California where in-pipe uses are currently registered and the open water use label is under evaluation.

As with any pesticide, our pest management products will continue to be subject to review by the EPA and state regulatory agencies. The EPA has the authority to revoke the registration or impose limitations on the use of any of our pest management products if we do not comply with the regulatory requirements, if unexpected problems occur with a product or if the EPA receives other newly discovered adverse information. See Part I-Item 1A-“Risk Factors—Risks Relating to Our Business and Strategy—Our inability to obtain regulatory approvals, or to comply with ongoing and changing regulatory requirements, could delay or prevent sales of the products we are developing and commercializing.” Our research and development activities are also subject to federal, state and local worker safety, air pollution, water pollution and solid and hazardous waste regulatory programs and periodic inspection. We believe that our facilities are in substantial compliance with all applicable environmental regulatory requirements.

Competition

For pest management products, performance and value are critical competitive factors. To compete against manufacturers of conventional chemical pesticides and genetically modified crops, we need to demonstrate the advantages of our products over these more established pest management products. Many large agrichemical

companies are developing, and have introduced, new conventional chemical pesticides and genetically modified products that they believe are safer and more environmentally friendly than older conventional chemical products.

The pest management market is very competitive and is dominated by multinational chemical and life sciences companies such as Arysta, BASF, Bayer, Dow Agrosciences and DuPont (potentially merging to become

DowDuPont), FMC, Monsanto (being acquired by Bayer), Sumitomo Chemical and Syngenta (being acquired by ChemChina). Universities, research institutes and government agencies may also conduct research, seek patent protection and, through collaborations, develop competitive pest management products. Other companies, including bio-specialized biopesticide businesses such as AgraQuest (now a part of Bayer), Certis USA (now a part of Mitsui), Novozymes (in a joint venture with Monsanto) and Valent Biosciences (now a part of Sumitomo) may prove to be significant competitors in the bio-based pest management and plant health market. In addition, we could face competition in the future from new, well-financed start-up companies such as AgBiome and Indigo.

In many instances, agrichemical companies have substantially greater financial, technical, development, distribution and sales and marketing resources than we do. Moreover, these companies may have greater name recognition than we do and may offer discounts as a competitive tactic. There can be no assurance that our competitors will not succeed in developing pest management products that are more effective or less expensive than ours or that would render our products obsolete or less competitive. Our success will depend in large part on our ability to maintain a competitive position with our technologies and products.

Employees

In connection with our recent changes in business strategy, we have significantly reduced overall headcount, while building a new sales and marketing organization which provides for increased training and a better ability to educate and support customers in specialty crop markets as well as transitioning our product development staff to undertake greater responsibility for technical sales support, field trials and demonstrations to promote sales growth. As of December 31, 2016, we had 97 full-time equivalent employees, of whom 11 hold Ph.D. degrees. Approximately 38 employees are engaged in research and development and patent related activities, 16 in sales and marketing (including 4 sales and field development personnel who focus on technical support and demonstration and research field trials), 30 in operations, including manufacturing, supply chain and quality assurance, and 13 in management, accounting/finance and administration. None of our employees are represented by a labor union.

Corporate Information

We were originally incorporated in the State of Delaware in June 2006 as Marrone Organic Innovations, Inc. Our principal executive offices are located at 1540 Drew Avenue, Davis, CA 95618. Our telephone number is (530) 750-2800. Our website address is www.marronebioinnovations.com.

ITEM 1A. RISK FACTORS

Our operations and financial results are subject to various risks and uncertainties, including those described below, which could adversely affect our business, financial condition, results of operations, cash flows, growth prospects and the trading price of our common stock.

Risks Relating to Our Business and Strategy

We have a limited number of commercialized products, have incurred significant losses to date and anticipate continuing to incur losses in the future, and we may not achieve or maintain profitability.

We are an early stage company with a limited number of commercialized products. We have incurred operating losses since our inception in June 2006, and we expect to continue to incur operating losses for the foreseeable future. As of December 31, 2016 and 2015, we had an accumulated deficit of $234.6million and $203.6 million, respectively. For the years ended December 31, 2016, 2015 and 2014, we had a net loss attributable to common stockholders of $31.1million, $43.7 million and $51.7 million, respectively. As a result, we will need to generate significant revenues to achieve and maintain profitability, and we may not be able to achieve profitability in the near future or at all, which may depress our stock price.

Through December 31, 2016, we have derived substantially all of our revenues from sales of Regalia, Grandevo and Majestene. In addition, we have derived revenues from strategic collaboration and development agreements for the achievement of testing validation, regulatory progress and commercialization events, and from sales of other products. Accordingly, there is only a limited basis upon which to evaluate our business and prospects. Our future

success depends, in part, on our ability to market and sell other products, such as Zequanox and Venerate, as well as our ability to increase sales of Regalia and Grandevo and to introduce new products. An investor in our stock should consider the challenges, expenses and difficulties we will face as a company seeking to develop and manufacture new types of products in a relatively established market. We expect to derive future revenues primarily from sales of Regalia, Grandevo, Zequanox, Venerate, Majestene, Haven and other products, but we cannot guarantee the magnitude of such sales, if any. We expect to continue to devote substantial resources to expand our research and development activities, further increase manufacturing capabilities and expand our sales and marketing activities for the further commercialization of Regalia, Grandevo, Zequanox, Venerate, Majestene, Haven and other product candidates. We expect to incur additional losses for the foreseeable future, including at least the next several years, and may never become profitable.

There is uncertainty about our ability to continue as a going concern.

Our consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business.

Our cash and cash equivalents were $9.6 million at December 31, 2016, compared with $19.8 at December 31, 2015. Based on this cash on hand and our expectation to continue to incur significant operating losses, we do not have the capital to finance operations for the next twelve months. These circumstances raise substantial doubt about our ability to continue as a going concern, which depends on our ability to raise additional capital and increase revenues. Our consolidated financial statements do not include any adjustments that might be necessary should we be unable to continue as a going concern. Management also believes that concerns regarding our ability to continue operations has impacted our ability to grow more robustly.

We expect to require additional financing in the future to meet our business requirements and to service our debt. Such capital raising may be costly, difficult or not possible to obtain and, if obtained, could significantly dilute current stockholders' equity interests, and we may be unable to repay our secured indebtedness.

In our August 2015 private placement transaction, we issued senior secured promissory notes in the initial aggregate principal amount of $40.0 million, which accrue interest at a rate of 8% per annum, with $10.0 million payable three years from the closing, $10.0 million payable four years from the closing and $20.0 million payable five years from the closing. In June 2014, we borrowed $10.0 million pursuant to a promissory note with a bank, which accrues interest at a variable interest rate, 5.5% per annum as of December 31, 2016, and which is repayable in monthly payments through June 2036. We also completed private placements in October 2012 and April 2013 of promissory notes in the aggregate principal amount of $12.5 million, which, following their amendment in November 2016, now accrue interest at 14% through maturity in October 2018. The debt agreements with respect to these transactions contain various financial and other covenants, as discussed below, and our obligations under the loan agreements are secured by all of our real and personal property assets and general intangibles.

As we expect to continue to incur significant losses until we are able to significantly increase our revenue, we expect to need significant additional financing to meet the financial covenants or pay the principal and interest under our debt agreements, as well as to maintain and expand our business. We intend to seek additional funds from public or private equity offerings, debt financings, strategic collaborations involving up-front cash payments or other means. Additional capital may not be available on terms acceptable to us, or at all. Any additional equity financing may be significantly dilutive to stockholders or, in some cases, require us to seek shareholder approval for the financing, and debt financing, if available, may include restrictive covenants and bear high rates of interest. In addition, our existing loan agreements contain certain restrictive covenants that either limit our ability to, or require a mandatory prepayment if we incur additional indebtedness and liens and enter into various specified transactions. We therefore may not be able to engage in any of the foregoing transactions unless we obtain the consent of our lenders or prepay the outstanding amounts under the debt agreements, which could require us to pay additional prepayment penalties. In addition, we may incur substantial costs in pursuing future capital financing, including investment banking fees, legal

fees, accounting fees, securities law compliance fees, printing and distribution expenses and other costs. We also may be required to recognize non-cash expenses in connection with certain securities we issue, such as warrants, which may adversely impact our financial results.

Certain of our debt agreements also contain financial covenants, including maintaining minimum current, debt-to-worth and loan-to-value ratios and provisions providing for an event of default if there is a material adverse change in our financial condition or if we are in default under certain of our other agreements. While we are not currently in default under any of these agreements, and none of our lenders have previously declared an event of default on our indebtedness, prior to our recent receipt of waivers from our lenders, we had not been in compliance with certain of these covenants. Further, we expect that immediately after the waiver under our promissory note with Five Star Bank has expired on December 31, 2017, we will be in violation of the note's requirement to remain below a maximum debt-to-worth ratio. Breach of covenants included in our debt agreements, which could result in the lenders demanding payment of the unpaid principal and interest balances. If we fail to pay any principal or interest under our indebtedness when due, or are otherwise in violation of certain covenants under our debt agreements, this may result in the acceleration of our indebtedness, which would have a material adverse effect upon our business and would likely require us to seek to renegotiate these debt arrangements with the lenders, as we may not have sufficient funds to repay that indebtedness.

If we cannot raise more money when needed, or are unable to use our future working capital, borrowings or equity financing to repay or refinance the amounts outstanding under our debt agreements or to renegotiate our debt arrangements with lenders, we may have to reduce our capital expenditures, scale-back our development of new products, reduce our workforce or license to others products that we otherwise would seek to commercialize ourselves. Any of these eventualities would likely have a material adverse impact on our value and the value of our equity. Further, we may not be able to continue operating if we do not raise new capital or generate sufficient revenue from operations needed to stay in business, and we may be required to seek protection from creditors through bankruptcy proceedings. See Part II-Item 7-"Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources" below.

Our business may fail if we are not able to increase sales.

Our future success will depend on our ability to significantly increase sales from the bio-based pest management products we have commercialized, both domestically and abroad. Our initial sales of our primary formulation of Regalia and our initial formulation of Grandevo occurred in the fourth quarter of 2009 and the fourth quarter of 2011, respectively. We began selling Zequanox in the second half of 2012, Venerate in May 2014 and Majestene in December 2015, and Haven became commercially available in March 2017. However, while we have invested considerable resources in the launch of our products, various factors have impeded growth in sales of these products.

For example, we believe adverse conditions in the U.S. agricultural industry, including low commodity prices, may have reduced demand for our products. Further delays in regulatory approvals of certain of our products in Europe and other jurisdictions may slow international growth, and any delay in a product launch that causes us to miss a growing season may require us to wait a year to enter that market. The extended drought in California and other markets has reduced demand for our products as fewer acres are planted, changes in weather patterns in Florida resulted in a shortened bloom cycle for the citrus market and few pesticide and plant health products being used, and certain of our strategic collaborations have not resulted in significant increases in sales of Regalia outside of the Unites States. Due to our prioritization plan, we have not committed sufficient resources to Zequanox in order to market it full-scale, and our collaboration efforts with regard to this product may not result in increased sales. In addition, the departures of our former chief operating officer and significant members of our sales staff in the third quarter of 2014 and subsequent turnover in our sales and marketing department disrupted the 2014 launch of Venerate as well as growth in sales of our other commercialized products, including Regalia and Grandevo. Further, we believe that following the announcement of the matters relating to our recent restatement, some customers and potential customers were concerned about our reported investigation efforts, and therefore, were reluctant to do business with us until after we had reached a settlement with the SEC.

Lower than expected sales growth may result in an increase in write-offs and inventory obsolescence if we are not be able to use raw materials or sell finished goods before they expire, and may result in higher proportional operating

expense levels, increases in our cost of product revenues and decreases in product margins as we are unable to manufacture products as efficiently at low volumes and underutilization of our Bangor, Michigan manufacturing facility results in increased relative overhead and operating costs in addition to decreased allocation of depreciation and other costs to production and inventory. If we are unable to establish a successful sales and

marketing infrastructure internally and increase sales of our commercialized products, our financial results will be adversely affected, our available cash and ability to raise additional capital will decrease and our business may fail.

We have limited experience in marketing and selling our products and will need to expand our sales and marketing infrastructure.

We currently have limited sales and marketing experience and capabilities. As of December 31, 2016, we employed 16 full-time equivalent sales and marketing personnel, 4 of which focus on technical support and demonstration and conducting field trials and 4 of which focus on marketing. Many of these sales personnel are recent hires following the departures in the third quarter of 2014 of our former chief operating officer, who led our sales and marketing teams, and significant members of our sales staff. These new personnel have required significant training to attain a high level of technical expertise and knowledge regarding the capabilities of our bio-based products compared with conventional chemical pest management products and techniques in order to educate growers and independent distributors on the uses and benefits of our products. We will need to further develop our sales and marketing capabilities and find partners in order to successfully increase sales of our commercially available products and to commercialize other products we are developing, which may involve substantial costs. We will also need to further expand our field development team to include more technical service activities to support sales. There can be no assurance that our specialists and other members of our sales and marketing team will successfully compete against the sales and marketing teams of our current and future competitors, many of which may have more established relationships with distributors and growers. Our inability to recruit, train and retain sales and marketing personnel, or their inability to effectively market and sell the products we are developing, could impair our ability to gain market acceptance of our products and cause our sales to suffer.

If we are unable to maintain and further establish successful relations with the third-party distributors that are our principal customers, or they do not focus adequate resources on selling our products or are unsuccessful in selling them to end users, sales of our products will be adversely affected.

In the United States, we rely on independent distributors of agrichemicals to distribute and assist us with the marketing and sale of Regalia, Grandevo, Venerate, Majestene, Haven and other products we are developing. We also are leveraging these relationships to sell Bio-Tam 2.0 in California, Oregon, Washington and Arizona. These distributors are our principal customers, and revenue growth will depend in large part on our success in establishing and maintaining this sales and distribution channel. However, there can be no assurance that our distributors will be successful in selling our products to end users, or will focus adequate resources on selling them, and they may not continue to purchase or market our products for a number of reasons.

For example, many distributors lack experience in marketing bio-based pest management and plant health products, which generally must be used differently than conventional chemical pesticides. Distributors may not continue to market our products if they receive negative feedback from end users, even if we believe our products are being blamed for damage to treated plants caused by other pesticides with which our products have been combined (whether properly or improperly). In addition, many of our distributors are in the business of distributing and manufacturing other, possibly competing, pest management and plant health products, including internally developed and commercialized bio-based products as well as bio-based products developed by larger agrichemical companies that negotiate to “bundle” such specialty products with other high demand products. As a result, our distributors may earn higher margins by selling competing products or combinations of competing products. Our recent Audit Committee investigation, financial restatement and SEC investigation imposed additional work on our distributors, which has been perceived negatively in some cases, and distributors may also react negatively to additional “sell-through” reporting requirements we may require of them to apply our own revenue recognition policies. If we are unable to establish or maintain successful relationships with independent distributors, we will need to further develop our own sales and distribution capabilities, which would be expensive and time-consuming, and the success of which would be uncertain.

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The product candidates we select for development and commercialization may fail to generate significant revenues, and we may not be able to successfully enter into strategic collaborations with respect to our other product candidates.

We have implemented a prioritization plan that focuses our research and development on products that are expected to have the greatest near-term growth potential. Accordingly, we are currently limiting our internal development efforts to three product candidates: MBI-010, a bioherbicide that is based on the same microorganism in Venerate and Majestene, which we plan to submit to the EPA in 2017; MBI-110, a biofungicide, which we submitted to the EPA in January 2016; and MBI-601, a biopesticide that produces gaseous natural compounds that functions as a "biofumigant," which received EPA approval in November 2016. Simultaneously, we are seeking collaborations with third parties to develop and commercialize more early stage candidates on which we have elected not to expend significant internal resources.

Successful development of product candidates will require significant additional investment, including costs associated with research and development, completing field trials and obtaining regulatory approval, as well as the ability to manufacture our products in large quantities at acceptable costs while also preserving high product quality. Difficulties often encountered in scaling up production include problems involving production yields, quality control and assurance, shortage of qualified personnel, production costs and process controls. In addition, we are subject to inherent risks associated with new products and technologies. These risks include the possibility that any product candidate may:

- be found unsafe;
- be ineffective or less effective than anticipated;
- fail to receive or take longer to receive necessary regulatory approvals;
- be difficult to competitively price relative to alternative pest management solutions;
- be harmful to consumers, growers, farm workers or the environment;
- be harmful to crops when used in connection with conventional chemical pesticides;
- be difficult or impossible to manufacture on an economically viable scale;
- be subject to supply chain constraints for raw materials;
- fail to be developed and accepted by the market prior to the successful marketing of similar products by competitors;
- be impossible to market because it infringes on the proprietary rights of third parties; or
- be too expensive for commercial use.

Our decisions regarding which product candidates to pursue may cause us to fail to capitalize on product candidates that could have given rise to viable commercial products and profitable market opportunities. In addition, we may not be successful in entering into new arrangements with third parties, on favorable terms or at all, with respect to product candidates we do not pursue internally.

Adverse weather conditions and other natural conditions can reduce acreage planted or incidence of crop disease or pest infestations, which can adversely affect our results of operations.

Production of the crops on which our products are typically applied is vulnerable to extreme weather conditions such as heavy rains, hurricanes, hail, tornadoes, freezing conditions, drought, fires and floods. Weather conditions can be impacted by climate change resulting from global warming, including changes in precipitation patterns and the increased frequency of extreme weather events, or other factors. Unfavorable weather conditions can reduce both acreage planted and incidence (or timing) of certain crop diseases or pest infestations, each of which may reduce demand for our products. For example, in 2013 and 2012, the United States experienced nationwide abnormally low rainfall or drought, reducing the incidence of fungal diseases such as mildews and the demand for fungicides such as Regalia. These conditions have been present in some of our key markets throughout both 2015 and 2014 as well, and have also resulted in further reductions in acreage planted throughout California and the Pacific Northwest.

Shortened bloom cycles relating to changes in weather patterns also could reduce the amount of pesticides and plant health products used during a growing season. For example, in 2014, the Florida citrus market experienced a shortened bloom cycle as a result of changes in weather patterns, which negatively affected our sales of Grandevo in the Florida market. In addition, ideal weather conditions can reduce the incidence of diseases and pest infestations and increase yields without the use of additional pesticide and plant health applications. Increased yields can also reduce commodity prices causing growers to make a decision not to increase costs by reducing the amount of pesticides and plant health products used during a growing season. Since all of our products have different margins, changes in product mix as a result of these conditions could affect our overall margins.

If our ongoing or future field trials are unsuccessful, we may be unable to obtain regulatory approval of, or commercialize, our products on a timely basis.

The successful completion of multiple field trials in domestic and foreign locations on various crops and water infrastructures is critical to the success of our product development and marketing efforts. If our ongoing or future field trials are unsuccessful or produce inconsistent results or unanticipated adverse side effects on crops or on non-target organisms, or if we are unable to collect reliable data, regulatory approval of our products could be delayed or we may be unable to commercialize our products. In addition, more than one growing or treatment season may be required to collect sufficient data and we may need to collect data from different geographies to prove performance for customer adoption. Although we have conducted successful field trials on a broad range of crops, we cannot be certain that additional field trials conducted on a greater number of acres, or on crops for which we have not yet conducted field trials, will be successful. Moreover, the results of our ongoing and future field trials are subject to a number of conditions beyond our control, including weather-related events such as drought or floods, severe heat or frost, hail, tornadoes and hurricanes, or low or no natural occurrence of the pests intended for testing. Generally, we pay third parties, such as growers, consultants and universities, to conduct field tests on our behalf. Incompatible crop treatment practices or misapplication of our products by these third parties or lack of sufficient occurrence of the identified pests in nature for a particular trial could impair the success of our field trials.

Our inability to obtain regulatory approvals, or to comply with ongoing and changing regulatory requirements, could delay or prevent sales of the products we are developing and commercializing.

The field testing, manufacture, sale and use of pest management products, including Regalia, Grandevo, Zequanox, Venerate, Majestene and other products we are developing, are extensively regulated by the EPA and state, local and foreign governmental authorities. These regulations substantially increase the time and cost associated with bringing our products to market. If we do not receive the necessary governmental approvals to test, manufacture and market our products, or if regulatory authorities revoke our approvals, do not grant approvals in a timely manner or grant approvals subject to restrictions on their use, we may be unable to sell our products in the United States or other jurisdictions, which could result in a reduction in our future revenues.

We have received approval from the EPA for the active ingredients and certain end product formulations for Regalia, Grandevo, Zequanox, Venerate, Majestene MBI-601, MBI-005 and MBI-011. As we introduce new formulations of and applications for our products, we will need to seek EPA approval prior to commercial sale. For any such approval, the EPA may require us to fulfill certain conditions within a specified period of time following initial approval. We are also required to obtain regulatory approval from other state and foreign regulatory authorities before we market our products in their jurisdictions, some of which have taken, and may take, longer than anticipated.

Some of these states and foreign countries may apply different criteria than the EPA in their approval processes. Although federal pesticide law preempts separate state and local pesticide registration requirements to some extent, state and local governments retain authority to control pesticide use within their borders.

There can be no assurance that we will be able to obtain regulatory approval for marketing our additional products or new product formulations and applications we are developing. Although the EPA has in place a registration procedure

for biopesticides like Regalia and Grandevo that is streamlined in comparison to the registration procedure for conventional chemical pesticides, there can be no assurance that all of our products or product extensions will be eligible for this streamlined procedure or that additional requirements will not be mandated by the EPA that could make the procedure more time consuming and costly for our future products.

Additionally, for California state registration and registration in jurisdictions outside of the United States, all products need to be proven efficacious for each proposed crop-pest combination, which can require costly field trial testing, and a favorable result is not assured. Because many of the products that may be sold by us must be registered with one or more government agencies, the registration process can be time consuming and expensive, and there is no guarantee that the product will obtain all required registrations. We have intentionally obtained registration in some jurisdictions and not in others. California is one of the largest and most important producers of agricultural products in the world. Because of its stringent regulation of pesticides and environmental focus, we also view California as one of the most natural and attractive markets for our products. However, California is also very stringent, is generally more time consuming and lacks legally mandated deadlines for its reviews of reduced-risk biopesticides. Therefore, gaining concurrent approvals with the EPA, other states and sometimes even other countries may not always be achievable. Even if we obtain all necessary regulatory approvals to market and sell our products, they will be subject to continuing review and extensive regulatory requirements, including periodic re-registrations. The EPA, as well as state and foreign regulatory authorities, could withdraw a previously approved product from the market upon receipt of newly discovered information, including an inability to comply with their regulatory requirements or the occurrence of unanticipated problems with our products, or for other reasons.

Bio-based pest management and plant health products are not well understood, which necessitates investment in customer education and makes effectively marketing and selling our products difficult.

The market for bio-based pest management and plant health products is underdeveloped when compared to conventional pesticides. Customers in the crop production sector and the water treatment sector are generally cautious in their adoption of new products and technologies. Growers often require on-farm demonstrations of a given pest management or plant health product. Initial purchases of the product tend to be conservative, with the grower testing on a small portion of their overall crop. As the product is proven, growers incorporate the product into their rotational programs and deploy it on a greater percentage of their operations. As a result, large scale adoption generally takes several growing seasons. Water treatment products must also pass efficacy and ecological toxicity tests. In addition, given the relative novelty of our water treatment products, consumers of those products will continue to require education on their use, which may delay their adoption.

In addition, customers have historically perceived bio-based pest management products as more expensive and less effective than conventional chemical pesticides. To succeed, we will need to continue to change that perception. To the extent that the market for bio-based pest management products does not further develop or customers elect to continue to purchase and rely on conventional chemical pesticides, our market opportunity will be limited.

The high level of competition in the market for pest management and plant health products may result in pricing pressure, reduced margins or the inability of our products to achieve market acceptance.

The markets for pest management and plant health products are intensely competitive, rapidly changing and undergoing consolidation. 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 our products.

Many entities are engaged in developing pest management and plant health products. Our competitors include major multinational agrichemical companies such as Arysta, BASF, Bayer, Dow Agrosciences, DuPont, FMC, Monsanto, Sumitomo Chemical and Syngenta, some of which have developed bio-based products for our target markets, as well as specialized bio-based pesticide and plant health businesses such as AgraQuest (now a part of Bayer), Certis USA (now a part of Mitsui), Novozymes (in a joint venture with Monsanto) and Valent Biosciences (now a part of Sumitomo). Many of these organizations have longer operating histories, significantly greater resources, greater brand recognition and a larger base of customers than we do. As a result, they may be able to devote greater resources to the manufacture, promotion or sale of their products, receive greater resources and support from independent distributors, initiate or withstand substantial price competition or more readily take advantage of acquisition or other opportunities. Further, many of the large agrichemical companies have a more diversified product offering than we do, which may

give these companies an advantage in meeting customers' needs by enabling them to offer a broader range of pest management and plant health solutions. In addition, we could face competition in the future from new, well-financed start-up companies such as AgBiome and Indigo.

Our product sales are subject to weather conditions and other factors beyond our control, which may cause our operating results to fluctuate significantly quarterly and annually.

The level of seasonality in our business overall is difficult to evaluate as a result of our relatively early stage of development, our relatively limited number of commercialized products, our expansion into new geographical territories, the introduction of new products, the timing of introductions of new formulations and products and our recognition of revenue on both a “sell-in” and “sell-through” basis, depending on the transaction. It is possible that our business may become more seasonal, or experience seasonality in different periods, than anticipated, particularly if we expand into new geographical territories, add or change distributors or distributor programs or introduce new products with different applicable growing seasons, or if a more significant component of our revenue becomes comprised of sales of Zequanox, which has a separate seasonal sales cycle compared to our crop protection products.

Notwithstanding any such seasonality, we expect substantial fluctuation in sales year over year and quarter over quarter as a result of a number of variables on which sales of our products are dependent. Weather conditions, natural disasters and other factors affect planting and growing seasons and incidence of pests and plant disease, and accordingly affect decisions by our distributors, direct customers and end users about the types and amounts of pest management and plant health products to purchase and the timing of use of such products. In addition, disruptions that cause delays by growers in harvesting or planting can result in the movement of orders to a future quarter, which would negatively affect the quarter and cause fluctuations in our operating results. For example, late snows and cold temperatures in the Midwestern and Eastern United States in the first and second quarters of 2014 delayed planting and pesticide and plant health applications. Customers also may purchase large quantities of our products in a particular quarter to store and use over long periods of time or time their purchases to manage their inventories, which may cause significant fluctuations in our operating results for a particular quarter or year, and low commodity prices may discourage growers from purchasing our products in an effort to reduce their costs and increase their margins for a growing season.

Our expense levels are based in part on our expectations regarding future sales. As a result, any shortfall in sales relative to our expectations could cause significant fluctuations in our operating results from quarter to quarter, which could result in uncertainty surrounding our level of earnings and possibly a decrease in our stock price.

We rely on the experience and expertise of our senior management team and other key personnel, and if we are unable to recruit or retain qualified personnel, our development and commercialization efforts may be significantly delayed.

We depend heavily on the principal members of our management, particularly Pamela G. Marrone, Ph.D., our founder, President and Chief Executive Officer, the loss of whose services might significantly delay or prevent the achievement of our scientific or business objectives. Although we maintain and are the beneficiary of $10.0 million in key person life insurance policies for the life of Dr. Marrone, we do not believe the proceeds would be adequate to compensate us for her loss.

We have a lean staff, and rely on qualified sales and marketing, research and development and management personnel to succeed. For example, the departures of our former chief operating officer and significant members of our sales staff in the third quarter of 2014 and subsequent turnover in our sales and marketing department adversely impacted our business by disrupting the 2014 launch of Venerate as well as the growth in sales of our other commercialized products, including Regalia and Grandevo. The process of hiring, training and successfully integrating qualified personnel into our operation is lengthy and expensive. The market for qualified personnel, such as experienced fermentation engineers and formulation chemists, is very competitive because of the limited number of people available with the necessary technical skills and understanding of our technology and anticipated products, and few sales and marketing personnel have prior experience with bio-based products. Perceived instability and risk in our business has made it difficult to retain qualified personnel and could impair our ability to meet our business objectives and adversely affect our results of operations and financial condition.

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If we or our third-party manufacturers are unable to produce our products at a satisfactory quality, in a timely manner, in sufficient quantities or at an acceptable cost, our business could be negatively impacted.

We have transitioned the majority of our manufacturing processes in-house to our facility in Bangor, Michigan. If severe weather, a fire or natural disaster occurs, a contaminant grows in our fermentations, or a mechanical or labor problem leads to a reduced capacity or shutdown of our fermenters or other equipment, we may not be successful in producing the amount and quality of product we anticipate in the facility and our results of operations may suffer as a result.

We also continue to rely on third parties to formulate Grandevo and Zequanox into spray-dried powders and for granulating Grandevo WDG and for all of our production of Venerate, Majestene and Haven, and from time to time, we expect to use third-party manufacturers for supplemental production capacity to meet excess seasonal demand and for packaging. Our reliance on third parties to manufacture our products presents significant risks to us, including the following:

- reduced control over delivery schedules, yields and product reliability;
- price increases;
- manufacturing deviations from internal and regulatory specifications, including contaminations;
- the failure of a key manufacturer to perform its obligations to us for technical, market or other reasons;
- challenges presented by introducing our fermentation processes to new manufacturers or deploying them in new facilities;, including contaminations;
- difficulties in establishing additional manufacturers if we are presented with the need to transfer our manufacturing process technologies to them;
- misappropriation of our intellectual property; and
- other risks in potentially meeting our product commercialization schedule or satisfying the requirements of our distributors, direct customers and end users.

We have not entered into any long-term manufacturing or supply agreements for any of our products, and we may need to enter into additional agreements for the commercial development, manufacturing and sale of our products. There can be no assurance that we can do so on favorable terms, if at all.

Our products have been produced in quantities sufficient to meet commercial demand. However, our dependence upon others for the production of a portion of our products, or for a portion of the manufacturing process, particularly for drying, may adversely affect our ability to develop and commercialize our products on a timely and competitive basis. If manufacturing capacity is reduced or eliminated at one or more of our third-party manufacturers' facilities, we could have difficulties fulfilling our customer orders, and our net revenues and results of operations could decline.

We must accurately forecast demand for our products to obtain adequate and cost-effective capacity from our third-party manufacturers and to purchase certain of the raw materials used in our products at cost-effective rates. Our third-party manufacturers are not required to supply us products until we place and they accept our purchase orders, which generally occurs approximately one month prior to the anticipated product delivery date based on our own rolling forecasts. Our purchase orders may not be accepted and our third-party manufacturers may not be willing to provide us with additional products on a timely basis if they prioritize orders placed by other companies, many of whom are more established than us and order larger volumes of products. In addition, while raw material orders are generally placed one month in advance, because certain of the raw materials used in our products are in short supply or are subject to capacity demands, we place some raw material orders approximately six months in advance to avoid paying higher prices. Accordingly, if we inaccurately forecast demand for our products, we may be unable to meet our customers' delivery requirements, or we may accumulate excess inventories of products and raw materials.

Failure to achieve expected manufacturing yields for our products could negatively impact our operating results.

Low yields may result from product design, development stage or process technology failures. We do not know whether a yield problem exists until our products are manufactured based on our design. When a yield issue is identified, the product is analyzed and tested to determine the cause. As a result, yield deficiencies may not be identified until well into the production process. We may experience inability to ramp up yields in our own manufacturing facility. In the event that we continue to rely on third-party manufacturers, resolution of yield problems requires cooperation among, and communication between, us and our manufacturers. We have limited experience producing a number of our products at commercial scale, and we will not succeed if we cannot maintain or decrease our production costs and effectively scale our technology and manufacturing processes.

We rely on a single supplier based in China for a key ingredient of Regalia.

The active ingredient in our Regalia product line is derived from the giant knotweed plant, which we obtain from China. Our single supplier acquires raw knotweed from numerous regional sources and performs an extraction process on this plant, creating a dried extract that is shipped to our third-party manufacturer in the United States. Although we have identified additional sources of knotweed at competitive prices that appear to be reliable and of appropriate quality, there can be no assurance that we will continue to be able to obtain dried extract from China at a competitive price point. The Company endeavors to keep 9-12 months of knotweed extract on hand at any given time.

Other ingredients used in the manufacturing of our products are also sourced from a limited number of suppliers. There can be no assurance that we will continue to be able to obtain such ingredients reliably and of appropriate quality at a competitive price point.

Our Zequanox product line requires additional development to become profitable, and our collaborative efforts on this product may not result in increased sales or gross margins.

Our Zequanox product line is principally designed to control invasive mussels that restrict critical water flow in industrial and power facilities and impinge on access to recreational waters. Although Zequanox requires additional development to become profitable, due to our prioritization plan, we have not committed sufficient resources to this product in order to market it full-scale and substantially improve gross margins. Our ability to generate significant revenues from Zequanox has been dependent on our ability to persuade customers to evaluate the costs of our Zequanox products compared to the overall cost of the chlorine treatment process, the primary current alternative to using Zequanox, rather than the cost of purchasing chemicals alone. Sales of Zequanox have also remained lower than our other products due to the length of the treatment cycle, the longer sales cycle (the bidding process with utility companies and government agencies occurs on a yearly or multi-year basis) and the unique nature of the treatment approach for each customer based on the extent of the infestation and the design of the facility. We expect our near-term sales of Zequanox will continue to be to governmental agencies and regulated industries, which typically take longer to negotiate and approve contracts than the private sector. Further, we currently expect that our governmental sales may be subject to bidding procedures as well as uncertainties surrounding these agencies' budget approval processes. We are pursuing partnerships to assist us in further developing Zequanox and expanding it commercially, but we may be unsuccessful in securing and maintaining collaboration efforts with regard to this product, and any such efforts may not result in increased sales or gross margins.

We depend on a limited number of distributors.

Our current revenues are derived from a limited number of key customers, each of which serves as a third-party distributor to our products' end users. For the years ended December 31, 2016, 2015 and 2014, our top two distributors accounted for 30%, 38% and 43% of our total revenues, respectively. We expect a limited number of distributors to continue to account for a significant portion of our total revenues for the foreseeable future. This customer concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction

of business from one or a combination of our significant distributors could materially adversely affect our revenues, financial condition and results of operations.

Any decline in U.S. agricultural production could have a material adverse effect on the market for pesticides and on our results of operations and financial position.

Conditions in the U.S. agricultural industry significantly impact our operating results. The U.S. agricultural industry has contracted in recent periods, and can be affected by a number of factors, including weather patterns and field conditions, current and projected grain inventories and prices, domestic and international demand for U.S. agricultural products and U.S. and foreign policies regarding trade in agricultural products. State and federal governmental policies, including farm subsidies and commodity support programs, as well as the prices of fertilizer products and the prices at which produce may be sold, may also directly or indirectly influence the number of acres planted, the mix of crops planted and the use of pesticides for particular agricultural applications. There are various proposals pending before the U.S. Congress to cut or eliminate various agricultural subsidies. If such proposals are implemented, they may adversely impact the U.S. agricultural industry and suppliers to that industry such as us.

Our intellectual property is integral to our business. If we are unable to protect our patents and proprietary rights in the United States and foreign countries, our business could be adversely affected.

Our success depends in part on our ability to obtain and maintain patent and other proprietary rights protection for our technologies and products in the United States and other countries. If we are unable to obtain or maintain these protections, we may not be able to prevent third parties from using our proprietary rights. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. As of December 31, 2016, we had 34 issued U.S. patents and 153 issued foreign patents (of which 4 U.S. patents and 36 foreign patents were in-licensed), 25 pending provisional and non-provisional U.S. patent applications (of which one was in-licensed) and 162 pending foreign patent applications (of which 5 were in-licensed).

The patent position of biotechnology and biochemical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or products, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. For example, the U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition, recent changes to the patent laws of the United States provide additional procedures for third parties to challenge the validity of issued patents, some of which allow a lower evidentiary standard to hold a patent claim invalid. The laws of some foreign countries do not protect proprietary rights to the same extent as the laws of the United States, and we may encounter significant problems and costs in protecting our proprietary rights in these foreign countries.

Our patents, and those patents for which we have license rights, may be challenged, narrowed, invalidated or circumvented. In addition, our issued patents may not contain claims sufficiently broad to protect us against third parties with similar technologies or products or provide us with any competitive advantage. We are not certain that our pending patent applications will be issued. Moreover, our competitors could challenge or circumvent our patents or pending patent applications. It is also not possible to patent and protect all knowledge and know-how associated with our products, so there may be areas that are not protected such as certain formulations and manufacturing processes. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

For certain of our products, we hold co-exclusive licenses to certain of the intellectual property related to these products. Although our products that are derived from intellectual property licensed to us on a co-exclusive basis also include our own proprietary technology, the third parties with whom we share co-exclusive rights may develop products based on the same underlying intellectual property. This could adversely affect the sale of our products.

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Intellectual property litigation could cause us to spend substantial resources and could distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development, sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position could be harmed.

We have taken measures to protect our trade secrets and know-how, including the use of confidentiality agreements with our employees, consultants, advisors and third-party manufacturers. It is possible that these agreements may be breached and that any remedies for a breach will not make us whole. In addition, some courts inside and outside of the United States are less willing or unwilling to protect trade secrets. We generally control and limit access to, and the distribution of, our product documentation and other proprietary information. Despite our efforts to protect these proprietary rights, our trade secret-protected know-how could fall into the public domain, and unauthorized parties may copy aspects of our products and obtain and use information that we regard as proprietary. We also cannot guarantee that other parties will not independently develop our knowhow or otherwise obtain access to our technologies.

Third parties may misappropriate our microbial strains.

Third parties, including contract manufacturers, often have custody or control of our microbial strains. If our microbial strains were stolen, misappropriated or reverse engineered, they could be used by other parties who may be able to reproduce the microbial strains for their own commercial gain. If this were to occur, it would be difficult for us to challenge and prevent this type of use, especially in countries with limited intellectual property protection.

Other companies may claim that we infringe their intellectual property or proprietary rights, which could cause us to incur significant expenses or prevent us from selling our products.

Our success depends in part on our ability to operate without infringing the patents and proprietary rights of third parties. Product development is inherently uncertain in a rapidly evolving technological environment such as ours in which there may be numerous patent applications pending, many of which are confidential when filed, with regard to similar technologies. Patents issued to third parties may contain claims that conflict with our patents and that may place restrictions on the commercial viability of our products and technologies. Third parties could assert infringement claims against us in the future. We may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our products, product candidates and technology. We may not be aware of all such third-party intellectual property rights potentially relevant to our products and product candidates.

Any litigation, adversarial proceeding or proceeding before governmental authorities regarding intellectual property rights, regardless of its outcome, would probably be costly and require significant time and attention of our key management and technical personnel. Litigation, adversarial proceedings or proceedings before governmental

authorities could also force us to:

- stop or delay using our proprietary screening technology;
- stop or delay selling, manufacturing or using products that incorporate the challenged intellectual property;
- pay damages; and/or

enter into licensing or royalty agreements which, if available at all, may only be available on unfavorable terms. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We use hazardous materials in our business and are subject to potential liability under environmental laws. Any claims relating to improper handling, storage or disposal of hazardous materials could be time consuming and costly to resolve.

We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling, disposal and release of hazardous materials and certain waste products. Our research and development and manufacturing activities involve the controlled use of hazardous materials and biological waste. Some of these materials may be novel, including bacteria with novel properties and bacteria that produce biologically active compounds. We cannot eliminate the risk of accidental contamination or discharge and any injury resulting from these materials. In addition, although we have not currently identified any environmental liabilities, the manufacturing facility we purchased in July 2012 may have existing environmental liabilities associated with it that may also result in successor liabilities for us, and we will be subject to increased exposure to potential environmental liabilities as we manufacture our products on a larger scale. We may also be held liable for hazardous materials brought onto the premises of our manufacturing facility before we acquired title, without regard for fault for, or knowledge of, the presence of such substances, as well as for hazardous materials that may be discovered after we no longer own the property if we sell it in the future. In the event of an accident, or if any hazardous materials are found within our operations or on the premises of our manufacturing facility in violation of the law at any time, we may be liable for all cleanup costs, fines, penalties and other costs. This liability could exceed our resources, and, if significant losses arise from hazardous substance contamination, our financial viability may be substantially and adversely affected.

In addition, we may have to incur significant costs to comply with future environmental laws and regulations. We cannot predict the impact of new governmental regulations that might have an adverse effect on the research, development, production and marketing of our products. We may be required to incur significant costs to comply with current or future laws or regulations. Our business may be harmed by the cost of compliance.

Our collaborators may use hazardous materials in connection with our collaborative efforts. To our knowledge, their work is performed in accordance with applicable biosafety regulations. In the event of a lawsuit or investigation, however, we could be held responsible for any injury caused to persons or property by exposure to, or release of, hazardous materials used by these parties. Further, we may be required to indemnify our collaborators against all damages and other liabilities arising out of our development activities or products produced in connection with these collaborations.

Our headquarters and other facilities and certain manufacturers and suppliers are located in regions that are subject to natural disasters, as well as in some cases geopolitical risks and social upheaval.

Our Davis, California headquarters is located near a known earthquake fault. The impact of a major earthquake, fire or other natural disaster, including floods, on our Davis facilities, Bangor, Michigan manufacturing plant, infrastructure and overall operations is difficult to predict and any natural disaster could seriously disrupt our entire business process. In addition, Regalia is produced by a third-party manufacturer in Florida in a location that could be impacted by hurricane activity, and certain of our raw materials are sourced in China, which is subject to risks associated with uncertain political, economic and other conditions such as the outbreak of contagious diseases, such as avian flu, swine flu and SARS, and natural disasters. The insurance we maintain may not be adequate to cover our losses resulting from natural disasters or other business interruptions. Although these risks have not materially adversely affected our business, financial condition or results of operations to date, there can be no assurance that such risks will not do so in the future.

Inability to comply with regulations applicable to our facilities and procedures could delay, limit or prevent our research and development or manufacturing activities.

Our research and development and manufacturing facilities and procedures are subject to continual review and periodic inspection. We must spend funds, time and effort in the areas of production, safety and quality control and assurance to ensure full technical compliance with the regulations applicable to these facilities and procedures. If the EPA or another regulatory body determines that we are not in compliance with these regulations, regulatory approval of our products could be delayed or we may be required to limit or cease our research and development or manufacturing activities or pay a monetary fine. If we are required to limit or cease our research and development activities, our ability to develop new products would be impaired. In addition, if we are required to limit or cease our manufacturing activities, our ability to produce our products in commercial quantities would be impaired or prohibited, which would harm our business.

We may be exposed to product liability and remediation claims, which could harm our business.

The use of certain bio-based pest management and plant health products is regulated by various local, state, federal and foreign environmental and public health agencies. These regulations may include requirements that only certified or professional users apply the product or that certain products be used only on certain types of locations, may require users to post notices on properties to which products have been or will be applied, may require notification to individuals in the vicinity that products will be applied in the future or may ban the use of certain ingredients. Even if we are able to comply with all such regulations and obtain all necessary registrations, we cannot provide assurance that our products will not cause injury to crops, the environment or people under all circumstances. For example, our products may be improperly combined with other pesticides or, even when properly combined, our products may be blamed for damage caused by these other pesticides. The costs of remediation or products liability could materially adversely affect our future quarterly or annual operating results.

We may be held liable for, or incur costs to settle, liability and remediation claims if any products we develop, or any products that use or incorporate any of our technologies, cause injury or are found unsuitable during product testing, manufacturing, marketing, sale or use. These risks exist even with respect to products that have received, or may in the future receive, regulatory approval, registration or clearance for commercial use. We cannot guarantee that we will be able to avoid product liability exposure.

We currently maintain product liability insurance at levels we believe are sufficient and consistent with industry standards for companies at our stage of development. We cannot guarantee that our product liability insurance is adequate and, at any time, it is possible that this insurance coverage may not be available on commercially reasonable terms or at all. A product liability claim could result in liability to us greater than our assets or insurance coverage. Moreover, even if we have adequate insurance coverage, product liability claims or recalls could result in negative publicity or force us to devote significant time and attention to those matters, which could harm our business.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

As of December 31, 2016, we had approximately $190.1 million of federal and $164.3 million of state operating loss carryforwards available to offset future taxable income, which expire in varying amounts beginning in 2026 for federal and 2016 for state purposes if unused. It is possible that we will not generate taxable income in time to use these loss carryforwards before their expiration.

Section 382 of the Internal Revenue Code imposes restrictions on the use of a corporation’s net operating losses, as well as certain recognized built-in losses and other carryforwards, after an “ownership change” occurs. A Section 382 “ownership change” occurs if one or more stockholders or groups of stockholders who own at least 5% of our stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling

three-year period. Future issuances or sales of our stock (including certain transactions involving our stock that are outside of our control) could also result in an ownership change under Section 382. If an “ownership change” occurs, Section 382 would impose an annual limit on the amount of pre-change net operating losses and other losses we can use to reduce our taxable income generally equal to the product of the total value of our outstanding equity immediately prior to the “ownership change” (subject to certain adjustments) and the applicable

federal long-term tax-exempt interest rate for the month of the "ownership change." The applicable rate for ownership changes occurring in the month of December 2016 was 1.68%.

Because U.S. federal net operating losses generally may be carried forward for up to 20 years, the annual limitation may effectively provide a cap on the cumulative amount of pre-ownership change losses, including certain recognized built-in losses that may be utilized. Such pre-ownership change losses in excess of the cap may be lost. In addition, if an ownership change were to occur, it is possible that the limitations imposed on our ability to use pre-ownership change losses and certain recognized built-in losses could cause a net increase in our U.S. federal income tax liability and U.S. federal income taxes to be paid earlier than otherwise would be paid if such limitations were not in effect. Further, if the amount or value of these deferred tax assets is reduced, such reduction would have a negative impact on the book value of our common stock.

We completed a Section 382 analysis as of December 31, 2013 and concluded that approximately $0.5 million in federal net operating losses and approximately $0.2 million in federal research and development credits are expected to expire prior to utilization as a result of our previous ownership changes and corresponding annual limitations. We have not conducted an analysis to determine the amount of state net operating losses that are also expected to expire prior to utilization. Our existing net operating loss carryforwards or credits may be subject to significant limitations due to events occurring since December 31, 2013, and we have not updated our Section 382 analysis to consider events since December 31, 2013, including the effect of issuing common stock pursuant to a public offering in June 2014. Our inability to use these net operating loss carryforwards as a result of the Section 382 limitations could harm our financial condition.

Our business is subject to various governmental regulations, and compliance with these regulations may cause us to incur significant expenses. If we fail to maintain compliance with applicable regulations, we may be forced to recall products and cease their manufacture and distribution, which could subject us to civil or criminal penalties.

The complex legal and regulatory environment exposes us to compliance and litigation costs and risks that could materially affect our operations and financial results. These laws and regulations may change, sometimes significantly, as a result of political or economic events. They include environmental laws and regulations, tax laws and regulations, import and export laws and regulations, government contracting laws and regulations, labor and employment laws and regulations, securities and exchange laws and regulations, and other laws such as the Foreign Corrupt Practices Act. In addition, proposed laws and regulations in these and other areas could affect the cost of our business operations. We face the risk of changes in both domestic and foreign laws regarding trade, potential loss of proprietary information due to piracy, misappropriation or foreign laws that may be less protective of our intellectual property rights. Violations of any of these laws and regulations could subject us to criminal or civil enforcement actions, any of which could have a material adverse effect on our business, financial condition or results of operations.

Risks Related to Ownership of our Common Stock

Our stock price has in the past and may in the future fail to meet minimum requirements for continued listing on The Nasdaq Capital Market. Our ability to publicly or privately sell equity securities and the liquidity of our common stock could be adversely affected if we are delisted from The Nasdaq Capital Market or if we are unable to transfer our listing to another stock market.

In the past we have received written notifications from Nasdaq informing us that we were not in compliance with certain continued listing requirements of The Nasdaq Stock Market LLC ("Nasdaq"). As previously reported on our Current Report on Form 8-K filed on October 4, 2016, on October 3, 2016 we received notification from Nasdaq that the Company had regained compliance with the applicable requirements for continued listing on the Nasdaq Capital Market and that the Nasdaq Hearings Panel had determined to continue listing our common stock on the Nasdaq

Capital Market. Although our common stock has been transferred to the Nasdaq Capital Market and we have regained compliance with all applicable requirements for continued listing on the Nasdaq Capital Markets, there can be no assurance that we will maintain compliance with the requirements for listing our common stock on the Nasdaq Capital Markets. Delisting from the Nasdaq Capital Market could adversely affect our ability to raise additional financing through the public or private sale of equity securities, would significantly affect the ability of

investors to trade our securities and would negatively affect the value and liquidity of our common stock. Delisting could also have other negative results, including the potential loss of confidence by employees, the loss of institutional investor interest and fewer business development opportunities.

Our principal stockholders will have significant voting power and may take actions that may not be in the best interest of other stockholders.

As of December 31, 2016, our executive officers and directors and their affiliates beneficially owned or controlled, directly or indirectly, an aggregate of approximately 3.2 million shares, or 12.5% of our common stock. In addition, affiliates of Waddell & Reed Financial Inc., which beneficially own 19.99% of our common stock, hold $40.0 million of principal in senior secured promissory notes issued in August 2015. If all of these security holders act together, they will be able to exert significant control over our management and affairs, which could result in some corporate actions that our other stockholders do not view as beneficial such as failure to approve change of control transactions that could offer holders of our common stock a premium over the market value of our company. As a result, the market price of our common stock could be adversely affected.

Our common stock may experience extreme price and volume fluctuations, and you may not be able to resell shares of our common stock at or above the price you paid.

We are an early stage company with a limited trading history and a history of losses. Since shares of our common stock were sold in our initial public offering in August 2013 at a price of $12.00 per share, our stock price has ranged between $0.60 and $20.00 through December 31, 2016. The trading price of our common stock will likely continue to be highly volatile and could be subject to wide fluctuations in price in response to various factors, some of which are beyond our control. These factors include:

- the announcement of the Audit Committee’s independent investigation, the financial restatement and the SEC investigation and lawsuits arising out of related matters;
- our small public float relative to the total number of shares of common stock that are issued and outstanding;
- quarterly variations in our results of operations, those of our competitors or those of our customers;
- announcements of technological innovations, new products or services or new commercial relationships by us or our competitors;
- our ability to develop and market new products on a timely basis;
- disruption to our operations;
- media reports and publications about pest management products;
- announcements concerning our competitors or the pest management industry in general;
- our entry into, modification of or termination of key license, research and development or collaborative agreements;
- new regulatory pronouncements and changes in regulatory guidelines or the status of our regulatory approvals;
- general and industry-specific economic conditions;
- any major change in our board of directors or management;
- the commencement of, or our involvement in, litigation;
- changes in financial estimates, including our ability to meet our future net revenues and operating profit or loss projections; and
- changes in earnings estimates or recommendations by securities analysts.

Substantial future sales of our common stock, or the perception in the public markets that these sales may occur, may depress our stock price.

Sales of substantial amounts of our common stock in the public market, or the perception that such sales could occur, could adversely affect the market price of our common stock. As of December 31, 2016, we had approximately 24.7 million shares of common stock outstanding, 1.9 million which were held by our directors and officers and their affiliates and an additional 10.5 million shares which were held by other beneficial holders of 5% or more of our common stock. Although these shares are subject in some cases to volume and manner of sale restrictions of Rule 144 of the Securities Act, any determination by holders of a substantial number of such shares to sell our stock, or the perception that such sales may occur, could cause our stock price to decline. In addition, as of December 31, 2016 we had 1.6 million shares of our common stock either issued or available for issuance under our equity incentive plans. These shares may be sold in the public market upon issuance and once vested.

In addition, in December 2016, we filed a shelf registration statement on Form S-3 with the SEC, which registration statement was declared effective on January 6, 2017 and allows us to offer up to $50 million of securities from time to time in one or more public offerings. In December 2016, we also entered into an “at-the-market” offering agreement with Rodman and Renshaw, a unit of H.C. Wainwright & Co., LLC (“H.C. Wainwright”). In accordance with the terms of such agreement, we may, from time to time, offer and sell additional shares of our common stock having an aggregate offering price of up to $15 million. As of March 24, 2017, we sold a total of 104,000 shares of our common stock under the at-the-market program at a weighted-average selling price of $2.22 per share for proceeds (net of commission) of $0.2 million and $14.8 million and $49.8 million remained available for sale under the agreement with H.C. Wainwright and under the registration statement, respectively. Any additional sales in the public market of our common stock, under the agreement with H.C. Wainwright or otherwise under the shelf registration statement, could adversely affect prevailing market prices for our common stock.

Because we have no plans to pay dividends on our common stock, investors must look solely to stock appreciation for a return on their investment in us.

We have never declared or paid any cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. We currently intend to retain all future earnings to fund the development and growth of our business. Any payment of future dividends will be at the discretion of our board of directors and will depend on, among other things, our earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions applying to the payment of dividends and other considerations that the board of directors deems relevant. Investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize a return on their investment. Investors seeking cash dividends should not purchase our common stock.

We are an “emerging growth company” and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an “emerging growth company” as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may choose to take advantage of certain exemptions from various reporting requirements applicable to other public companies but not to emerging public companies, which include, among other things:

- exemption from the auditor attestation requirements under Section 404 of the Sarbanes-Oxley Act of 2002;
- reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements;
- exemption from the requirements of holding non-binding stockholder votes on executive compensation arrangements; and
- exemption from any rules requiring mandatory audit firm rotation and auditor discussion and analysis and, unless the SEC otherwise determines, any future audit rules that may be adopted by the Public Company Accounting Oversight

Board.

We could be an emerging growth company until the last day of the fiscal year following the fifth anniversary after our initial public offering, or until the earliest of (i) the last day of the fiscal year in which we have annual gross

revenues of $1.0 billion or more; (ii) the date on which we have, during the previous three year period, issued more than $1.0 billion in non-convertible debt; or (iii) the date on which we are deemed to be a large accelerated filer under the federal securities laws. We will qualify as a large accelerated filer as of the first day of the first fiscal year after we have (i) more than $700.0 million in outstanding common equity held by our non-affiliates and (ii) been public for at least 12 months. The value of our outstanding common equity will be measured each year on the last day of our second fiscal quarter.

Under the JOBS Act, emerging growth companies are also permitted to elect to delay adoption of new or revised accounting standards until companies that are not subject to periodic reporting obligations are required to comply, if such accounting standards apply with non-reporting companies. We have made an irrevocable decision to opt out of this extended transition period for complying with new or revised accounting standards.

We cannot predict if investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to comply with the laws and regulations affecting public companies, which costs will increase after we are no longer an “emerging growth company.”

As a public company, we incur significant legal, accounting and other expenses, including costs associated with public company reporting and corporate governance requirements, in order to comply with the rules and regulations imposed by the Sarbanes-Oxley Act, as well as rules implemented by the SEC and Nasdaq. Such costs will increase after we cease to qualify as an emerging growth company. Our management and other personnel have needed to devote a substantial amount of time to these compliance initiatives, and our legal and accounting compliance costs have increased. We also may need to hire additional staff or consultants in the areas of investor relations, legal and accounting to continue to operate as a public company. The expenses incurred by public companies for reporting and corporate governance purposes have increased dramatically over the past several years. We expect these rules and regulations to continue to increase our legal and financial compliance costs substantially and to make some activities more time consuming and costly. We are currently unable to estimate these costs with any degree of certainty. Greater expenditures may be necessary in the future with the advent of new laws and regulations pertaining to public companies. We also expect that, as a public company, it will continue to be expensive for us to obtain directors’ and officers’ liability insurance.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, as a public company, we are required to perform system and process evaluations and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. As described above, as an emerging growth company, we are not yet required to comply with the auditor attestation provisions of Section 404. However, we are required to comply with management attestations of Section 404, and our testing, or the subsequent testing by our independent registered public accounting firm, may reveal deficiencies in our internal control over financial reporting that are deemed to be material weaknesses. We expect to incur substantial accounting expense and management time on compliance-related issues with respect to Section 404. Moreover, if we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we could lose investor confidence in the accuracy and completeness of our financial reports, which could cause our stock price to decline.

For example, in September 2014, our Audit Committee initiated an independent investigation regarding certain accounting matters concerning recognition of revenue in a sales transaction. As a result of the matters relating to the Audit Committee’s independent investigation, we announced that certain of our previously filed financial statements

could no longer be relied upon and subsequently completed a restatement. While we believe we have appropriately determined the errors made in our previously reported consolidated financial statements, recorded the correct adjustments in preparing our restated consolidated financial statements and remediated the material weaknesses identified in our internal control over financial reporting related to the subject matter of the Audit Committee's independent investigation, we can provide no assurances that other material weaknesses in our internal control over

financial reporting, such as the material weakness we have identified with respect to stock option grants, will not be identified in the future.

We have in the past identified material weaknesses, and if we fail to establish and maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our consolidated operating results, our ability to operate our business and investors' views of us.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to ensure that information regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. As previously noted under Risk Factors — "We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to comply with the laws and regulations affecting public companies, which costs will increase after we are no longer an 'emerging growth company,'" based on the Audit Committee's independent investigation, management identified material weaknesses in internal control over financial reporting as of December 31, 2014 resulting in revenue transactions that were recognized prior to satisfaction of all required revenue recognition criteria. These include material weaknesses related to our process for recognizing revenue relating to certain former sales personnel who did not conduct their duties with the requisite level of integrity and control consciousness, leading to insufficient attention to their responsibilities and internal controls, without management having implemented mitigating controls to discourage, prevent or detect override of internal control by those personnel. In addition, it was determined that our internal controls were not effectively designed to identify instances when sales personnel made unauthorized commitments with certain distributors. We developed and implemented a plan to remediate these material weaknesses, which focuses on continued training for and communication with employees regarding our enhanced policies and procedures, and have determined that these material weaknesses were remediated as of December 31, 2015.

Also in connection with management's assessment of our internal control over financial reporting, management identified an additional deficiency that constituted a material weakness in our internal control over financial reporting as of December 31, 2014 in our governance practices related to ineffective controls over the timeliness and accuracy of documentation related to actions of our board of directors and compensation committee specific to approving stock option grants. While no financial statement accounts or disclosures were misstated, the potential impact could have led to a material misstatement. We developed and implemented a plan to conduct training with our legal department and those charged with governance to ensure that board and compensation committee minutes are prepared in a more timely and accurate manner and are reviewed with sufficient rigor to ensure the minutes fully and accurately reflect the actions and approvals related to stock option grants and have determined that this material weakness was remediated as of December 31, 2016.

Remedying our material weaknesses has required substantial management time and attention, and ensuring that we have adequate internal control over financial reporting and procedures in place to produce accurate financial statements on a timely basis will continue to be a costly and time consuming effort. Any failure to implement effective internal control over financial reporting or to complete and maintain the remediation of our identified control deficiencies may result in additional errors, material misstatements or delays in our financial reporting, failure to meet our financial reporting obligations or failure to avoid or detect fraud in our financial reporting. This in turn would have a material adverse effect on our business and results of operations and could have a substantial adverse impact on the trading price of our common stock and our relationships with customers and suppliers.

Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the Company will have been detected. As discussed in this Annual

Report on Form 10-K, our Audit Committee and management have identified control deficiencies in the past and may identify additional deficiencies in the future.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable.

Provisions in our amended and restated certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management. These provisions include the following:

- the right of our board of directors to elect directors to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the establishment of a classified board of directors requiring that only a subset of the members of our board of directors be elected at each annual meeting of stockholders;
- the prohibition of cumulative voting in our election of directors, which would otherwise allow less than a majority of stockholders to elect director candidates;
- the requirement that stockholders provide advance notice to nominate individuals for election to our board of directors or to propose matters that can be acted upon at a stockholders' meeting. These provisions may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company;
- the ability of our board of directors to issue, without stockholder approval, shares of undesignated preferred stock with terms set by the board of directors, which rights could be senior to those of our common stock. The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us;
- the ability of our board of directors to alter our bylaws without obtaining stockholder approval;
- the inability of our stockholders to call a special meeting of stockholders and to take action by written consent in lieu of a meeting;
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to adopt, amend or repeal our bylaws;
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to repeal or adopt any provision of our certificate of incorporation regarding the election of directors;
- the required approval of the holders of at least 80% of such shares to amend or repeal the provisions of our bylaws regarding the election and classification of directors; and
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to remove directors without cause.

As a Delaware corporation, we are also subject to certain Delaware anti-takeover provisions. Under Delaware law, a corporation may not engage in a business combination with any holder of 15% or more of its common stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Our board of directors could rely on Delaware law to prevent or delay an acquisition of us.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our headquarters are located at 1540 Drew Avenue in Davis, California, in a facility consisting of approximately 27,300 square feet of office, laboratory and greenhouse space under a lease entered into in September 2013. This facility accommodates our research, development, sales, marketing, operations, finance and administrative activities. The facility includes a new, state-of-the-art fermentation lab and pilot plant, an expanded formulation lab and pilot with spray drying and granulation capabilities, an insectary, a plant pathology and nematology lab and a plant and

weed sciences lab, among others. The initial term of the lease is for a period of 60 months and commenced in August 2014. In January 2016, the Company entered into an agreement with a sublessee to sublease approximately 3,800 square feet of vacant office space located in this facility pursuant to the terms of our lease agreement. The initial term of the sublease is for a period of approximately 43 months and commenced in February 2016.

We also purchased an 11,400 square-foot manufacturing facility in Bangor, Michigan, in July 2012, which we have repurposed to accommodate large-scale manufacturing of our products. We believe that our leased facilities and our manufacturing facility are adequate to meet our needs.

ITEM 3. LEGAL PROCEEDINGS

On September 5, 2014, September 8, 2014, September 11, 2014, September 15, 2014 and November 3, 2014, we, along with certain of our current and former officers and directors and others were named as defendants in putative securities class action lawsuits filed in the U.S. District Court for the Eastern District of California. On February 13, 2015, these actions were consolidated as Special Situations Fund III QP, L.P. et al v. Marrone Bio Innovations, Inc. et al, Case No 2:14-cv-02571-MCE-KJN. On September 2, 2015, an initial consolidated complaint was filed on behalf of (i) all persons who purchased or otherwise acquired our publicly traded common stock directly in or traceable to our August 1, 2013 initial public offering; (ii) all persons who purchased or otherwise acquired our publicly traded common stock directly in our June 6, 2014 secondary offering; and (iii) all persons who purchased or otherwise acquired our publicly traded common stock on the open market between March 7, 2014 and September 2, 2014 (the "Class Action").the initial consolidated complaint also named certain of our current and former officers and directors and our independent registered public accounting firm as defendants. The initial consolidated complaint alleged violations of the Securities Act of 1933, the Securities Exchange Act of 1934 and SEC Rule 10b-5, arising out of the issuance of allegedly false and misleading statements about our business and prospects, including our financial statements, product revenues and system of internal controls. An amended consolidated complaint was filed on January 11, 2016. On March 15, 2016, lead plaintiffs moved to amend their consolidated complaint to, among other things, assert claims on behalf of all persons who purchased or otherwise acquired our securities on the open market between August 1, 2013 and November 10, 2015. On April 4, 2016, counsel for us and our current and former officers and directors, counsel for our primary and excess directors' and officers' liability insurers, and counsel for lead plaintiffs attended a private mediation before Jed D. Melnick at the JAMS offices in New York, New York. On May 25, 2016, the parties executed a final stipulation of settlement and lead plaintiff's counsel filed an unopposed motion for preliminary approval of the settlement. The stipulation provided for dismissal of the action as to the Company and the officer and director defendants, and a payment by our insurers of $12.0 million to an escrow account, to be distributed upon order of the court. On May 27, 2016, the Federal Court approved lead plaintiffs' motion to amend their consolidated complaint. At the Federal Court's request, the settling parties revised the stipulation and papers in support of preliminary approval to reflect the amended consolidated complaint, and refiled for preliminary approval of the settlement on June 16, 2016. On July 8, 2016, the Federal Court granted preliminary approval of the class action settlement. On September 27, 2016, the Federal Court granted final approval of the settlement.

On September 9, 2014 and November 25, 2014, shareholder derivative actions were filed in the Superior Court of California, County of Yolo (Case No. CV14-1481) and the U.S. District Court for the Eastern District of California (Case No. 1:14-cv-02779-JAM-CKD), purportedly on our behalf, against certain current and former officers and members of our board of directors (the "2014 Derivative Actions"). The plaintiffs in the 2014 Derivative Actions allege that the defendants breached their fiduciary duties, committed waste, were unjustly enriched and aided and abetted breaches of fiduciary duty by causing us to issue allegedly false and misleading statements. On October 14, 2015, a shareholder derivative action was filed in the Superior Court of California, County of Yolo (Case No. CV15-1423), purportedly on our behalf, against certain current and former officers and members of our board of directors and our independent registered public accounting firm (the "2015 Derivative Action," and with the 2014 Derivative Actions, the "Derivative Actions"). The plaintiff in the 2015 Derivative Action alleges that the director and officer defendants breached their fiduciary duties, committed waste and were unjustly enriched by causing us to issue allegedly false and misleading statements and that our independent registered public accounting firm committed professional negligence

and malpractice. The issues in the 2014 Derivative Actions and 2015 Derivative Action overlap substantially with one another and with those at issue in the Class Action described above. On April 4, 2016, counsel for us and our current and former officer and directors, counsel for our primary and excess directors' and officers' liability insurers, and counsel for the Derivative Action plaintiffs attended a private mediation before Jed

D. Melnick at the JAMS offices in New York, New York. On November 15, 2016, the parties executed a final stipulation of settlement. The stipulation provides for dismissal of the Derivative Actions as to the Company, the individual defendants, and EY, and the Company agrees to adopt or maintain certain corporate governance reforms for at least four years. On November 18, 2016, lead plaintiff's counsel filed an unopposed motion for preliminary approval of the settlement. On January 11, 2017, the State Court entered an order preliminarily approving settlement and providing for notice (the "Preliminary Approval Order"). The Preliminary Approval Order provides that the State Court will hold a hearing for final approval of the Stipulation on April 5, 2017 at 9:00 a.m., in Civil Department 7 of the State Court, located at 1000 Main St., Woodland, California 95695. The outcome of this matter is not presently determinable.

We advised the staff of the Division of Enforcement of the SEC in September 2014 that the Audit Committee of our board of directors had commenced an internal investigation. The SEC commenced a formal investigation of these matters, and in February 2016, we entered into a settlement agreement with the SEC. In agreeing to the settlement, we neither admit nor deny the SEC's allegations that we violated certain provisions of the Securities Act of 1933 and the Securities Exchange Act of 1934. Under the terms of the settlement agreement, we paid a $1.75 million civil penalty in March 2016 and consented to an injunction against future violations of such laws. We had previously recorded expenses of $1.75 million in our consolidated statements of operations for the year ended December 31, 2014 for an accrual of our estimate of the penalties arising from such enforcement action.

From time to time we may be involved in litigation that we believe is of the type common to companies engaged in our line of business, including intellectual property and employment issues. While the outcome of these other claims cannot be predicted with certainty, we do not believe that the outcome of any of these other legal matters will have a material adverse effect on our results of operations, financial condition or cash flows.

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 for Common Stock

Our common stock was been listed on the NASDAQ Global Market under the symbol "MBII" from August 2, 2013 through September 5, 2016. Since September 6, 2016, our common stock has been listed on the Nasdaq Capital Market. Prior to that time, there was no public market for our stock. The following table sets forth for the indicated periods the high and low intra-day sales prices per share for our common stock on the NASDAQ Global Market or Nasdaq Capital Market, as applicable, with respect to the periods set forth above.

	HIGH	LOW
2016		
First Quarter	$1.65	$0.62
Second Quarter	$0.97	$0.60
Third Quarter	$1.92	$0.71
Fourth Quarter	$2.79	$1.61
2015		
First Quarter	$5.01	$3.30
Second Quarter	$4.43	$1.84
Third Quarter	$2.27	$1.74
Fourth Quarter	$4.00	$1.00

Holders of Record

As of December 31, 2016, there were 69 stockholders of record of our common stock, and the closing price of our common stock was $2.14 per share as reported on the Nasdaq Capital Market. Because some of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividend Policy

We have never declared or paid any cash dividend on our common stock. We intend to retain any future earnings and do not expect to pay dividends in the foreseeable future.

Equity Compensation Plan Information

Information regarding equity compensation plans approved and not approved by stockholders is summarized in the following table as of December 31, 2016:

PLAN CATEGORY	NUMBER OF SECURITIES TO BE ISSUED UPON CONVERSION OF RESTRICTED STOCK UNITS AND EXERCISE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS (a)	WEIGHTED-AVERAGE EXERCISE PRICE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS (b)	NUMBER OF SECURITIES REMAINING AVAILABLE FOR FUTURE ISSUANCE UNDER EQUITY COMPENSATION PLANS (EXCLUDING SECURITIES REFLECTED IN COLUMN (a))[1]
Equity compensation plans approved by stockholders	3,812,652	$ 5.62	1,622,705
Equity compensation plans not approved by stockholders	—	—	—
Total	3,812,652	$ 5.62	1,622,705

[1] Consists of shares available for issuance under our 2013 Stock Incentive Plan.

Stock Performance Graph

This performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Securities Exchange Act of 1934, as amended ("Exchange Act"), or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Marrone Bio Innovations, Inc. under the Securities Act of 1933, as amended, or the Exchange Act.

The following graph shows a comparison from August 2, 2013 (the date our common stock commenced trading on the Nasdaq Global Market) through December 31, 2016 of the cumulative total return for our common stock, the Standard & Poor's 500 Stock Index ("S&P 500 Index") and the Nasdaq Composite Index ("Nasdaq Composite"). The Company's common stock began trading on the Nasdaq Capital Market on September 6, 2016. The graph assumes that $100 was invested at the close of the market on August 2, 2013 in the common stock of Marrone Bio Innovations, Inc., the S&P 500 Index and the Nasdaq Composite, and data for the S&P 500 Index and the Nasdaq Composite assumes reinvestments of dividends. The stock price performance of the following graph is not necessarily indicative of future stock price performance.

ITEM 6. SELECTED FINANCIAL DATA

You should read the following selected consolidated financial data in connection with Part II-Item 7-"Management's Discussion and Analysis of Financial Condition and Results of Operations," and our consolidated financial statements and the related notes included in Part II-Item 8-"Financial Statements and Supplementary Data" in this Annual Report on Form 10-K.

The consolidated statements of operations data for each of the years ended December 31, 2016, 2015, and 2014 and the consolidated balance sheet data as of December 31, 2016 and 2015 are derived from our audited consolidated financial statements included in Part II-Item 8-"Financial Statements and Supplementary Data" in this Annual Report on Form 10-K. The consolidated statements of operations data for the years ended December 31, 2013 and 2012 and the consolidated balance sheet data as of December 31, 2014, 2013 and 2012 are derived from our audited consolidated financial statements that are not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of our results in any future period.

Consolidated Statements of Operations Data:

	YEAR ENDED DECEMBER 31,				
	2016	2015	2014	2013	2012
	(In thousands, except per share data)				
Revenues:					
Product	$13,715	$8,976	$7,750	$7,588	$6,777
License	327	333	232	193	179
Related party	—	492	1,154	665	184
Total revenues	14,042	9,801	9,136	8,446	7,140
Cost of product revenues, including cost of product revenues to related parties of $0, $254, $561, $374, and $126 for the years ended December 31, 2016, 2015, 2014, 2013, and 2012, respectively	9,522	9,256	9,438	7,243	4,333
Gross profit (loss)	4,520	545	(302)	1,203	2,807
Operating expenses:					
Research, development and patent	9,670	13,500	19,281	17,905	12,741
Non-cash charge associated with a convertible note	—	—	—	—	3,610
Selling, general and administrative	18,510	26,502	28,950	15,017	10,294
Total operating expenses	28,180	40,002	48,231	32,922	26,645
Loss from operations	(23,660)	(39,457)	(48,533)	(31,719)	(23,838)
Other income (expense):					
Interest income	37	51	59	49	16
Interest expense	(2,941)	(2,764)	(2,907)	(6,056)	(2,466)
Interest expense to related parties	(4,361)	(1,599)	—	—	—
Change in estimated fair value of financial instruments [1]	—	—	—	6,717	(12,461)
Gain on extinguishment of debt	—	—	—	49	—
Other income (expense), net	(146)	41	(278)	(282)	(45)
Total other income (expense), net	(7,411)	(4,271)	(3,126)	477	(14,956)
Loss before income taxes	(31,071)	(43,728)	(51,659)	(31,242)	(38,794)
Income taxes	—	—	—	—	—
Net loss	(31,071)	(43,728)	(51,659)	(31,242)	(38,794)
Deemed dividend on convertible notes	—	—	—	(1,378)	(2,039)
Net loss attributable to common stockholders	$(31,071)	$(43,728)	$(51,659)	$(32,620)	$(40,833)
Net loss per common share [2]:					
Basic	$(1.26)	$(1.79)	$(2.32)	$(3.74)	$(32.48)
Diluted	$(1.26)	$(1.79)	$(2.32)	$(4.25)	$(32.48)
Weighted-average shares outstanding used in computing net loss per common share [2]:					
Basic	24,617	24,469	22,314	8,731	1,257
Diluted	24,617	24,469	22,314	8,911	1,257

(1) Prior to the completion of the initial public offering, we accounted for the outstanding warrants exercisable into shares of our Series A, Series B and Series C convertible preferred stock and the outstanding warrants exercisable into a variable number of shares of common stock as liability instruments, as the Series A, Series B and Series C convertible preferred stock and the common stock into which these warrants were convertible were contingently redeemable upon the occurrence of certain events or transactions. In addition, convertible notes were accounted for at estimated fair value. The warrant instruments and convertible notes were adjusted to fair value at each reporting period with the change in fair value recorded in the consolidated statements of operations. These charges did not continue after the completion of the initial public offering as the preferred stock warrants were exercised and the convertible notes automatically converted into common stock in

accordance with their terms upon the completion of the initial public offering. The common stock warrants were, in accordance with their terms upon the completion of the initial public offering, either automatically exercised for shares of common stock or represent the right to purchase a fixed number of shares. See Part II-Item 7-“Management’s Discussion and Analysis of Financial Conditions and Results of Operations—Key Components of Our Results of Operations—Change in Estimated Fair Value of Financial Instruments and Deemed Dividend on Convertible Notes.”

(2) Includes the effect of a 1-for-3.138458 reverse stock split, effective August 1, 2013.

Balance Sheet Data:

	DECEMBER 31,				
	2016	2015	2014	2013	2012
	(In thousands)				
Cash and cash equivalents	$9,609	$19,838	$35,324	$24,455	$10,006
Short-term investments	—	—	—	13,677	—
Working capital (deficit) (1)	11,626	23,144	23,521	44,221	(11,468)
Total assets	45,983	71,201	77,182	69,918	33,778
Debt and capital leases (net of unamortized discount)	58,002	58,496	24,327	14,972	16,740
Convertible notes	—	—	—	—	41,860
Preferred stock warrant liability	—	—	—	—	1,884
Common stock warrant liability	—	—	—	—	301
Total liabilities	76,167	73,223	43,951	30,887	68,413
Convertible preferred stock	—	—	—	—	39,612
Total stockholders’ equity (deficit)	(30,184)	(2,022)	33,231	39,031	(74,247)

(1) Working capital (deficit) is defined as total current assets minus total current liabilities.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion of our financial condition and results of operations in connection with our consolidated financial statements and the related notes included in Part II-Item 8-"Financial Statements and Supplementary Data" in this Annual Report on Form 10-K. In addition to our historical consolidated financial information, the following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in Part I-Item 1A-"Risk Factors."

Overview

We make bio-based pest management and plant health products. Bio-based products are comprised of naturally occurring microorganisms, such as bacteria and fungi, and plant extracts. Our current products target the major markets that use conventional chemical pesticides, including certain agricultural and water markets, where our bio-based products are used as alternatives for, or mixed with, conventional chemical products. We also target new markets for which (i) there are no available conventional chemical pesticides or (ii) the use of conventional chemical pesticides may not be desirable or permissible either because of health and environmental concerns (including for organically certified crops) or because the development of pest resistance has reduced the efficacy of conventional chemical pesticides. We believe our current portfolio of EPA-approved and registered "biopesticide" products and our pipeline address the growing global demand for effective, efficient and environmentally responsible products to control pests, increase crop yields and reduce crop stress.

The agricultural industry is increasingly dependent on effective and sustainable pest management practices to maximize yields and quality in a world of increased demand for agricultural products, rising consumer awareness of food production processes and finite land and water resources. In addition, our research has shown that the global market for biopesticides is growing substantially faster than the overall market for pesticides. This demand is in part a result of conventional growers acknowledging that there are tangible benefits to adopting bio-based pest management products into integrated pest management ("IPM") programs, as well as increasing consumer demand for organic food. We seek to capitalize on these global trends by providing both conventional and organic growers with solutions to a broad range of pest management needs through strategies such as adding new products to our product portfolio, continuing to broaden the commercial applications of our existing product lines, leveraging growers' positive experiences with existing product lines, educating growers with on-farm product demonstrations and controlled product launches with key target customers and other early adopters. To that end, in March 2016 we entered into an agreement with Isagro USA to distribute Bio-Tam 2.0, a biofungicide for soil-borne disease control and grapevine trunk disease control that complements our existing products, particularly Regalia. We believe this approach enables us to stay ahead of our competition in providing innovative pest management solutions, enhances our sales process at the distributor level and helps us to capture additional value from our products.

Although our long-term, global vision for our business and our commitment to that vision remain fundamentally unchanged, because of the challenges we faced in 2014 and 2015, we did not achieve significant growth in sales of our products during those years, which has resulted in an increase in inventory write-offs, higher proportional levels of operating expenses, increases in cost of product revenues and decreases in product margins. For the year ended December 31, 2016, we have achieved significant growth in revenues and gross profit when compared with the prior year. Also, in response to the business challenges reflected in our financial results for recent periods, we have implemented a prioritization plan that focuses our resources on continuing to improve and promote our commercially available products, advancing product candidates that are expected to have the greatest impact on near-term growth potential and expanding international presence and commercialization. Our goal has been to reduce expenses, to conserve cash and improve operating efficiencies, to extract greater value from our products and product pipeline and to improve our communication to and connection with the global sustainability movement that is core to our cultural

values.

In connection with this strategy, we have significantly reduced overall headcount, while building a new sales and marketing organization with increased training and ability to educate and support customers in specialty crop markets, as well as providing our product development staff with greater responsibility for technical sales support,

field trials and demonstrations to promote sales growth. For markets other than high-value specialty crops, such as row crops and seed treatments, we are seeking to expand our network of distribution partners, focusing on regional and national distributors operating in countries that present a significant opportunity for near-term revenue generation. In addition, our research and development efforts are now focused on supporting existing commercial products with a focus on reducing cost of product revenues, further understanding the modes of action, manufacturing support and improving formulations. Accordingly, while we believe that we have developed a robust pipeline of novel product candidates, we are currently limiting our internal efforts to four promising product candidates. Simultaneously, we are seeking collaborations with third parties to develop and commercialize more early stage candidates on which we have elected not to expend significant internal resources given our reduced budget. We believe collectively, these measures, together with our competitive strengths, including our leadership in the biologicals industry, commercially available products, robust pipeline of novel product candidates, proprietary discovery and development processes and industry experience, position us for growth.

We sell our crop protection products to leading agrichemical distributors while also working directly with growers to increase existing and generate new product demand. To date, we have marketed our bio-based pest management and plant health products for agricultural applications to U.S. growers, through distributors and our own sales force, and we have focused primarily on high value specialty crops such as grapes, citrus, tomatoes and leafy greens. A large portion of our sales are currently attributable to conventional growers who use our bio-based pest management products either to replace conventional chemical pesticides or enhance the efficacy of their IPM programs. In addition, a portion of our sales are attributable to organic farmers who cannot use conventional pesticides and have few alternatives for pest management. As we continue to demonstrate the efficacy of our bio-based pest management and plant health products on new crops or for new applications, we may either continue to sell our products through our in-house sales force or collaborate with third parties for distribution to select markets.

Although we have historically sold a significant majority of our products in the United States, expanding our international presence and commercialization is an important component of our growth strategy. Regalia, Venerate and Grandevo are currently available in select international markets under distribution agreements with major agrichemical companies. Going forward, our plan is to focus first on countries where we can gain the fastest registration approval to permit product launches while also pursuing key countries and regions with the largest and fastest growing biopesticide and plant health product markets for specialty crops and selected row crops. We are working with regional or national distributors in key countries who have brand recognition and established customer bases and who can conduct field trials and grower demonstrations and lead or assist in regulatory processes and market development.

We currently market our water treatment product, Zequanox, directly to a selected group of U.S. power and industrial companies. Due to our prioritization plan, we have not committed sufficient resources to Zequanox in order to market it full-scale. We are seeking sales and distribution partners for in-pipe and open water uses, and are currently in discussions with large water treatment companies to further develop Zequanox and expand it commercially. In addition, we continue to work with state, federal and bi-national partners to further develop Zequanox in the Great Lakes/Upper Mississippi River Basin as a habitat restoration tool and potential harmful algal bloom management tool. We believe that Zequanox presents a unique opportunity for generating long-term revenue as there are limited water treatment options available to date, most of which are time-consuming, costly or subject to high levels of regulation. Our ability to generate significant revenues from Zequanox from in-pipe treatments is dependent on our ability to persuade customers to evaluate the costs of our Zequanox products compared to the overall cost, and environmental impact, of the chlorine treatment process, the primary current alternative to using Zequanox, rather than the cost of purchasing chemicals alone. In the fourth quarter of 2015, we implemented a new process at our manufacturing plant that reduced the cost of product revenues to be more competitive with other mussel treatment chemicals. Sales of Zequanox have also remained lower than our other products due to the length of the treatment cycle, the longer sales cycle (the bidding process with utility companies and governmental agencies occurs on a yearly or multi-year basis), the unique nature of the treatment approach for each customer based on the extent of the infestation, the design of the facility, and our prioritization of our crop protection business.

Although our initial EPA-approved master labels cover our products' anticipated crop-pest use combinations, we launch early formulations of our pest management and plant health products to targeted customers under commercial labels that list a limited number of crops and applications that our initial efficacy data can best support. We then gather new data from experiments, field trials and demonstrations, gain product knowledge and get feedback to our

research and development team from customers, researchers and agricultural agencies. Based on this information, we enhance our products, refine our recommendations for their use in optimal IPM programs, expand our commercial labels and submit new product formulations to the EPA and other regulatory agencies. For example, we began sales of Regalia SC, an earlier formulation of Regalia, in the Florida fresh tomatoes market in 2008, while a more effective formulation of Regalia with an expanded master label, including listing for use in organic farming, was under review by the EPA. In 2011, we received EPA approval of a further expanded Regalia master label covering hundreds of crops and various new uses for applications to soil and through irrigation systems, and we recently expanded sales of Regalia in large-acre row crops as a plant health product, in addition to its beneficial uses as a fungicide. In January 2016, we launched a new formulation of Regalia that no longer contains a solvent that is difficult to source and may experience future regulatory restrictions. This new formulation of Regalia disperses better in water and is easier to mix and rinse from containers and spray equipment. In addition, in June 2016, we launched a new formulation of Grandevo, Grandevo WDG, which offers improved handling and better, more convenient packaging. The water dispersible granule mixes easily in spray tanks with no dust or foam, which saves valuable time in the preparation and application processes. Similarly, ongoing field development research on the microbe used in Venerate, one of our insecticide products, led to our October 2015 registration of Majestene as a nematicide. We believe we have opportunities to broaden the commercial applications and expand the use of our existing products lines to help drive significant growth for our company.

Our total revenues were $14.0 million, $9.8 million and $9.1 million for the years ended December 31, 2016, 2015 and 2014, respectively, and have risen as growers have adopted our products and have used our products on an expanded number of crops. We generate our revenues primarily from product sales, which are principally attributable to sales of our Regalia, Grandevo and Majestene product lines, but which also included sales of Venerate, Zequanox and Bio-Tam 2.0. Product sales have been affected in recent years by various factors, including principally the tenure of our former chief operating officer and departure of significant members of our sales staff in the third quarter of 2014, and subsequent turnover in our sales and marketing departments. Further, we believe that following the announcement of the matters relating to our recent restatement, some customers and potential customers were reluctant to do business with us until after we had reached a settlement with the SEC, which was achieved in February 2016, and we believe competitors were able to take advantage of these circumstances. In addition, we believe concerns regarding our ability to continue operations have impacted our ability to grow more robustly. Going forward, we believe our revenues will largely be impacted by weather, natural disasters and other factors affecting planting and growing seasons and incidence of pests and plant disease, and, accordingly, the decisions by our distributors, direct customers and end users about the types and amounts of pest management and plant health products to purchase and the timing of use of such products.

Since 2011, we have also recognized revenues from our strategic collaboration and distribution agreements, which amounted to $0.3 million for the year ended December 31, 2016, $0.3 million for the year ended December 31, 2015 and $0.2 million for the year ended December 31, 2014, excluding related party revenues. We have a strategic collaboration and distribution agreement with Syngenta, an affiliate of a former beneficial owner of more than 5% of our common stock, Syngenta Ventures Pte. LTD (“Syngenta Ventures”). In connection with our secondary offering in June 2014, Syngenta Ventures sold 0.6 million shares of our common stock, reducing its ownership percentage below 5%. Accordingly, revenue recognized under this agreement subsequent to June 2014 has not been included in related party revenues. For the year ended December 31, 2014, we recognized $0.3 million of related party revenues under this agreement prior to Syngenta Ventures reducing its ownership stake.

We currently rely, and expect to continue to rely, on a limited number of distributors for a significant portion of our revenues since we sell through highly concentrated, traditional distribution channels. Distributors to which 10% or more of our total revenues are attributable for any one of the periods presented consist of the following:

	CUSTOMER A	CUSTOMER B	CUSTOMER C

Year ended December 31,						
2016	25	%	3	%	5	%
2015	28	%	10	%	8	%
2014	30	%	4	%	13	%

While we expect product sales to a limited number of distributors to continue to be our primary source of revenues, as we continue to develop our pipeline and introduce new products to the marketplace, we anticipate that our revenue stream will be diversified over a broader product portfolio and customer base.

Our cost of product revenues was $9.5 million, $9.3 million, and $9.4 million for the years ended December 31, 2016, 2015 and 2014, respectively. Cost of product revenues included $0.3 million and $0.6 million of cost of product revenues to related parties for the years ended December 31, 2015 and 2014, respectively. Cost of product revenues consists principally of the cost of inventory, which includes the cost of raw materials, and third party services and allocation of operating expenses of our manufacturing plant related to procuring, processing, formulating, packaging and shipping our products. Cost of product revenues also include charges recorded for write-downs of inventory, which has increased in recent years, and, beginning in 2014, idle capacity at our manufacturing plant when the manufacturing plant was placed into service. We expect our cost of product revenues related to the cost of inventory to increase and cost of product revenues relating to write-downs of inventory and idle capacity of our manufacturing plant to decrease as we expand sales and increase production of our existing commercial products Regalia, Grandevo, Venerate, Majestene and Zequanox and introduce new products such as Haven to the market. Our cost of product revenues related to the cost of inventory has increased as a percentage of total revenues primarily due to a change in product mix, with Grandevo representing an increased percentage of total revenues as Grandevo is early in its life cycle. We expect to see a gradual increase in gross margin over the life cycle of each of our products, including Grandevo, as we improve production processes, gain efficiencies and increase product yields. These increases may be offset by additional charges for inventory write-downs and idle capacity at our manufacturing plant until overall volume in the plant increases significantly, however we are expecting these charges to decrease over time.

Our research, development and patent expenses have historically comprised a significant portion of our operating expenses, amounting to $9.7 million, $13.5 million and $19.3 million for the years ended December 31, 2016, 2015 and 2014, respectively. We have reduced the size of our research and development staff compared to prior periods and are reducing costs spent on various research and development and patent efforts as part of our efforts to streamline business operations and focus on our pipeline product priorities. However, we have made, and will continue to make, substantial investments in research and development and we intend to continue to devote significant resources toward the advancement of product candidates that are expected to have the greatest impact on near-term growth potential. Simultaneously, we are seeking collaborations with third parties to develop and commercialize more early stage candidates, which we have elected not to expend significant resources on given our reduced budget.

Selling, general and administrative expenses incurred to establish and build our market presence and business infrastructure have generally comprised the remainder of our operating expenses, amounting to $18.5 million, $26.5 million, and $29.0 million for the years ended December 31, 2016, 2015 and 2014, respectively. We have been building a sales and marketing organization which provides for increased training and a better ability to educate and support customers as well as transitioning our product development staff to undertake greater responsibility for technical sales support, field trials and demonstrations to promote sales growth. We expect that in the future, our selling, general and administrative expenses will increase due to growth in revenue and due to additional costs incurred related to being a public company. In addition, for the years ended December 31, 2016, 2015 and 2014, we incurred $0.1 million, $7.7 million and $5.8 million, respectively, in costs related to the Audit Committee’s independent investigation, which commenced in September 2014, and the subsequent restatement of our financial statements, net of insurance proceeds. In addition, in February 2016, we entered into a settlement agreement with the SEC with respect to the SEC’s investigation, which was principally related to the accounting and other matters that were initially identified by us and that led to the financial restatement completed by us on November 10, 2015. Under the terms of the settlement agreement, we paid a $1.75 million civil penalty in March 2016. We had previously recorded expenses of $1.75 million in our consolidated statements of operations for the year ended December 31, 2014 for an accrual of our estimate of the penalties arising from such enforcement action.

Historically, we have funded our operations from the issuance of shares of common stock, preferred stock, warrants and convertible notes, the issuance of debt and entry into financing arrangements, product sales, payments under strategic collaboration and distribution agreements and government grants, but we have experienced significant

losses as we invested heavily in research and development. We expect to incur additional losses related to our investment in the continued development, expansion and marketing of our product portfolio.

In August 2013, we closed an initial public offering of 5.5 million shares of our common stock. The public offering price of the shares sold in the offering was $12.00 per share. Our total gross proceeds from the offering were $65.6 million, and after deducting underwriting discounts and commissions and offering expenses payable by us, the aggregate net proceeds that we received totaled approximately $56.1 million. Upon the closing of the IPO, all shares of our outstanding convertible preferred stock and all of our outstanding convertible notes automatically converted into shares of common stock, and all outstanding warrants to purchase convertible preferred stock and certain warrants to purchase common stock were exercised for shares of common stock.

In June 2014 we completed a public offering of 4.6 million shares of our common stock. The public offering price of the shares sold in the offering was $9.50 per share. Our total gross proceeds from the offering were $43.5 million, and after deducting underwriting discounts and commissions and offering expenses payable by us, the aggregate net proceeds that we received totaled $39.9 million.

In June 2014, we also borrowed $10.0 million pursuant to a promissory note with Five Star Bank, and in August 2015, we issued and sold to affiliates of Waddell & Reed Financial, Inc. in a private placement senior secured promissory notes in the aggregate principal amount of $40.0 million and warrants to purchase up to 4.0 million shares of our common stock at an exercise price of $1.91 per share for aggregate consideration of $40.0 million.

In November 2016, we amended the terms of our October 2012 and April 2013 Secured Promissory Notes reducing the annual interest rate from 18% to 14% for the remaining term of the notes and extending the maturity date from October 2, 2017 to October 2, 2018. As consideration for these changes, the Company agreed to issue warrants to purchase 125 thousand common shares at an exercise price of $2.38 per shares and a ten year term expiring November 2026.

In December 2016, we filed a shelf registration statement on Form S-3 with the SEC that provides for the sale and issuance of up to $50.0 million of our common stock, preferred stock, debt securities, warrants, rights and/or units, including the ability to sell up to $15.0 million of our common stock through an at-the-market program in accordance with an offering agreement we entered into with H.C. Wainwright. We began selling common stock under this registration statement in January 2017.

Key Components of Our Results of Operations

Product Revenues

Product revenues consist of revenues generated primarily from sales to distributors, net of rebates and cash discounts. Product revenues, not including related party revenues, constituted 98%, 92% and 85% of our total revenues for the years ended December 31, 2016, 2015 and 2014, respectively. Product revenues in the United States, not including related party revenues, constituted 90%, 84%, and 78% of our total revenues for the years ended December 31, 2016, 2015 and 2014, respectively.

In some cases, we recognize distributor revenue as title and risk of loss passes, provided all other revenue recognition criteria have been satisfied (the “sell-in” method). For certain sales to certain distributors, the revenue recognition criteria for distributor sales are not satisfied at the time title and risk of loss passes to the distributor; specifically, in instances where “inventory protection” arrangements were offered in the past to distributors that permitted these distributors to return to the Company certain unsold products, we consider the arrangement not to be fixed or determinable, and accordingly, revenue is deferred until products are resold to customers of the distributor (the “sell-through” method). The cost of goods sold associated with such deferral are also deferred and classified as deferred cost of product revenues in the consolidated balance sheets. For the years ended December 31, 2016, 2015 and 2014,

45%, 42% and 63%, respectively, of product revenues, not including related party revenues, were recognized on a sell-through basis.

If cash is received from customers related to delivered product that may not represent a true sale, it is classified as customer refund liabilities in the consolidated balance sheets, and the related cost of inventory remains in inventory in the consolidated balance sheets until the product is returned or is resold to customers of the distributor and revenue is recognized.

License Revenues

License revenues generally consist of revenues recognized under our strategic collaboration and distribution agreements for exclusive distribution rights, either for Regalia, for other commercial products, or for our broader pipeline of products, for certain geographic markets or for market segments that we are not addressing directly through our internal sales force. Our strategic collaboration and distribution agreements generally outline overall business plans and include payments we receive at signing and for the achievement of certain testing validation, regulatory progress and commercialization events. As these activities and payments are associated with exclusive rights that we provide over the term of the strategic collaboration and distribution agreements, revenues related to the payments received are deferred and recognized as revenues over the term of the exclusive period of the respective agreements, which we estimate to be between 5 and 17 years based on the terms of the contract and the covered products and regions. For the years ended December 31, 2016, 2015 and 2014, license revenues constituted 2%, 3%, and 2% of total revenues, respectively. As of December 31, 2016, including agreements with related parties discussed below, we had received an aggregate of $3.9 million in payments under our strategic collaboration and distribution agreements. In addition, there will be an additional $0.3 million in payments due on certain anniversaries of regulatory approval and an additional $1.1 million in payments under these agreements that we could potentially receive if the testing validation, regulatory progress and commercialization events occur.

Related Party Revenues

Related party revenues consist of both product revenues and license revenues. Les Lyman, a former member of our board of directors, is the chairman and significant indirect shareholder of The Tremont Group, Inc., which purchases our products for further distribution and resale. In January 2016, Les Lyman resigned from our board of directors. Accordingly, revenue recognized for sales to The Tremont Group, Inc. subsequent to his resignation in January 2016 will not be included in related party revenues. In addition, we have a strategic collaboration and distribution agreement with Syngenta, an affiliate of a former beneficial owner of more than 5% of our common stock, Syngenta Ventures. In connection with our secondary offering in June 2014, Syngenta Ventures sold 0.6 million shares of our common stock, reducing its ownership percentage below 5%. Accordingly, revenue recognized under this agreement subsequent to June 2014 has not been included in related party revenues. For the years ended 2015 and 2014, related party revenues constituted 5% and 13% of total revenues, respectively. For the year ended December 31, 2016, there were no related party revenues. For the years ended December 31, 2015 and 2014, 100% and 71%, respectively, of related party revenues, were recognized on a sell-through basis.

Cost of Product Revenues and Gross Profit (Loss)

Cost of product revenues consists principally of the cost of raw materials, including inventory costs and third-party services related to procuring, processing, formulating, packaging and shipping our products. As we have used our Bangor, Michigan manufacturing plant to produce certain of our products, cost of product revenues includes an allocation of operating costs including direct and indirect labor, productions supplies, repairs and maintenance, depreciation, utilities and property taxes. The amount of indirect labor and overhead allocated to finished goods is determined on a basis presuming normal capacity utilization. Operating costs incurred in excess of production allocations, considered idle capacity, are expensed to cost of product revenues in the period incurred rather than added to the cost of the finished goods produced. Cost of product revenues may also include charges due to inventory adjustments and reserves. In addition, costs associated with license revenues have been included in cost of product revenues as they have not been significant. Gross profit (loss) is the difference between total revenues and cost of product revenues. Gross margin is gross profit (loss) expressed as a percentage of total revenues.

We have entered into in-license technology agreements with respect to the use and commercialization of three of our commercially available product lines, Regalia, Grandevo and Zequanox, and certain products under development. Under these licensing arrangements, we typically make royalty payments based on net product revenues, with royalty rates varying by product and ranging between 2% and 5% of net sales, subject in certain cases to aggregate

dollar caps. These royalty payments are included in cost of product revenues, but they have historically not been significant. The exclusivity and royalty provisions of these agreements are generally tied to the expiration of underlying patents. The patents for Regalia and Zequanox will expire in 2017 and the in-licensed U.S. patent for Grandevo is expected to expire in 2024. There is, however, a pending in-licensed patent application relating to Grandevo, which could expire later than 2024 if issued. After the termination of these provisions, we may continue to produce and sell these products. While third parties thereafter may develop products using the technology under expired patents, we do not believe that they can produce competitive products without infringing other aspects of our proprietary technology, including pending patent applications related to Regalia, Grandevo and Zequanox, and we therefore do not expect the expiration of the patents or the related exclusivity obligations to have a significant adverse financial or operational impact on our business.

We expect to see increases in gross profit over the life cycle of each of our products as gross margins are expected to increase over time as production processes improve and as we gain efficiencies and increase product yields. While we expect margins to improve on a product-by-product basis, our overall gross margins may vary as we introduce new products. In particular, we are experiencing and expect further near-term downward pressure on overall gross margins as we expand sales of Grandevo, Venerate, Majestene and Zequanox and when we introduce new products such as Haven. Gross margin has been and will continue to be affected by a variety of factors, including plant utilization, product manufacturing yields, changes in production processes, new product introductions, product mix and average selling prices.

In July 2012, we acquired a manufacturing facility, which we repurposed for manufacturing operations. We began full-scale manufacturing using this facility in 2014. We continue to use third party manufacturers for Venerate and Majestene and for spray-dried powder formulations of Grandevo and Zequanox. We expect gross margins to improve using this facility when sales volumes recover enough to reduce overhead and idle capacity charges from our facility.

Research, Development and Patent Expenses

Research, development and patent expenses include personnel costs, including salaries, wages, benefits and share-based compensation, related to our research, development and patent staff in support of product discovery and development activities. Research, development and patent expenses also include costs incurred for laboratory supplies, field trials and toxicology tests, quality control assessment, consultants and facility and related overhead costs.

Beginning in the fourth quarter of 2014, we reduced our research and development staff and prioritized our pipeline candidates, focusing first on those that can be in the market in the next few years. We expect research, development and patent expenses to decrease in the near term as we have reduced headcount and will focus our efforts on select pipeline products. We are working to find partners to assist with the development of other pipeline candidates.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of personnel costs, including salaries, wages, benefits and share-based compensation, related to our executive, sales, marketing, finance and human resources personnel, as well as professional fees, including legal and accounting fees, and other selling costs incurred related to business development and to building product and brand awareness. We create brand awareness through programs such as speaking at industry events, trade show displays and hosting local-level grower and distributor meetings. In addition, we dedicate significant resources to technical marketing literature, targeted advertising in print and online media, webinars and radio advertising. Costs related to these activities, including travel, are included in selling expenses. Our administrative expenses have increased in recent periods primarily as a result of becoming a public company and incurring significant costs in connection with the Audit Committee’s independent investigation and subsequent restatement of our financial statements.

We expect our selling expenses to increase in the near-term, both in absolute dollars and as a percentage of total revenues. For the years ended December 31, 2016, 2015 and 2014, we incurred $0.1 million, $7.7 million and $5.8 million, respectively, in costs related to the Audit Committee's independent investigation and the subsequent restatement of our financial statements, net of insurance proceeds. In February 2016, we entered into a settlement

agreement with the SEC with respect to the SEC's investigation, which was principally related to the accounting and other matters that were initially identified by us in September 2014 and that led to the financial restatement completed by us on November 10, 2015. Under the terms of the settlement agreement, we paid a $1.75 million civil penalty in March 2016. We had previously recorded expenses of $1.75 million in our consolidated statements of operations for the year ended December 31, 2014 for an accrual of our estimate of the penalties arising from such enforcement action. As a result of the investigation and restatement activities having been largely concluded by the beginning of 2016, we expect general and administrative expenses to remain relatively flat.

Interest Expense

We recognize interest expense on notes payable and other debt obligations. In June 2014, we entered into a $10.0 million promissory note with a variable interest rate that varies with the prime rate. Accordingly, our interest expense will increase as the prime rate increases. In August 2015, pursuant to a purchase agreement, we issued and sold to affiliates of Waddell & Reed Financial, Inc. senior secured promissory notes in the aggregate principal amount of $40.0 million with a fixed interest rate and warrants to purchase up to 4.0 million shares of our common stock at an exercise price of $1.91 per share for aggregate consideration of $40.0 million. In November 2016, pursuant to an amendment to the October 2012 and April 2013 Secured Promissory Notes, the interest rate on these notes decreased from 18% to 14%. This decrease in interest was partially offset by the additional interest associated with the valuation of 125 thousand warrants in the amount of $0.2 million. The value of the warrants is treated as a discount to this note and is being amortized to interest expense through the maturity date of these secured notes.

We have also acquired equipment under capital leases, which results in interest expense over the lease term. Our capital lease obligations were $0.8 million and $0.7 million as of December 31, 2016 and 2015, respectively.

Interest Income

Interest income consists primarily of interest earned on cash balances. Our interest income will vary each reporting period depending on our average cash balances during the period and market interest rates.

Income Tax Provision

Since our inception, we have been subject to income taxes principally in the United States. We anticipate that as we further expand our sales into foreign countries, we will become subject to taxation based on the foreign statutory rates and our effective tax rate could fluctuate accordingly.

Income taxes are computed using the asset and liability method, under which deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect during the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. As of December 31, 2016, based on the available information, it is more likely than not that our deferred tax assets will not be realized, and accordingly we have taken a full valuation allowance against all of our U.S. deferred tax assets.

As of December 31, 2016, we had net operating loss carryforwards for federal income tax reporting purposes of $190.1 million, which begin to expire in 2026, and California and other state net operating loss carryforwards of $122.5 million and $41.8 million, respectively, which will continue to expire in 2017. Additionally, as of December 31, 2016, we had federal research and development tax credit carryforwards of $2.1 million, which begin to expire in 2026, and state research and development tax credit carryforwards of $2.2 million, which have no expiration date.

Our ability to use our federal and state net operating loss carryforwards and federal and state tax credit carryforwards to reduce future taxable income and future taxes, respectively, may be subject to restrictions attributable to equity transactions that may have resulted in a change of ownership as defined by Internal Revenue Code Section 382. In the

event we have had such a change in ownership, utilization of these carryforwards could be severely restricted and could result in significant amounts of these carryforwards expiring prior to benefitting us.

Results of Operations

The following table sets forth certain statements of operations data as a percentage of total revenues:

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Revenues:			
Product	98 %	92 %	85 %
License	2	3	2
Related party	—	5	13
Total revenues	100	100	100
Cost of product revenues[1]	68	94	103
Gross profit	32	6	(3)
Operating Expenses:			
Research, development and patent	69	138	211
Selling, general and administrative	132	270	317
Total operating expenses	201	408	528
Loss from operations	(169)	(402)	(531)
Other income (expense):			
Interest income	—	1	1
Interest expense	(21)	(28)	(32)
Interest expense to related parties	(31)	(16)	—
Other income (expense), net	(1)	—	(3)
Total other expense, net	(53)	(43)	(34)
Loss before income taxes	(222)	(445)	(565)
Income taxes	—	—	—
Net loss	(222)%	(445)%	(565)%

[1] Includes 0%, 3% and 6% in cost of product revenues to related parties during the years ended December 31, 2016, 2015 and 2014, respectively. See Note 15 of our accompanying Notes to Consolidated Financial Statements included in Part II-Item 8-“Financial Statements and Supplementary Data” in this Annual Report on Form 10-K for further discussion.

Comparison of the Years Ended December 31, 2016, 2015 and 2014

Product Revenues

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
	(Dollars in thousands)		
Product revenues	$13,715	$8,976	$7,750
% of total revenues	98 %	92 %	85 %

Product revenues increased by $4.7 million, or 53%, in 2016 compared to 2015 and $1.2 million, or 16%, in 2015 compared to 2014. Product revenues increased in 2016 compared to 2015 due to an increase in sales across virtually all product offerings, as well as favorable product mix of higher priced product offerings. Product revenues increased in 2015 compared to 2014 primarily due to an increase in revenue recognized on a sell-in basis. Product revenues increased during the current period as demand was driven by continued acceptance of our products in the marketplace, and the introduction of Majestene. Further, we believe that following the announcement of the matters relating to our recent restatement, some customers and potential customers were reluctant to do business with us until after we had reached a settlement with the SEC, which was achieved in February 2016, and we believe competitors had been able to take advantage of these circumstances.

License Revenues

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
	(Dollars in thousands)		
License revenues	$327	$333	$232
% of total revenues	2 %	3 %	2 %

License revenues related to certain strategic collaboration and distribution agreements were flat in 2016 compared to 2015 and increased 44% in 2015 compared to 2014. These revenues do not comprise a significant portion of our total revenues.

Related Party Revenues

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
	(Dollars in thousands)		
Related party revenues	$—	$492	$1,154
% of total revenues	~~%~~	5 %	13 %

Related party revenues decreased by $0.5 million, or 100%, in 2016 compared to 2015 and decreased by $0.7 million, or 57%, in 2015 compared to 2014. In January 2016, Les Lyman resigned from our board of directors. Accordingly, revenue recognized from sales to The Tremont Group, Inc. subsequent to Mr. Lyman's resignation in January 2016 have not been included in related party revenues. There were no related party revenues during the year ended December 31, 2016. Related party revenues decreased in 2015 compared to 2014 as $0.3 million was recognized during the year ended December 31, 2014 upon the termination of one of our strategic collaboration and distribution agreements with Syngenta. Syngenta is an affiliate of a former beneficial owner of more than 5% of our common stock, Syngenta Ventures. In connection with the secondary offering in June 2014, Syngenta Ventures sold 0.6 million shares of our common stock, reducing its ownership percentage below 5%. Accordingly, revenue recognized subsequent to June 2014 under the remaining agreements has not been included in related party revenues. There was also a decrease of $0.3 million in revenue recognized on a sell-through basis that was deferred from sales to The Tremont Group, Inc. made in prior periods.

Cost of Product Revenues and Gross Profit (Loss)

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
	(Dollars in thousands)		
Cost of product revenues	$9,522	$9,256	$9,438
% of total revenues	68 %	94 %	103 %

Gross profit	4,520		545		(302	)
% of total revenues	32	%	6	%	(3	)%

Cost of product revenues increased by $0.3 million, or 3%, in 2016 compared to 2015 and decreased by $0.2 million, or 2%, in 2015 compared to 2014. Our gross margins increased from 6% to 32% in 2016 compared to 2015 and increased from negative 3% to 6% in 2015 compared to 2014. Cost of product revenues decreased, as a percentage of revenues, and gross margin increased in 2016 compared to 2015, primarily due to increased plant utilization and other volume efficiencies achieved as a result of the increased revenue, as well as a favorable mix of higher margin product offerings. During 2016, manufacturing costs associated with plant utilization allocated to cost of product and not allocated to inventory decreased by $1.8 million compared to 2015.

Cost of product revenues decreased and gross margin increased in 2015 compared to 2014 primarily due to a decrease of $1.3 million in inventory-related cost of product revenues, as during the prior year we wrote-off a large volume of inventory not suitable for sale in future periods either because the inventory did not pass quality inspection or the efficacy had declined, and we also significantly increased our inventory reserve during the prior

year as a result of lower production and sales forecasts. In addition, cost of product revenues decreased and gross margin increased in 2015 compared to 2014 due to a change in product mix as each of our products have different margins. This decrease in cost of product revenues was partially offset by an increase of $1.7 million in operating costs of the manufacturing plant that were recorded to cost of product revenues and were not allocated to inventory.

Research, Development and Patent Expenses

	YEAR ENDED DECEMBER 31,					
	2016		2015		2014	
	(Dollars in thousands)					
Research, development and patent	$9,670		$13,500		$19,281	
% of total revenues	69	%	138	%	211	%

Research, development and patent expenses decreased by $3.8 million, or 28%, in 2016 compared to 2015, and $5.8 million, or 30%, in 2015 compared to 2014. Research, development and patent expenses decreased in 2016 compared to 2015 primarily due to a decrease of $1.2 million in employee -related expenses, which consisted primarily of salaries, wages and share-based compensation, $2.3 million decrease in direct expenses and outside services due to a reduction in field test costs and regulatory field trials, and $0.4 million related to fixed costs, primarily depreciation.

Research, development and patent expenses decreased in 2015 compared to 2014 primarily due to a general decrease in expenses related to the reduction in headcount, including a decrease of $2.8 million in employee related expenses, which consisted primarily of salaries, wages and share-based compensation, a decrease of $0.2 million in supplies and materials and a decrease of $0.1 million in travel costs. In addition, there was a decrease of $2.7 million in direct testing, field trials and outside consulting as we have narrowed our focus on our pipeline product priorities. This was offset by an increase in depreciation expense relating to new equipment purchased in connection with our move to our new corporate headquarters and laboratory space in December 2014.

Selling, General and Administrative Expenses

	YEAR ENDED DECEMBER 31,					
	2016		2015		2014	
	(Dollars in thousands)					
Selling, general administrative expenses	$18,510		$26,502		$28,950	
% of total revenues	132	%	270	%	317	%

Selling, general and administrative expenses decreased by $8.0 million, or 30%, in 2016 compared to 2015 and decreased by $2.4 million, or 8%, in 2015 compared to 2014. Selling, general and administrative expenses decreased in 2016 compared to 2015, approximately $7.0 million, primarily as a result of reduced outside services, accounting, consulting and legal fees related to the Audit Committee’s independent investigation, the subsequent restatement of our financial statements and litigation, a $1.2 million decrease in employee related expenses, primarily salaries and equity-based compensation. These reductions were offset by an increase in travel and related expenses of $0.2 million.

Selling, general and administrative expenses decreased in 2015 compared to 2014 in part because we recorded $1.75 million in expenses in 2014 relating to an accrual for estimated penalties in connection with the SEC investigation, and there were no such expenses recorded in 2015. In addition, there was a decrease of $1.0 million in employee related expenses, which consisted primarily of salaries, wages and share-based compensation, $0.6 million in travel expenses due to a reduction in headcount, $0.1 million in supplies and materials and $1.7 million in expenses associated with the manufacturing plant as a result of such expenses either being capitalized as inventory or allocated to cost of product revenues if actual utilization of the plant is less than what is considered normal capacity as we began full-scale production in 2014. These decreases were offset by an increase of $2.0 million in accounting, consulting and legal fees incurred, net of insurance proceeds, as a result of the Audit Committee's independent investigation, which began in September 2014, and the subsequent restatement of our financial statements and an increase of $0.4 million in fixed expenses due to an increase in rent and directors' and officers' liability insurance.

Other Income (Expense), Net

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
	(Dollars in thousands)		
Interest income	$37	51	59
Interest expense	(2,941)	(2,764)	(2,907)
Interest expense to related parties	(4,361)	(1,599)	—
Other income (expense) net	(146)	41	(278)
	$(7,411)	$(4,271)	$(3,126)

Interest income, consisting primarily of interest on cash and short-term investments, was largely unchanged. Interest expense increased by $0.2 million, or 6%, primarily due to an increase in the interest rate on the October 2012 and April 2013 Secured Promissory Notes, which interest rate was later decreased, as further described in Note 6. The increase in the interest rates on these notes was effective September 1, 2015, and the decrease in the interest rates was effective November 1, 2016. In addition, related party interest expense increased during 2016 compared to 2015 primarily due to the senior secured promissory notes being outstanding throughout 2016 and only a portion of 2015 as further below discussed. The Company also recognized a $0.1 million increase in other expenses primarily due to write-downs on the value of certain equipment.

Interest expense decreased in 2015 compared to 2014 as we did not enter into any new capital lease agreements. Interest expense to related parties increased in 2015 compared to 2014 as we issued and sold to affiliates of Waddell & Reed Financial, Inc., a beneficial owner of more than 5% of our common stock, senior secured promissory notes in the aggregate principal amount of $40.0 million in August 2015. The notes bear interest at a rate of 8% per annum. In connection with the notes, we issued warrants to purchase 4.0 million shares of our common stock. The fair value of the warrants at the date of issuance of $4.6 million was recorded as a discount to the notes and is being amortized to interest expense to related parties over the term of the arrangement.

Seasonality and Quarterly Results

The level of seasonality in our business overall is difficult to evaluate as a result of our relatively early stage of development, our relatively limited number of commercialized products, our expansion into new geographical territories, the introduction of new products, the timing of introductions of new formulations and products and our recognition of revenue on both a “sell-in” and “sell-through” basis, depending on the transaction. It is possible that our business may become more seasonal, or experience seasonality in different periods, than anticipated, particularly if we expand into new geographical territories, add or change distributors or distributor programs or introduce new products with different applicable growing seasons, or if a more significant component of our revenue becomes comprised of sales of Zequanox, which has a separate seasonal sales cycle compared to our crop protection products. Notwithstanding any such seasonality, we expect substantial fluctuation in sales year over year and quarter over quarter as a result of a number of variables on which sales of our products are dependent. Weather conditions, natural disasters and other factors affect planting and growing seasons and incidence of pests and plant disease, and accordingly affect decisions by our distributors, direct customers and end users about the types and amounts of pest management and plant health products to purchase and the timing of use of such products. In addition, disruptions that cause delays by growers in harvesting or planting can result in the movement of orders to a future quarter, which would negatively affect the quarter and cause fluctuations in our operating results. For example, late snows and cold temperatures in the Midwestern and Eastern United States in the first and second quarters of 2014 delayed planting and pesticide and plant health applications, and the California drought in 2015 and the Northeast U.S. drought in 2016

adversely affected fungicide sales. Customers also may purchase large quantities of our products in a particular quarter to store and use over long periods of time or time their purchases to manage their inventories, which may cause significant fluctuations in our operating results for a particular quarter or year, and low commodity prices may discourage growers from purchasing our products in an effort to reduce their costs and increase their margins for a growing season.

The following tables set forth our unaudited quarterly consolidated statements of operations data in dollars and as a percentage of total revenues for each of the four quarters in fiscal years 2016 and 2015. We have prepared the quarterly consolidated statements of operations data on a basis consistent with the audited consolidated financial statements included in Part II-Item 8-“Financial Statements and Supplementary Data” in this Annual Report on Form 10-K. In the opinion of management, the financial information reflects all adjustments, consisting only of normal recurring adjustments, which we consider necessary for a fair presentation of this information. This information should be read in connection with the audited consolidated financial statements and related notes included in Part II-Item 8-“Financial Statements and Supplementary Data” in this Annual Report on Form 10-K. The results of operations for historical periods are not necessarily indicative of the results of operations for any future period.

Fiscal Year 2016:

	MARCH 31, 2016	JUNE 30, 2016	SEPTEMBER 30, 2016	DECEMBER 31, 2016
	(In thousands) (Unaudited)			
Revenues:				
Product	$2,577	$ 4,957	$ 3,549	$ 2,632
License	92	92	85	58
Related party	—	—	—	—
Total revenues	2,669	5,049	3,634	2,690
Cost of product revenues	2,269	3,118	2,493	1,642
Gross profit (loss)	400	1,931	1,141	1,048
Operating expenses:				
Research, development and patent	2,322	2,313	2,662	2,373
Selling, general and administrative	5,530	4,512	3,754	4,714
Total operating expenses	7,852	6,825	6,416	7,087
Loss from operations	(7,452)	(4,894)	(5,275)	(6,039)
Other income (expense):				
Interest income	15	10	8	4
Interest expense	(750)	(759)	(755)	(677)
Interest expense to related parties	(1,083)	(1,083)	(1,099)	(1,096)
Other income (expense), net	(6)	(57)	(81)	(2)
Total other expense	(1,824)	(1,889)	(1,927)	(1,771)
Income taxes	—	—	—	—
Net loss	$(9,276)	$ (6,783)	$ (7,202)	$ (7,810)
Product Shipments[1]	$3,886	$ 4,169	$ 3,096	$ 5,215

(1) Product shipments is a supplemental measure of financial performance that is not required by, or presented in accordance with, generally accepted accounting principles (“GAAP”). We define product shipments as product revenues, plus related party revenues (excluding, if any, related party revenues not related to the shipment of products), plus the incremental amount of deferred revenues accrued during the applicable period from shipment of products. This calculation specifically excludes changes in deferred revenue related to license revenues and customer deposits, and is intended to approximate the total value of products sold and under contract for sale in a given period. Product shipments, as defined herein, may not be comparable to similarly titled measures used by other companies. Our management uses this non-GAAP financial measure in order to have comparable results to analyze sales performance from quarter to quarter. We have chosen to provide this supplemental information regarding our sales in a given period to investors to facilitate a meaningful evaluation of actual operating results on a comparable basis with historical results, including to track product adoption, and to assist investors in their

valuation of the Company.

Product Shipments

We believe that product shipments is a useful measure of our sales that illustrates the value of our product shipment volumes in a given period. As certain of our product revenues are recognized on a “sell-in” basis while others are recognized on a “sell-through” basis, we believe product shipments facilitates a comparison of our operating performance on a consistent basis from period-to-period and provides for a more complete understanding of factors and trends affecting our business. We define product shipments as product revenues, plus related party product revenues related to product shipments, plus, or minus, the incremental amount of deferred revenues accrued during the applicable period from the shipment of products. This calculation specifically excludes changes in deferred revenue related to license revenues and customer deposits.

The following table presents a reconciliation of product revenues, the most directly comparable GAAP financial measure, to product shipments for the periods indicated below:

	Three Months Ended			
	March 31, 2016	June 30, 2016	September 30, 2016	December 31, 2016
Product revenues	$2,577	$4,957	$ 3,549	$ 2,632
Change in deferred product revenue(a)	1,309	(788)	(453)	2,583
Product shipments	$3,886	$4,169	$ 3,096	$ 5,215

(a) Change in deferred product revenue is defined as the increase in the amount of deferred product revenues accrued during the applicable period, less prior deferred product revenues recognized during the applicable period, excluding the change in deferred revenue associated with license fees and customer deposits. For the three months ended March 31, 2016, June 30, 2016, September 30, 2016 and December 31, 2016, deferred license revenues decreased $92,000, $92,000, $85,000 and $58,000, respectively. For the three months ended March 31, 2016, June 30, 2016, September 30, 2016 September 30, 2016 and December 31, 2016, customer deposits included in deferred revenues were $0, 943,000, $923,000 and $0, respectively.

	MARCH 31, 2016		JUNE 30, 2016		SEPTEMBER 30, 2016		DECEMBER 31, 2016	
	(In thousands) (Unaudited)							
Revenues:								
Product	97	%	98	%	98	%	98	%
License	3	%	2	%	2	%	2	%
Related party	—		—		—		—	
Total revenues	100	%	100	%	100	%	100	%
Cost of product revenues	85	%	62	%	69	%	61	%
Gross profit (loss)	15	%	38	%	31	%	39	%
Operating expenses:								

Research, development and patent	87	%	46	%	73	%	88	%
Selling, general and administrative	207	%	89	%	103	%	175	%
Total operating expenses	294	%	135	%	176	%	263	%
Loss from operations	(279	)%	(97	)%	(145	)%	(224	)%
Other income (expense):								
Interest income	1	%	0	%	0	%	0	%
Interest expense	(28	)%	(15	)%	(21	)%	(25	)%
Interest expense to related parties	(41	)%	(21	)%	(30	)%	(41	)%
Other income (expense), net	(0	)%	(1	)%	(2	)%	(0	)%
Total other expense	(68	)%	(37	)%	(53	)%	(66	)%
Income taxes	—		—		—		—	
Net loss	(347	)%	(134	)%	(198	)%	(290	)%

Fiscal Year 2015:

	MARCH 31, 2015	JUNE 30, 2015	SEPTEMBER 30, 2015	DECEMBER 31, 2015
	(In thousands) (Unaudited)			
Revenues:				
Product	$1,774	$3,091	$ 2,295	$ 1,816
License	83	83	83	84
Related party	199	183	97	13
Total revenues	2,056	3,357	2,475	1,913
Cost of product revenues [1]	1,998	2,994	2,340	1,924
Gross profit (loss)	58	363	135	(11)
Operating expenses:				
Research, development and patent	3,422	3,328	3,442	3,308
Selling, general and administrative	7,887	7,411	5,317	5,887
Total operating expenses	11,309	10,739	8,759	9,195
Loss from operations	(11,251)	(10,376)	(8,624)	(9,206)
Other income (expense):				
Interest income	9	6	14	22
Interest expense	(669)	(659)	(687)	(749)
Interest expense to related parties	—	—	(501)	(1,098)
Other income (expense), net	(3)	44	(1)	1
Total other expense	(663)	(609)	(1,175)	(1,824)
Income taxes	—	—	—	—
Net loss	$(11,914)	$(10,985)	$ (9,799)	$ (11,030)
Product Shipments[1]	$2,171	$2,485	$ 1,800	$ 2,582

(1) Includes $0.1 million in cost of product revenues to related parties for each of the quarters ended March 31, 2015, June 30, 2015 and September 30, 2015, and less than $0.1 million in cost of product revenues for the quarter ended December 31, 2015. See Note 15 of our accompanying Notes to Consolidated Financial Statements included in Part II-Item 8-“Financial Statements and Supplementary Data” of this Annual Report on Form 10-K for further discussion.

The following table presents a reconciliation of product revenues, the most directly comparable GAAP financial measure, to product shipments for the periods indicated below:

	Three Months Ended			
	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015

Product revenues	$1,774	$3,091	$ 2,295	$ 1,816
Related party revenues(a)	199	183	97	$ 13
Change in deferred product revenue(a)	198	(789)	(592)	753
Product shipments	$2,171	$2,485	$ 1,800	$ 2,582

(a) Related party revenues only consist of product sales for these periods and are not related to license revenues.

(b) Change in deferred product revenue is defined as the increase in the amount of deferred product revenues accrued during the applicable period, less prior deferred product revenues recognized during the applicable period, excluding the change in deferred revenue associated with license fees and customer deposits. For the three months ended March 31, 2015, June 30, 2015 and September 30, 2015, deferred license revenues decreased $83,000, $83,000 and $83,000, respectively. For the three months ended December 31, 2015, deferred revenue associated with license fees increased $216,000.

	MARCH 31, 2015	JUNE 30, 2015	SEPTEMBER 30, 2015	DECEMBER 31, 2015
	(Unaudited)			
Revenues:				
Product	86 %	92 %	93 %	95 %
License	4	2	3	4
Related party	10	6	4	1
Total revenues	100	100	100	100
Cost of product revenues [1]	97	89	95	101
Gross profit (loss)	3	11	5	(1)
Operating expenses:				
Research, development and patent	166	99	139	173
Selling, general and administrative	384	221	215	308
Total operating expenses	550	320	354	481
Loss from operations	(547)	(309)	(349)	(482)
Other income (expense):				
Interest income	—	—	1	1
Interest expense	(33)	(20)	(28)	(39)
Interest expense to related parties	—	—	(20)	(57)
Other income (expense), net	—	1	—	—
Total other expense, net	(33)	(19)	(47)	(95)
Income taxes	—	—	—	—
Net loss	(580)%	(328)%	(396)%	(577)%

[1] Includes 4%, 3%, 2% and less than 1% in cost of product revenues to related parties for the quarters ended March 31, 2015, June 30, 2015, September 30, 2015 and December 31, 2015, respectively. See Note 15 of our accompanying Notes to Consolidated Financial Statements included in Part II-Item 8-“Financial Statements and Supplementary Data” of this Annual Report on Form 10-K for further discussion.

Liquidity and Capital Resources

Since our inception, our operations have been financed primarily by net proceeds from public offerings of common stock and private placements of convertible preferred stock, convertible notes and promissory notes, and term loans, as well as proceeds from the sale of our products and payments under strategic collaboration and distribution agreements and government grants.

In the August 2013 IPO, we issued 5.5 million shares of our common stock (inclusive of 0.7 million shares of common stock sold upon the exercise of the underwriters’ option to purchase additional shares). The public offering price of the shares sold in the offering was $12.00 per share. The total gross proceeds from the offering to us were $65.6 million, and after deducting underwriting discounts and commissions and offering expenses payable by us, the aggregate net proceeds received totaled $56.1 million.

In June 2014, we completed a public offering of 4.6 million shares of our common stock (inclusive of 0.7 million shares of common stock sold upon the exercise of the underwriters’ option to purchase additional shares). The public offering price of the shares sold in the offering was $9.50 per share. The total gross proceeds from the offering to us were $43.5 million, and after deducting underwriting discounts and commissions and offering expenses payable by us, the aggregate net proceeds received totaled $39.9 million.

In June 2014, we also borrowed $10.0 million pursuant to a promissory note with a bank. This note requires us to maintain a deposit balance with the lender of $1.6 million. In addition, until we provide documentation that proceeds from the loan were used for construction of our manufacturing plant, proceeds from the loan will be maintained in a restricted deposit account. As of December 31, 2016, we had $1.4 million remaining in the restricted deposit account.

In August 2015, we issued and sold to affiliates of Waddell & Reed, Inc. senior secured promissory notes in the aggregate principal amount of $40.0 million. The notes bear interest at a rate of 8% per annum payable semi-annually on June 30 or December 31 of each year, commencing on December 31, 2015, with $10.0 million payable three years from the closing, $10.0 million payable four years from the closing and $20.0 million payable five years from the closing. These notes required us to maintain a cash and cash equivalents balance of $15.0 million through May 31, 2016. On May 31, 2016, the terms of this note were amended to remove the minimum cash balance requirement. From the date of this agreement through May 31, 2016, $15,000,000 was recorded as restricted cash and included in non-current assets.

In December 2016, we filed a shelf a registration statement on Form S-3 with the SEC that provides for the sale and issuance of up to $50.0 million of our common stock, preferred stock, debt securities, warrants, rights and/or units, including the ability to sell up to $15.0 million of our common stock through an at-the-market program in accordance with an offering agreement we entered into with H.C. Wainwright. We began selling common shares under this registration statement in January 2017.

In addition, in March 2017, we entered into an invoice purchase agreement with LSQ Funding Group, L.C. (“LSQ”), pursuant to which LSQ may elect to purchase up to $7,000,000 of eligible customer invoices from us. The Company’s obligations under the LSQ Financing are secured by a lien on substantially all of the Company’s personal property; such lien is first priority with respect to the Company’s accounts receivable, inventory, and related property.

As of December 31, 2016, our cash and cash equivalents totaled $9.6 million, and we had an additional $3.0 million of restricted cash that we are contractually obligated to maintain in accordance with our debt agreements, which are discussed further below. Unless Five Star Bank extends its waiver of the applicable covenant, or we enter into strategic agreements that include significant cash payments upfront, significantly increase revenues from sales or raise additional capital through the issuance of equity, we will exceed the maximum debt-to-worth requirement under our promissory note with Five Star Bank at the expiration of the waiver on December 31, 2017. As of December 31, 2016, we had an accumulated deficit of $234.6 million, and we estimate that we will continue to incur losses, which will further increase our accumulated deficit. Based on this cash on hand and our expectation that we will continue to incur significant operating losses, we do not have the capital to finance operations for the next twelve months. These circumstances raise substantial doubt about our ability to continue as a going concern, which depends on our ability to obtain further waivers of our covenants, enter into strategic agreements that include significant cash payments upfront and/or raise additional capital. There is no assurance that we will be able to obtain waivers of our debt covenants or raise capital, or if we are able to raise capital, that it will be on favorable terms. Adequate funds for these and the other purposes may not be available to us when needed or on acceptable terms, and we may need to raise capital that may not be available on favorable or acceptable terms, if at all. If we cannot raise money when needed, we may have to reduce or slow sales and product development activities, further reduce operating expenses and/or reduce capital investment. We incorporated additional information regarding risks related to our capital and liquidity described in this Annual Report filed on Form 10-K in Part I— Item 1A— “Risk Factors”, which should be read in connection with this disclosure.

Since our inception, we have incurred significant net losses, and we expect to incur additional losses related to the continued development and expansion of our business. Our liquidity may be negatively impacted as a result of slower than expected adoption of our products. We have certain strategic collaboration and distribution agreements under which we receive payments for the achievement of certain testing validation, regulatory progress and commercialization events. As of December 31, 2016, we had received an aggregate of $3.9 million in payments under these agreements. In addition, there will be an additional $0.3 million in payments due on certain anniversaries of regulatory approval and an additional $1.1 million in payments under these agreements that we could potentially receive if the testing validation, regulatory progress and commercialization events occur.

During the years ended December 31, 2016, 2015 and 2014, we used $0.2 million, $1.7 million and $13.0 million, respectively, in cash to fund capital expenditures. In July 2012, we acquired a manufacturing facility, formerly used as a biodiesel plant. Repurposing of the facility was completed in 2014 and included the installation of fermentation tanks and the construction of a dedicated building to house them. In December 2013, we produced the first test batch of Grandevo at this facility and began full-scale production of our products using our own manufacturing capacity in

2014. The facility now accommodates full-scale production of Regalia and full-scale fermentation of Grandevo and Zequanox.

We had the following debt arrangements in place as of December 31, 2016, in each case as discussed below (dollars in thousands):

DESCRIPTION	STATED ANNUAL INTEREST RATE	PRINCIPAL BALANCE (INCLUDING ACCRUED INTEREST)	PAYMENT/MATURITY
Promissory Notes [1]	14.00 %	$ 12,593	Monthly[4]/October 2018
Promissory Note [2]	5.50 %	$ 9,386	Monthly/June 2036
Promissory Notes [3]	8.00 %	$ 41,618	Biannually[5]/August 2020

[1] See "—October 2012 and April 2013 Secured Promissory Notes."
[2] See "—June 2014 Secured Promissory Note."
[3] See "—August 2015 Senior Secured Promissory Notes."
[4] Monthly payments are interest only until maturity.
[5] Biannual payments are interest only until maturity with principal payments due in increments at three, four and five years from the closing date.

October 2012 and April 2013 Secured Promissory Notes

In October 2012, we completed the sale of promissory notes in the aggregate principal amount of $7.5 million to twelve lenders in a private placement. In addition, in April 2013, we completed the sale of an additional $4.95 million of promissory notes to ten lenders in a private placement under an amendment to the note purchase agreement in exchange for $3.7 million in cash and $1.25 million in cancellation of indebtedness under a previously outstanding convertible note. In August 2015, the terms of the notes were amended, resulting in an increase in the interest rate to 18% effective September 1, 2015 for the remaining term of the notes. In addition, in accordance with terms of the notes whereby the maturity date may be extended for a period of two years from the original maturity date of October 2015, we provided a written notice in September 2015 to extend the maturity date to October 2017. In November 2016, the terms of the notes were again amended, resulting in a decrease in the interest rate to 14% effective November 1, 2016 for the remaining term of the notes. In addition, the maturity date was extended from October 2017 to October 2018. As consideration for the amended terms, the Company issued 124,500 warrants to the lenders party to the loan agreement underlying the promissory notes. The warrants have a ten year term, expiring November 2026, with an exercise price of $2.38 per share.

These promissory notes are secured by a security interest in all of our present and future accounts receivable, chattel paper, commercial tort claims, goods, inventory, equipment, personal property, instruments, investment properties, documents, letter of credit rights, deposit accounts, general intangibles, records, real property, appurtenances and fixtures, tenant improvements and intellectual property, which consists of our patents, copyrights and other intangibles.

As of December 31, 2014, we were in breach of our covenants under the notes as a result of our failure to provide annual financial statements in a timely manner and our being in breach of certain of our covenants on our June 2014 Secured Promissory Note as described below. However, in November 2015, we received an extension from the lending agent with respect to compliance with the requirements to deliver annual financial statements to the earlier of (i) November 15, 2015 or (ii) such time such financial statements are filed with the SEC. Further, the covenant breach

was cured in November 2015 as a result of obtaining this extension and the waiver of certain of our covenants with respect to the June 2014 Secured Promissory Note as described below.

June 2014 Secured Promissory Note

In June 2014, we borrowed $10.0 million pursuant to a business loan agreement and promissory note with Five Star Bank which bears interest at prime rate plus 2% per annum. The interest rate is subject to change from time to time to reflect changes in the prime rate; however, the interest rate shall not be less than 5.25% or more than the maximum rate allowed by applicable law. If the interest rate increases, the lender, may, at its option, increase the amount of each monthly payment to ensure that the note would be paid in full by the maturity date, increase the amount of each monthly payment to reflect the change in interest rate, increase the number of monthly payments or keep the monthly payments the same and increase the final payment amount. As of December 31, 2016, the interest rate was 5.5%.

The June 2014 Secured Promissory Note is repayable in monthly payments of $65,737 commencing in July 2014, with the final payment due in June 2036. Certain of our deposit accounts and our subsidiary's inventories, chattel paper, accounts, equipment and general intangibles have been pledged as collateral for the promissory note. We are required to maintain a deposit balance with the lender of $1.6 million, which was recorded as restricted cash included in non-current assets. In addition, until we provide documentation that the proceeds from the loan were used for construction of the manufacturing plant, proceeds from the loan will be maintained in a restricted deposit account. As of December 31, 2016, we had $1.4 million remaining in this restricted deposit account, which was recorded as restricted cash included in current assets.

We may prepay 20% of the outstanding principal loan balance each year without penalty. A prepayment fee of 10% will be charged if prepayments exceed 20% in the first year, and the prepayment fee will decrease by 1% each year for the first ten years of the loan.

We are required to maintain a current ratio of not less than 1.25-to-1.0, a debt-to-worth ratio of no greater than 4.0-to-1.0 and a loan-to-value ratio of no greater than 70% as determined by the lender. We are also required to comply with certain affirmative and negative covenants under the loan agreement discussed above. In the event of default on the debt, the lender may declare the entire unpaid principal and interest immediately due and payable. As of December 31, 2014, we were in breach of certain of our covenants under the loan agreement as a result of our annual and quarterly reports not being filed within the prescribed time period and our being in breach of covenants on the October 2012 and April 2013 Secured Promissory Notes described above. In addition, effective September 30, 2015, our debt-to-worth ratio was greater than 4.0-to-1.0 as a result of the issuance of $40.0 million in promissory notes in August 2015 as described below, which increased our debt while we continued to incur net losses, which decreased stockholders' equity. However, in November 2015, we received a waiver from the lender with respect to compliance with the requirements to (i) deliver annual financial statements (extended to November 15, 2015), (ii) maintain a current ratio greater than 1.25-to-1.0 (extended to December 31, 2015) and (iii) maintain a debt-to-worth ratio less than 4.0-to-1.0 (extended to December 31, 2016), and we subsequently received an additional waiver with respect to the requirement that we maintain a debt-to-worth ratio less than 4.0-to-1.0 (extended to December 31, 2017). The receipt of these waivers and the extension to provide financial statements under the October 2012 and April 2013 Secured Promissory Notes cured our otherwise being in breach of the covenants under the loan agreement.

August 2015 Senior Secured Promissory Notes

On August 20, 2015, we issued and sold senior secured promissory notes to three affiliated lenders in the aggregate principal amount of $40.0 million. The notes bear interest at a rate of 8% per annum payable semi-annually on June 30 or December 31 of each year, commencing on December 31, 2015, with $10.0 million payable three years from the closing, $10.0 million payable four years from the closing and $20.0 million payable five years from the closing. The notes contained customary covenants. In addition, from the date of the agreement through May 31, 2016, these notes required us to maintain cash and cash equivalents of at least $15 million. On May 31, 2016, the terms of the August 2015 Secured Promissory Notes were amended, terminating the requirement that we maintain a $15 million minimum cash balance. From the date of the agreement through May 31, 2016, $15 million was recorded as restricted cash and included in non-current assets.

The notes are secured by substantially all of our personal property assets. The lenders shall be entitled to have a first priority lien on our intellectual property assets, pursuant to intercreditor arrangements with certain of our existing

lenders. The notes provide for various events of default, including, among others, default in payment of principal or interest, breach of any representation or warranty by us or any subsidiary under any agreement or document delivered in connection with the notes, a continued breach of any other condition or obligation under any loan documents, certain bankruptcy, liquidation, reorganization or change of control events, the acquisition by any person or persons acting as group, other than the lenders, of beneficial ownership of 40% or more of our outstanding voting stock and certain events in which Pamela G. Marrone, Ph.D. ceases to serve as our Chief Executive Officer. Upon an event of default, the entire unpaid principal and interest may be declared immediately due and payable. As of September 30, 2015, we were in breach of our covenants under the August 2015 Senior Secured Promissory Notes as we were in breach of our covenants under our October 2012 and April 2013 Secured Promissory Notes and June 2014 Secured Promissory Note. However, this covenant breach was cured in November 2015 as we obtained an extension to deliver our annual financial statements with respect to the October 2012 and April 2013 Secured Promissory Notes and a waiver of certain of our covenants with respect to the June 2014 Secured Promissory Note as discussed above.

The following table sets forth a summary of our cash flows for the periods indicated:

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
		(In thousands)	
Net cash used in operating activities	$(24,307)	$(36,174)	$(35,935)
Net cash provided by (used in) investing activities	(209)	(1,646)	671
Net cash provided by financing activities	14,287	22,334	46,133
Net increase (decrease) in cash and cash equivalents	$(10,229)	$(15,486)	$10,869

Cash Flows from Operating Activities

Net cash used in operating activities of $24.3 million during the twelve months ended December 31, 2016 primarily resulted from our net loss of $31.1 million, which included $2.2 million of depreciation and amortization expense, $2.7 million of share-based compensation expense, $1.3 million of non-cash interest expense, and $0.1 million of loss on disposal of equipment. In addition, net cash used in operating activities resulted from an increase in accounts receivable of $1.2 million, and decreases in accounts payable of $0.6 million, deferred cost of product revenues of $1.1 million, and a decrease in accrued other liabilities of $0.2 million. This was offset by decreases in inventories of $0.6 million, prepaid expenses and other assets of $0.2 million, an increase in deferred revenues, including related party deferred revenue, of $2.3 million and accrued interest due to related parties of $0.4 million.

Net cash used in operating activities of $36.2 million during the twelve months ended December 31, 2015 primarily resulted from our net loss of $43.7 million, which included $3.5 million of depreciation and amortization expense, $3.8 million of share-based compensation expense and $0.8 million of non-cash interest expense. The net loss also includes approximately $7.7 million in accounting, consulting and legal fees incurred, net of insurance proceeds, as a result of the Audit Committee’s independent investigation, which began in September 2014, and subsequent restatement of our financial statements. In addition, net cash used in operating activities resulted from an increase in accounts receivable of $0.6 million, and decreases in accounts payable of $3.5 million, accrued and other liabilities of $0.1 million, deferred revenue from related parties of $0.5 million and customer refund liabilities of $1.0 million. This was offset by decreases in inventories of $3.6 million, prepaid expenses and other assets of $0.1 million and deferred cost of product revenues of $0.2 million, and an increase in accrued interest due to related parties of $1.2 million.

Net cash used in operating activities of $35.9 million during the twelve months ended December 31, 2014 primarily resulted from our net loss of $51.7 million, which included $4.6 million of share-based compensation expense, $2.6

million of depreciation and amortization expense, loss on disposal assets of $0.2 million and $0.8 million of non-cash interest expense. The net loss also included approximately $5.8 million in accounting, consulting and legal fees incurred as a result of the Audit Committee's independent investigation. In addition, net cash used in operating activities resulted from decreases in deferred revenue of $0.1 million and deferred revenue from related parties of $0.7 million and increases in prepaid expenses and other assets of $0.3 million. This was offset by decreases in accounts receivable of $2.0 million, deferred cost of product revenues of $1.1 million, inventories of $0.1, million

and accounts receivable from related parties of $0.9 million, and increases in customer refund liabilities of $1.0 million, accounts payable of $1.7 million and accrued and other liabilities of $1.9 million.

Cash Flows from Investing Activities

Net cash used in investing activities of $0.2 million during the twelve months ended December 31, 2016 resulted from the purchase of property, plant and equipment to support growth of our operations.

Net cash used in investing activities of $1.6 million during the twelve months ended December 31, 2015 primarily resulted from $1.7 million used for the purchase of property, plant and equipment to support growth of our operations.

Net cash provided by investing activities of $0.7 million during the twelve months ended December 31, 2014 primarily resulted from $13.7 million provided from maturities of short-term investments, which was offset by $13.0 million used for the purchase of property, plant and equipment, primarily associated improvements related to the manufacturing plant.

Cash Flows from Financing Activities

Net cash provided by financing activities of $14.4 million during the twelve months ended December 31, 2016 consisted primarily of $15.3 million from the change in restricted cash associated with an amendment to our related party debt. This was partially offset by $0.3 million in payments on our debt, $0.8 million in payments on our capital lease obligations.

Net cash provided by financing activities of $22.3 million during the twelve months ended December 31, 2015 consisted primarily of $39.7 million in proceeds from the issuance of debt due to related parties, net of financing costs. This was offset by $0.4 million in payments on our debt, $2.0 million in payments on our capital lease obligations and $15.0 million of restricted cash relating to the debt due to related parties.

Net cash provided by financing activities of $46.1 million during the twelve months ended December 31, 2014 consisted primarily of $39.9 million in proceeds from the secondary offering, net of offering costs and underwriter commissions, $9.7 million from the issuance of debt and warrants, net of financing costs, $4.7 million in proceeds from the line of credit and $1.4 million in proceeds from the exercise of stock options and warrants. This was offset by $4.7 million in payments on the line of credit, $1.5 million in payments on our debt and capital leases and $3.4 million transferred to restricted cash.

Contractual Obligations

The following is a summary of our contractual obligations as of December 31, 2016:

	TOTAL	2017	2018-2019	2020-2021	2022 AND BEYOND
	(In thousands)				
Operating lease obligations	$2,513	$949	$ 1,564	$ —	$ —
Debt and capital leases	62,649	1,113	33,045	20,664	7,827
Interest payments relating to debt and capital leases	18,256	6,713	5,999	1,941	3,603
Total	$83,418	$8,775	$ 40,608	$ 22,605	$ 11,430

Operating leases consist of contractual obligations from agreements for non-cancelable office space and leases used to finance the acquisition of equipment. Debt and capital equipment lease payments and the interest payments relating thereto include promissory notes and capital lease obligations in accordance with the payment terms under the agreements.

In September 2013 and then amended in April 2014, we entered into a lease agreement for approximately 27,300 square feet of office and laboratory space located in Davis, California. The initial term of the lease is for a period of

60 months and commenced in August 2014. The monthly base rent is $44,000 for the first 12 months with a 3% increase each year thereafter. Concurrent with this amendment, in April 2014, we entered into a lease agreement with an affiliate of the landlord to lease approximately 17,400 square feet of office and laboratory space in the same building complex in Davis, California. The initial term of the lease is for a period of 60 months and commenced in August 2014. The monthly base rent is $28,000 with a 3% increase each year thereafter. In addition, we leased a portion of the location of our old headquarters in Davis, California until that lease expired in October 2016.

In January 2016, we entered into an agreement with a sublessee to sublease approximately 3,800 square feet of vacant office space in the aforementioned building complex pursuant to the terms of our lease agreement. The initial term of the sublease is for a period of approximately 43 months and commenced on February 1, 2016. The monthly base rent is approximately $5,000 per month for the first 12 months with a 5% increase each year thereafter.

Since December 31, 2016, we have not added any additional leases that would qualify as operating leases.

Inflation

We believe that inflation has not had a material impact on our results of operations during the years ended December 31, 2016, 2015 and 2014.

Off-Balance Sheet Arrangements

We have not been involved in any material off-balance sheet arrangements.

Recently Issued Accounting Pronouncements

See Note 2 to the Consolidated Financial Statements included in this Annual Report on Form 10-K in Part II-Item 8-“Financial Statements and Supplementary Data.”

Critical Accounting Policies and Estimates

Our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K are prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, net revenue, costs and expenses, and any related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Changes in accounting estimates are reasonably likely to occur from period to period. Accordingly, actual results could differ significantly from the estimates made by our management. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are material differences between these estimates and our actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected.

We believe that the assumptions and estimates associated with revenue recognition, including assumptions and estimates used in determining the timing and amount of revenue to recognize for those transactions accounted for on a “sell-through” method, inventory valuation and share-based compensation have the greatest potential impact on our consolidated financial statements. Therefore, we consider these to be our critical accounting policies and estimates. See Note 2 to our accompanying Notes to Consolidated Financial Statements included in Part II-Item 8-“Financial Statements and Supplementary Data” in this Annual Report on Form 10-K for additional information regarding our significant accounting policies.

Inventories

Inventories are stated at the lower of cost or market value (net realizable value or replacement cost) and include the cost of material and external and internal labor and manufacturing costs. Cost is determined on the first-in, first-out basis. We provide for inventory reserves when conditions indicate that the selling price may be less than cost due to physical deterioration, obsolescence, changes in price levels or other factors. Additionally, we provide reserves for excess and slow-moving inventory on hand that is not expected to be sold to reduce the carrying amount of excess

and slow-moving inventory to its estimated net realizable value. The reserves are based upon estimates about future demand from our customers and distributors and market conditions.

Fair Value of Financial Instruments

Fair value is defined as an exit price that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. A three tier fair value hierarchy has been established, which prioritizes the inputs used in measuring fair value as follows: Level 1, observable inputs such as quoted prices in active markets; Level 2, inputs other than the quoted prices in active markets that are observable either directly or indirectly; and Level 3, unobservable inputs in which there is little or no market data, which requires that we develop our own assumptions. This hierarchy requires the use of observable data, when available, and minimizes the use of unobservable inputs when determining fair value.

Revenue Recognition

We recognize revenues when persuasive evidence of an arrangement exists, transfer of title has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured. If contractual obligations, acceptance provisions or other contingencies exist which indicate that the price is not fixed or determinable, revenue is recognized after such obligations or provisions are fulfilled or expire.

Product revenues consist of revenues generated from sales of our products to distributors and direct customers, net of rebates and cash discounts. For sales of products made to distributors, we recognize revenue either on a sell-in or sell-through basis depending on the specific facts and circumstances of the transaction(s) with the distributor. Factors considered include, but are not limited to, whether the payment terms offered to the distributor are structured to correspond to when product is resold, the distributor history of adhering to the terms of its contractual arrangements with us, whether we have a pattern of granting concessions for the benefit of the distributor and whether there are other conditions that may indicate that the sale to the distributor is not substantive.

In some cases, we recognize distributor revenue as title and risk of loss passes, provided all other revenue recognition criteria have been satisfied (the “sell-in” method). For certain sales to certain distributors, the revenue recognition criteria for distributor sales are not satisfied at the time title and risk of loss passes to the distributor; specifically, in instances where “inventory protection” arrangements were offered to distributors that permitted these distributors to return to us certain unsold products, we consider the arrangement not to be fixed or determinable, and accordingly, revenue is deferred until products are resold to customers of the distributor (the “sell-through” method). As of December 31, 2016 and 2015, we recorded current deferred product revenues of $5.4 million and $2.8 million, respectively, including current deferred product revenues from related parties of $0 and $0.2 million, respectively. The cost of product revenues associated with such deferral are also deferred and classified as deferred cost of product revenues in the consolidated balance sheets. Cash received from customers related to delivered product that may not represent a true sale is classified as customer refund liabilities in the consolidated balance sheets and the related cost of inventory remains in inventory in the consolidated balance sheets until the product is returned or is resold to customers of the distributor and revenue is recognized. During the years ended December 31, 2016, 2015 and 2014, 44%, 47% and 53%, respectively, of total revenues were recognized on a sell-through basis.

From time to time, we offer certain product rebates to our distributors and growers, which are estimated and recorded as reductions to product revenues, and an accrued liability is recorded at the later of when the revenues are recorded or the rebate is being offered.

We recognize license revenues pursuant to strategic collaboration and distribution agreements under which we receive payments for the achievement of certain testing validation, regulatory progress and commercialization events. As these activities and payments are associated with exclusive rights that we provide in connection with strategic collaboration and distribution agreements over the term of the agreements, revenues related to the payments received

are deferred and recognized over the term of the exclusive distribution period of the respective agreement. During the year ended December 31, 2016, we received payments totaling $0.3 million under these agreements, and as of December 31, 2016, there were no amounts included in accounts receivable under these agreements. During the year ended December 31, 2015, we received payments totaling $0.8 million under these agreements, and as of December 31, 2015, an additional $0.3 million was included in accounts receivable. During

the year ended December 31, 2014, we received payments totaling $0.5 million under these agreements, and an additional $0.8 million was included in accounts receivable.

We have a strategic collaboration and distribution agreement with Syngenta, an affiliate of a former beneficial owner of more than 5% of our common stock, Syngenta Ventures. In connection with our public offering in June 2014, Syngenta Ventures sold 0.6 million shares of our common stock, reducing its ownership percentage below 5%. Accordingly, revenue recognized under this agreement subsequent to June 2014 has not been included in related party revenues. During the year ended December 31, 2014, we recognized $0.3 million of related party revenues under this agreement prior to Syngenta Ventures reducing its ownership stake.

As of December 31, 2016, we recorded current and non-current deferred revenues of $0.2 million and $1.8 million, respectively, related to payments received under these agreements. As of December 31, 2015, we recorded current and non-current deferred revenues of $0.3 million and $2.0 million, respectively, related to payments received under these agreements.

Share-Based Compensation

We recognize share-based compensation expense for all stock options and restricted stock units granted to employees and directors based on estimated fair values.

We estimate the fair value of restricted stock units based on the closing bid price of our common stock on the date of grant. During the year ended December 31, 2016 and 2015, we recognized $198,000 and $96,000 of share-based compensation expense on restricted stock units. Total share-based compensation expense related to restricted stock units not yet recognized as of December 31, 2016 was $141,000, which is expected to be recognized over a weighted average period of 0.8 years.

We estimate the fair value of stock options on the date of grant using an option-pricing model. The value of the portion of the stock options that is ultimately expected to vest is recognized as expense on a straight-line basis over the requisite service period. Forfeitures are estimated on the date of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

The estimated fair value of options vested during the years ended December 31, 2016, 2015 and 2014 was $2.5 million, $5.0 million and $3.9 million, respectively. The weighted-average estimated fair value of options granted during the years ended December 31, 2016, 2015 and 2014 was $0.61, $0.75 per share, and $6.10 per share, respectively. During the years ended December 31, 2016, 2015 and 2014, we recorded share-based compensation expense related to stock options of $2.5 million, $3.7 million and $4.6 million, respectively. As of December 31, 2016, the total share-based compensation expense related to unvested stock options granted to employees under our share-based compensation plans but not yet recognized was $2.1 million. These costs will be amortized to expense on a straight-line basis over a weighted-average remaining term of 1.6 years.

On November 7, 2013, we announced that our chief financial officer, Donald J. Glidewell, had decided to retire, and we entered into a transition agreement with Mr. Glidewell which provided, among other things, for the vesting of his outstanding equity awards through the transition date. During the year ended December 31, 2014, we recorded share-based compensation expense of $0.4 million relating to the acceleration of vesting of Mr. Glidewell’s equity awards. No share-based compensation expense was recognized relating to the acceleration of vesting of Mr. Glidewell’s equity awards during the year ended December 31, 2016 or 2015, and as of December 31, 2016, there was no share-based compensation expense related to unvested options granted to Mr. Glidewell under the Company’s stock option plans not yet recognized.

We use the Black-Scholes-Merton ("BSM") option-pricing model to calculate the estimated fair value of stock options on the measurement date (generally, the date of grant). The required inputs in the option-pricing model include the expected life of the stock options, estimated volatility factor, risk-free interest rate and expected dividend yield. These inputs are subjective and generally require significant judgment. During the years ended December 31, 2016, 2015 and 2014, we calculated the fair value of stock options granted based on the following assumptions:

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Expected life (years)	5.85-6.08	5.85-6.08	5.46-6.08
Estimated volatility factor	45%-47%	46%-47%	49%-71%
Risk-free interest rate	1.13%-1.89%	1.86%-1.93%	1.63%-2.05%
Expected dividend yield	—	—	—

Expected Life. Expected life represents the period that share-based payment awards are expected to be outstanding. We use the "simplified method" in accordance with Staff Accounting Bulletin ("SAB") No. 107, Share-Based Payment ("SAB No. 107"), and SAB No. 110, Simplified Method for Plain Vanilla Share Options ("SAB No. 110"), to calculate the expected term of stock options determined to be "plain vanilla." Under this approach, the expected term is presumed to be the midpoint between the vesting date and the contractual end of the stock option grant. For stock options granted with an exercise price not equal to the determined fair market value, we estimate the expected life based on historical data and management's expectations about exercises and post-vesting termination behavior. We will use the simplified method until we have sufficient historical data necessary to provide a reasonable estimate of expected life in accordance with SAB No. 107 and SAB No. 110.

Estimated Volatility Factor. As our common stock has a limited trading history, we calculate the estimated volatility factor based on the trading history and calculated volatility of the common stock of comparable agricultural biotechnology companies.

Risk-Free Interest Rate. We calculate the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. We have not declared dividends nor do we expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

Estimated Forfeitures. We consider voluntary and involuntary termination behavior and actual stock option forfeitures when estimating forfeitures.

If, in the future, we determine that other methods for calculating these assumptions are more reasonable, or if other methods are prescribed by authoritative guidance, the fair value calculated for our stock options could change significantly. Higher volatility factors and longer expected lives result in an increase to the share-based compensation expense determined at the date of grant. Share-based compensation expense is recorded in research, development and patent expense and selling, general and administrative expense.

The BSM option-pricing model was developed for use in estimating the fair value of traded options that have no vesting restrictions and are fully transferable, characteristics not present in our stock options. Existing valuation models, including the BSM option-pricing model, may not provide reliable measures of the fair values of our stock options. Consequently, there is a risk that our estimates of the fair values of the stock options on the grant dates may bear little resemblance to the actual values realized upon exercise. Stock options may expire or otherwise result in

zero intrinsic value as compared to the fair values originally estimated on the grant date and reported in the consolidated financial statements. Alternatively, value may be realized from these instruments that is significantly higher than the fair values originally estimated on the grant date and reported in the consolidated financial statements.

Income Taxes

We use the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. To the extent that deferred tax assets cannot be recognized under the preceding criteria, we establish valuation allowances, as necessary, to reduce deferred tax assets to the amounts expected to be realized. As of December 31, 2016 and 2015, all deferred tax assets were fully offset by a valuation allowance. The realization of deferred tax assets is dependent upon future federal, state and foreign taxable income. Our judgments regarding deferred tax assets may change due to future market conditions, as we expand into international jurisdictions, due to changes in U.S. or international tax laws and other factors. These changes, if any, may require material adjustments to our deferred tax assets, resulting in a reduction in net income or an increase in net loss in the period in which such determinations are made.

We recognize liabilities for uncertain tax positions based upon a two-step process. To the extent that a tax position does not meet a more-likely-than-not level of certainty, no benefit is recognized in the consolidated financial statements. If a tax position meets the more-likely-than-not level of certainty, it is recognized in the consolidated financial statements at the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. Our policy is to analyze our tax positions taken with respect to all applicable income tax issues for all open tax years in each respective jurisdiction. As of December 31, 2016 and 2015, we concluded that no uncertain tax positions were required to be recognized in our consolidated financial statements.

We recognize interest and penalties related to income tax matters in income tax expense. No amounts were recognized for interest and penalties during the years ended December 31, 2016, 2015 and 2014.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We currently have minimal exposure to the effect of interest rate changes, foreign currency fluctuations and changes in commodity prices. We are exposed to changes in the general economic conditions in the countries where we conduct business, which currently is substantially all in the United States. Our current investment strategy is to invest in financial instruments that are highly liquid, readily convertible into cash and which mature within six months from the date of purchase. To date, we have not used derivative financial instruments to manage any of our market risks or entered into transactions using derivative financial instruments for trading purposes.

We do not believe our cash equivalents have significant risk of default or illiquidity. While we believe our cash equivalents do not contain excessive risk, we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value.

Interest Rate Risk

We had cash and cash equivalents of $9.6 million as of December 31, 2016, which was held for working capital purposes. We do not enter into investments for trading or speculative purposes. We entered into a promissory note in June 2014, which bears interest at the prime rate plus 2%. A change in market interest rates of 1% would have an impact of approximately $0.1 million on our future annual interest expense. All of our other debt is at fixed interest rates and thus a change in market interest rates would not have an impact on interest expense.

Foreign Currency Risk

Revenue and expenses have been primarily denominated in U.S. dollars and foreign currency fluctuations have not had a significant impact on our historical results of operations. In addition, our strategic collaboration and distribution agreements for current products provide for payments in U.S. dollars. As we market new products internationally, our product revenues and expenses may be in currencies other than U.S. dollars, and accordingly, foreign currency fluctuations may have a greater impact on our financial position and operating results.

Commodity Risk

Our exposure to market risk for changes in commodity prices currently is minimal. As our commercial operations grow, our exposure will relate mostly to the demand side as our end users are exposed to fluctuations in prices of agricultural commodities.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders of

Marrone Bio Innovations, Inc.

We have audited the accompanying consolidated balance sheets of Marrone Bio Innovations, Inc. (“the Company”) as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive loss, stockholders’ equity (deficit), and cash flows for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company’s internal control over financial reporting. Our audits 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, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Marrone Bio Innovations, Inc. at December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

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 financial statements, the Company has incurred losses since inception, has a net capital deficiency, and has additional capital needs that raise 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 2016 consolidated financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

/s/ Ernst & Young LLP

Roseville, California
March 31, 2017

MARRONE BIO INNOVATIONS, INC.

Consolidated Balance Sheets

(In Thousands, Except Par Value)

	DECEMBER 31,	
	2016	2015
Assets		
Current assets:		
Cash and cash equivalents	$9,609	$19,838
Restricted cash, current portion	1,444	1,856
Accounts receivable	3,592	2,347
Inventories, net	8,482	9,064
Deferred cost of product revenues, including deferred cost of product revenues to related parties of $0 and $79 as of December 31, 2016 and December 31, 2015, respectively	2,688	1,596
Prepaid expenses and other current assets	1,060	1,211
Total current assets	26,875	35,912
Property, plant and equipment, net	17,343	18,445
Restricted cash, less current portion	1,560	16,560
Other assets	205	284
Total assets	$45,983	$71,201
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	$1,385	$2,007
Accrued liabilities	5,508	5,689
Accrued interest due to related parties	1,618	1,175
Deferred revenue, current portion	5,647	2,919
Deferred revenue from related parties	—	168
Capital lease obligations, current portion	839	647
Debt, current portion	252	244
Total current liabilities	15,249	12,849
Deferred revenue, less current portion	1,787	2,021
Capital lease obligations, less current portion	—	18
Debt, less current portion	21,083	21,509
Debt due to related parties	36,667	35,512
Other liabilities	1,381	1,314
Total liabilities	76,167	73,223
Commitments and contingencies (Note 12)		
Stockholders' deficit:		
Preferred stock: $0.00001 par value; 20,000 shares authorized and no shares issued or outstanding at December 31, 2016 and December 31, 2015	—	—
Common stock: $0.00001 par value; 250,000 shares authorized, 24,661 shares issued and outstanding as of December 31, 2016 and 24,536 as of	—	—

December 31, 2015		
Additional paid in capital	204,463	201,554
Accumulated deficit	(234,647)	(203,576)
Total stockholders' deficit	(30,184)	(2,022)
Total liabilities and stockholders' deficit	$45,983	$71,201

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.

Consolidated Statements of Operations

(In Thousands, Except Per Share Data)

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Revenues:			
Product	$13,715	$8,976	$7,750
License	327	333	232
Related party	—	492	1,154
Total revenues	14,042	9,801	9,136
Cost of product revenues, including cost of product revenues to related parties of $0, $254 and $561 for the years ended December 31, 2016, 2015 and 2014, respectively	9,522	9,256	9,438
Gross profit (loss)	4,520	545	(302)
Operating Expenses:			
Research, development and patent	9,670	13,500	19,281
Selling, general and administrative	18,510	26,502	28,950
Total operating expenses	28,180	40,002	48,231
Loss from operations	(23,660)	(39,457)	(48,533)
Other income (expense):			
Interest income	37	51	59
Interest expense	(2,941)	(2,764)	(2,907)
Interest expense to related parties	(4,361)	(1,599)	—
Other income (expense), net	(146)	41	(278)
Total other expense, net	(7,411)	(4,271)	(3,126)
Loss before income taxes	(31,071)	(43,728)	(51,659)
Income taxes	—	—	—
Net loss	$(31,071)	$(43,728)	$(51,659)
Basic and diluted net loss per common share	$(1.26)	$(1.79)	$(2.32)
Weighted-average shares outstanding used in computing net loss per common share	24,617	24,469	22,314

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.

Consolidated Statements of Comprehensive Loss

(In Thousands)

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Net loss	$(31,071)	$(43,728)	$(51,659)
Other comprehensive loss	—	—	—
Comprehensive loss	$(31,071)	$(43,728)	$(51,659)

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.

Consolidated Statements Stockholders' Equity (Deficit)

(In Thousands)

	COMMON STOCK SHARES	AMOUNT	ADDITIONAL PAID IN CAPITAL	ACCUMULATED DEFICIT	TOTAL STOCKHOLDERS' EQUITY (DEFICIT)
Balance at December 31, 2013	19,323	—	$ 147,220	$ (108,189)	$ 39,031
Net loss	—	—	—	(51,659)	(51,659)
Exercise of stock options	561	—	1,305	—	1,305
Share-based compensation	—	—	4,555	—	4,555
Cash exercise of common stock warrants	6	—	50	—	50
Issuance of common stock in follow-on offering, net of offering costs and underwriter commissions	4,575	—	39,949	—	39,949
Balance at December 31, 2014	24,465	—	193,079	(159,848)	33,231
Net loss	—	—	—	(43,728)	(43,728)
Exercise of stock options	61	—	54	—	54
Share-based compensation	—	—	3,811	—	3,811
Issuance of common stock warrants	—	—	4,610	—	4,610
Conversion of restricted stock units	10	—	—	—	—
Balance at December 31, 2015	24,536	—	201,554	(203,576)	(2,022)
Net loss	—	—	—	(31,071)	(31,071)
Exercise of stock options	48	—	31	—	31
Share-based compensation	—	—	2,669	—	2,669
Issuance of common stock warrants	—	—	209	—	209
Conversion of restricted stock units	77	—	—	—	—
Balance at December 31, 2016	24,661	$ —	$ 204,463	$ (234,647)	$ (30,184)

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.

Consolidated Statements of Cash Flows

(In Thousands)

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Cash flows from operating activities			
Net loss	$(31,071)	$(43,728)	$(51,659)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	2,235	3,510	2,581
Loss (gain) on disposal of equipment	135	(39)	243
Share-based compensation	2,669	3,811	4,555
Non-cash interest expense	1,329	803	780
Amortization of investment securities premiums discounts, net	—	—	10
Net changes in operating assets and liabilities:			
Accounts receivable	(1,245)	(560)	1,997
Accounts receivable from related party	—	—	903
Inventories	582	3,580	73
Prepaid Expenses and other assets	189	142	(309)
Deferred cost of product revenues	(1,092)	201	1,064
Accounts payable	(588)	(3,486)	1,667
Accrued and other liabilities	(219)	(76)	1,895
Accrued interest due to related parties	443	1,175	—
Deferred revenue	2,494	29	(108)
Deferred revenue from related parties	(168)	(492)	(671)
Customer refund liabilities	—	(1,044)	1,044
Net cash used in operating activities	(24,307)	(36,174)	(35,935)
Cash flows from investing activities			
Purchases of property, plant and equipment	(209)	(1,653)	(13,002)
Proceeds from the sale of equipment	—	7	6
Purchase of short-term investments	—	—	(49)
Maturities of short-term investments	—	—	13,716
Net cash provided by (used in) investing activities	(209)	(1,646)	671
Cash flows from financing activities			
Proceeds from public offering, net of offering costs and underwriter commissions	—	—	39,949
Proceeds from issuance of debt, net of financing costs	—	—	9,696
Proceeds from issuance of debt due to related parties, net of financing costs	—	39,698	—
Proceeds from line of credit	—	—	4,687
Repayment of line of credit	—	—	(4,687)
Repayment of debt	(260)	(435)	(378)

Financing costs	(75)	—	—
Repayment of capital leases	(821)	(1,983)	(1,073)
Change in restricted cash	15,412	(15,000)	(3,416)
Exercise of stock options	31	54	1,305
Proceeds from exercise of common stock warrants	—	—	50
Net cash provided by financing activities	14,287	22,334	46,133
Net increase (decrease) in cash and cash equivalents	(10,229)	(15,486)	10,869
Cash and cash equivalents, beginning of period	19,838	35,324	24,455
Cash and cash equivalents, end of period	$9,609	$19,838	$35,324

MARRONE BIO INNOVATIONS, INC.

Consolidated Statements of Cash Flows

(In Thousands)

	YEAR ENDED DECEMBER 31,		
	2016	2015	2014
Supplemental disclosure of cash flow information			
Cash paid for interest, net of capitalized interest of $0, $4 and $668 for the years ended December 31, 2016, 2015 and 2014, respectively	$5,550	$2,297	$2,102
Supplemental disclosure of non-cash investing and financing activities			
Property, plant and equipment included in accounts payable and accrued liabilities	$21	$499	$204
Equipment acquired under capital leases	$1,586	$787	$834
Equipment acquired in association with operating leases	$—	$—	$285

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.

Notes to Consolidated Financial Statements

December 31, 2016

1. Summary of Business, Basis of Presentation and Liquidity

Marrone Bio Innovations, Inc. ("Company"), formerly Marrone Organic Innovations, Inc., was incorporated under the laws of the State of Delaware on June 15, 2006, and is located in Davis, California. In July 2012, the Company formed a wholly-owned subsidiary, Marrone Michigan Manufacturing LLC ("MMM LLC"), which holds the assets of a manufacturing plant the Company purchased in July 2012. The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary. All significant intercompany balances and transactions have been eliminated in consolidation. The Company makes bio-based pest management and plant health products. The Company targets the major markets that use conventional chemical pesticides, including certain agricultural and water markets where its bio-based products are used as alternatives for, or mixed with, conventional chemical pesticides. The Company also targets new markets for which (i) there are no available conventional chemical pesticides or (ii) the use of conventional chemical pesticides may not be desirable or permissible either because of health and environmental concerns (including for organically certified crops) or because the development of pest resistance has reduced the efficacy of conventional chemical pesticides. The Company delivers EPA-approved and registered biopesticide products and other bio-based products that address the global demand for effective, safe and environmentally responsible products.

In August 2013, the Company closed its initial public offering of 5,462,500 shares of its common stock (inclusive of 712,500 shares of common stock sold upon the exercise of the underwriters' option to purchase additional shares) ("IPO"). The public offering price of the shares sold in the offering was $12.00 per share. The total gross proceeds from the offering to the Company were $65,550,000, and after deducting underwriting discounts and commissions and offering expenses payable by the Company, the aggregate net proceeds received by the Company totaled approximately $56,105,000. Upon the closing of the IPO, all shares of the Company's outstanding convertible preferred stock and convertible notes automatically converted into shares of common stock and outstanding warrants to purchase convertible preferred stock and certain warrants to purchase common stock were exercised for shares of common stock (see Note 17). In connection with the IPO, on August 1, 2013, the Company amended and restated its certificate of incorporation to effect a 1-for-3.138458 reverse stock split (see Note 16).

In June 2014, the Company completed a public offering of 4,575,000 shares of its common stock (inclusive of 675,000 shares of common stock sold upon the exercise of the underwriters' option to purchase additional shares). The public offering price of the shares sold in the offering was $9.50 per share. The total gross proceeds from the offering to the Company were $43,463,000, and after deducting underwriting discounts and commissions and offering expenses payable by the Company, the aggregate net proceeds received by the Company totaled $39,949,000.

In December 2016, the Company filed a shelf registration statement with the SEC on Form S-3 that provides for the sale and issuance of up to $50,000,000 of its common stock, preferred stock, debt securities, warrants, rights and/or units, including the ability to sell up to $15,000,000 of the Company's common stock through an at-the-market program in accordance with an offering agreement with a third party.

The Company is an early stage company with a limited operating history and has a limited number of commercialized products. As of December 31, 2016, the Company had an accumulated deficit of $234,647,000, has incurred significant losses since inception and expects to continue to incur losses for the foreseeable future. Until the completion of the IPO in August 2013, the Company had funded operations primarily with net proceeds from the private placements of convertible preferred stock, convertible notes, promissory notes and term loans, as well as with the proceeds from the sale of its products and payments under strategic collaboration and distribution agreements and

government grants. The Company will need to generate significant revenue growth to achieve and maintain profitability. As of December 31, 2016, the Company had working capital of $11,626,000, including cash and cash equivalents of $9,609,000. In addition, as of December 31, 2016, the Company had debt and debt due to related parties of $21,335,000 and $36,667,000, respectively, for which the underlying debt agreements contain various financial and non-financial covenants, as well as certain material adverse change clauses. In addition, as of

December 31, 2016, the Company had a total of $3,004,000 of restricted cash relating to these debt agreements (see Notes 6 and 15).

If the Company breaches any of the covenants contained within the debt agreements or if the material adverse change clauses are triggered, the entire unpaid principal and interest balances would be due and payable upon demand. Without entering into a continuation of its current waiver, which expires December 31, 2017, entering into strategic agreements that include significant cash payments upfront, significantly increasing revenues from sales or raising additional capital through the issuance of equity, the Company expects it will exceed its maximum debt-to-worth requirement under a promissory note with Five Star Bank. Further, a violation of a covenant in one debt agreement will cause the Company to be in violation of certain covenants under each of its other debt agreements. Breach of covenants included in the Company's debt agreements, which could result in the lenders demanding payment of the unpaid principal and interest balances, will have a material adverse effect upon the Company and would likely require the Company to seek to renegotiate these debt arrangements with the lenders. If such negotiations are unsuccessful, the Company may be required to seek protection from creditors through bankruptcy proceedings. The Company's inability to maintain compliance with its debt covenants could have a negative impact on the Company's financial condition and ability to continue as a going concern.

The Company participates in a heavily regulated and highly competitive crop protection industry and believes that adverse changes in any of the following areas could have a material effect on the Company's future financial position, results of operations or cash flows: inability to obtain regulatory approvals, increased competition in the pesticide market, market acceptance of the Company's products, weather and other seasonal factors beyond the Company's control, litigation or claims against the Company related to intellectual property, patents, products or governmental regulation, and the Company's ability to support increased growth.

Although the Company recognizes that it will likely need to raise additional funds in the future, there can be no assurance that such efforts will be successful or that, in the event that they are successful, the terms and conditions of such financing will not be unfavorable. Any future equity financing may result in dilution to existing shareholders and any debt financing may include additional restrictive covenants. Any failure to obtain additional financing or to achieve the revenue growth necessary to fund the Company with cash flows from operations will have a material adverse effect upon the Company and will likely result in a substantial reduction in the scope of the Company's operations and impact the Company's ability to achieve its planned business objectives.

The accompanying financial statements have been prepared under the assumption that the Company will continue to operate as a going concern, which contemplates the realization of assets and the settlement of liabilities in the normal course of business. The consolidated financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts of liabilities that may result from the Company's ability to continue as a going concern. We adopted the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2014-15, Presentation of Financial Statements – Going Concern (Subtopic 205-40) effective December 31, 2016, which requires the Company to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year from the date of the issuance of these consolidated financial statements.

The Company believes that its existing cash and cash equivalents of $9,609,000 at December 31, 2016, expected revenues, the net proceeds from its "at-the-market" offering, and the March 2017 LSQ Financing arrangement (as discussed in Note 19) will not be sufficient to fund operations as currently planned through one year from the date of the issuance of these financial statements, which raises substantial doubt as to the Company's ability to continue as a going concern. The Company has based this belief on assumptions and estimates that may prove to be wrong, and the Company could spend its available financial resources less or more rapidly than currently expected. The Company will continue to require additional sources of cash for general corporate purposes, which may include operating expenses, working capital to improve and promote our commercially available products, advance product candidates, expand international presence and commercialization, general capital expenditures and satisfaction of debt

obligations. Management intends to seek additional capital through equity and/or debt financings, collaborative or other funding arrangements with partners, or through other sources of financing. Should the Company seek additional financing from outside sources, the Company may not be able to raise such financing on terms acceptable to the Company or at all. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may be required to scale back or to discontinue the promotion of currently available products, scale

back or discontinue the advancement of product candidates, reduce headcount, file for bankruptcy, reorganize, merge with another entity, or cease operations.

If the Company becomes unable to continue as a going concern, the Company may have to liquidate its assets, and might realize significantly less than the values at which they are carried on its financial statements, and stockholders may lose all or part of their investment in the Company's common stock.

The June 2014 Secured Promissory Note contains a material adverse change clause that could be invoked by the lender as a result of the uncertainty related to the Company's ability to continue as a going concern. If the lender were to declare an event of default, the entire amount of borrowings related to all debt agreements at that time would have to be reclassified as current in the financial statements. The lender has waived their right to deem recurring losses, liquidity, going concern, and financial condition a material adverse change through October 1, 2018. As a result, none of the long term portion of the Company's outstanding debt has been reclassified to current in these financial statements as of December 31, 2016.

2. Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States ("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 as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid financial instruments purchased with a maturity of three months or less to be cash equivalents. Cash and cash equivalents consists of cash on deposit, money market funds and certificates of deposit accounts with U.S. financial institutions. The Company is exposed to credit risk in the event of default by financial institutions to the extent that cash and cash equivalents balances with financial institutions are in excess of amounts that are insured by the Federal Deposit Insurance Corporation. The Company has not experienced any losses on these deposits.

Restricted Cash

The Company's restricted cash consists of cash that the Company is contractually obligated to maintain in accordance with the terms of its June 2014 Secured Promissory Note. See Note 6 for further discussion.

Fair Value of Financial Instruments

Accounting Standards Codification ("ASC") 820, Fair Value Measurements ("ASC 820"), clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability.

ASC 820 requires that the valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three tier value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

- Level 1—Quoted prices in active markets for identical assets or liabilities.

- Level 2—Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

- Level 3—Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

The following table presents the Company's financial assets measured at fair value on a recurring basis as of December 31, 2016 and 2015 (in thousands):

	DECEMBER 31, 2016			
	TOTAL	LEVEL 1	LEVEL 2	LEVEL 3
Assets				