MANNKIND CORP
Form 10-K
March 03, 2014
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# UNITED STATES SECURITIES AND EXCHANGE COMMISSION

**Washington, D.C. 20549**

# Form 10-K

þ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
**For the fiscal year ended December 31, 2013**

**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: 000-50865**

# MannKind Corporation

*(Exact name of registrant as specified in its charter)*

| **Delaware** | **13-3607736** |
|---|---|
| *(State or other jurisdiction of incorporation or organization)* | *(I.R.S. Employer Identification No.)* |
| **28903 North Avenue Paine** | |
| **Valencia, California** | **91355** |
| *(Address of principal executive offices)* | *(Zip Code)* |

**Registrant s telephone number, including area code**

**(661) 775-5300**

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

| Title of Class | Name of Each Exchange on Which Registered |
|---|---|
| Common Stock, par value $0.01 per share | The NASDAQ Global Market |

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

**None**

*(Title of Class)*

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes þ 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 þ

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 þ 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No ¨

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

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

| Large accelerated filer þ | 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 þ

As of June 28, 2013, the aggregate market value of the voting stock held by non-affiliates of the registrant, computed by reference to the last sale price of such stock as of such date on the NASDAQ Global Market, was approximately $1,153,987,371.

As of February 17, 2014, there were 377,208,424 shares of the registrant s Common Stock outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant s definitive Proxy Statement, or the Proxy Statement, for the 2014 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K, are incorporated by reference in Part III of this Annual Report on Form 10-K.

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**MANNKIND CORPORATION**

**Annual Report on Form 10-K**

**For the Fiscal Year Ended December 31, 2013**

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**Forward-Looking Statements**

Statements in this report that are not strictly historical in nature are forward-looking statements. These statements include, but are not limited to, statements about: the progress or success of our research, development and clinical programs, including the application for and receipt of regulatory clearances and approvals, our efforts to identify and enter into collaborations with pharmaceuticals companies for commercialization of AFREZZA and the timing or success of the commercialization of AFREZZA, if approved, or any other products or therapies that we may develop; our ability to market, commercialize and achieve market acceptance for AFREZZA, or any other products or therapies that we may develop; our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others; our estimates for future performance; our estimates regarding anticipated operating losses, future revenues, capital requirements and our needs for additional financing; and scientific studies and the conclusions we draw from them. In some cases, you can identify forward-looking statements by terms such as anticipates, believes, could, estimates, expects, goal, intends, may, plans, potential, predicts, would, and similar expressions intended to identify forward-looking statements. These statements are only predictions or conclusions based on current information and expectations and involve a number of risks and uncertainties. The underlying information and expectations are likely to change over time. Actual events or results may differ materially from those projected in the forward-looking statements due to various factors, including, but not limited to, those set forth under the caption Risk Factors and elsewhere in this report. Except as required by law, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

AFREZZA®, MedTone®, Dreamboat® and Technosphere® are our trademarks in the United States. We have also applied for or have registered company trademarks in other jurisdictions, including Europe and Japan. This document also contains trademarks and service marks of other companies that are the property of their respective owners.

**PART I**

**Item 1.** ***Business***

Unless the context requires otherwise, the words MannKind, we, company, us and our refer to MannKind Corporation and its subsidiaries. Unless explicitly stated otherwise, AFREZZA refers to the combination of AFREZZA inhalation powder and the AFREZZA inhaler.

MannKind Corporation is a biopharmaceutical company focused on the discovery, development and commercialization of therapeutic products for diseases such as diabetes. In October 2013, we resubmitted a new drug application, or NDA, to the United States Food and Drug Administration, or FDA, seeking approval of our lead product candidate, AFREZZA (insulin human [rDNA origin]) inhalation powder. AFREZZA is an ultra rapid-acting insulin that is intended to improve glycemic control in adults with type 1 or type 2 diabetes. Diabetes is a significant health concern. According to the Centers for Disease Control and Prevention, in the United States in 2011, approximately 25.8 million people had diabetes and if current trends continue, one in three adults in the United States is expected to have diabetes by 2050. Globally, the International Diabetes Federation has estimated that approximately 382.0 million people had diabetes in 2013 and approximately 592.0 million people will have diabetes by 2035.

**AFREZZA**

AFREZZA is absorbed into the bloodstream more quickly than subcutaneously injected rapid acting insulin analogs and regular human insulin. The time to maximum plasma insulin concentration is 12-15 minutes after administration of AFREZZA compared to 45-90 minutes for rapid acting insulin analogs and 90-150 minutes for regular human insulin. The time action profile of AFREZZA mimics the early phase insulin response observed in healthy normal individuals after a meal, which is characteristically absent in patients with type 2 diabetes.

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The AFREZZA inhalation powder is made using a pH-sensitive organic molecule that self-assembles into small particles under acidic conditions. We refer to these particles as Technosphere particles. Certain drugs, such as insulin, can be loaded onto these particles by combining a solution of the drug with a suspension of Technosphere material, which is then dried to powder form. This powder is then filled into plastic cartridges and packaged. To administer AFREZZA inhalation powder, a patient loads a cartridge into our inhaler. By inhaling through this device, air is pulled through the cartridge, which aerosolizes the powder and pulls the particles into the air current and out through the mouthpiece. The individual particles within this aerosol are small and have aerodynamic properties that enable them to fly efficiently deep into the lungs. When the particles contact the moist lung surface with its neutral pH, the Technosphere particles dissolve immediately, releasing the insulin molecules to diffuse across a thin layer of cells into the bloodstream. We believe that the insulin absorption step is a passive process that occurs without any active assistance or enhancement and without disruption of either cell membranes or the tight junctions between cells.

Our early clinical studies utilized our first-generation inhaler, known as MedTone. As part of ongoing development activities, we developed a next generation, or Gen2 inhaler, also known as Dreamboat. Both the MedTone and the Gen2 devices are breath-powered, re-usable, high resistance inhalers that rely on air flow to empty the cartridge and deagglomerate the powder, but the Gen2 inhaler system incorporates cosmetic and technical improvements and removes non-essential elements. The resulting device is smaller and more efficient, can be operated in fewer steps, requires only one inhalation per cartridge, and needs no cleaning because it is replaced after 15 days of use. The same AFREZZA powder is used in both the MedTone and the Gen2 inhaler systems. However, due to the increased efficiency of the Gen2 inhaler, it requires one third less AFREZZA powder to achieve the same therapeutic effect.

In March 2009, we submitted an NDA for AFREZZA to the FDA, in which we sought approval of the product with the MedTone inhaler. In March 2010, we received a Complete Response letter from the FDA that requested additional information about the clinical utility of AFREZZA and about the commercial version of the MedTone inhaler. After meeting with the FDA in June 2010, we determined that the best way to address the agency s inhaler-related questions was to submit information regarding the bioequivalence of the MedTone inhaler and the Gen2 inhaler, the latter of which had by that time become our preferred device from a clinical and commercial perspective. In June 2010, we submitted to the FDA the available bioequivalency data for the two devices along with additional evidence of efficacy of AFREZZA as part of our response to the 2010 Complete Response letter.

In January 2011, we received a second Complete Response letter in which the FDA requested that we conduct two clinical studies with the Gen2 inhaler (one in patients with type 1 diabetes and one in patients with type 2 diabetes), with at least one trial including a treatment group using the MedTone inhaler in order to obtain a head-to-head comparison of the pulmonary safety data for the two devices.

After confirming the designs of the requested studies with the FDA, we conducted two Phase 3 clinical studies at sites in the United States, Eastern Europe and South America. In August 2013, we released the following results of these Phase 3 clinical studies, both of which met their primary efficacy endpoints and safety objectives.

Phase 3 Studies

*Study 171*

The first of these studies, Study 171, was an open-label study involving 518 patients with type 1 diabetes on basal/bolus insulin therapy. After a four-week run-in period to optimize their basal insulin, patients entered a 24-week treatment period in which they were randomized in one of three ways:

Continuing on subcutaneous insulin aspart in combination with a basal insulin (170 patients);

Switching to AFREZZA administered using the Gen2 inhaler in combination with their basal insulin (174 patients); or

Switching to AFREZZA administered using the MedTone inhaler in combination with their basal insulin (174 patients).

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The treatment period consisted of 12 weeks of prandial, or mealtime, insulin optimization with continued basal titration followed by a 12-week period during which subjects maintained stable doses of insulin (prandial and basal). There was also a follow-up visit four weeks after completion of the treatment period.

Over the 24-week treatment period of this study, glycosylated hemoglobin, or HbA1c, levels decreased comparably in the AFREZZA-Gen2 group (-0.21%) and the insulin aspart group (-0.40%). HbA1c levels are a measure of average blood glucose. The 95% confidence interval (0.02% to 0.36%) of the between-group difference did not exceed the predetermined threshold of 0.40%, thereby establishing non-inferiority between AFREZZA-Gen2 and insulin aspart, which was the primary endpoint of the study.

There was a significant difference in fasting blood glucose, or FBG, levels in the AFREZZA-Gen2 group compared to the insulin aspart group. In the AFREZZA-Gen2 group, mean FBG levels decreased by 25.3 mg/dL by the end of the treatment period whereas the insulin aspart group experienced an increase of 10.2 mg/dL in FBG levels over the same period (p=0.0027). After the four-week follow-up period, during which all patients received insulin aspart and a basal insulin, there was no longer any difference in FBG levels between the treatment groups, demonstrating that this effect on FBG levels was attributable to AFREZZA therapy.

Significantly less total hypoglycemia was observed in the AFREZZA-Gen2 group (9.80 events per subject-month) compared to the insulin aspart group (13.97 events per subject-month; p<0.0001). The event rate of severe hypoglycemia was also lower in the AFREZZA-Gen2 group (8.05 events per 100 subject-months) than in the insulin aspart group (14.45 events per 100 subject-months); however, this difference was not statistically significant (p=0.1022).

The proportion of subjects achieving A1c target levels £7.0% or £6.5% at the end of the 24-week treatment period was less in the AFREZZA-Gen2 group than in the insulin aspart group; however, among patients who achieved A1c levels £7.0% and £6.5% at the end of the 24-week treatment period, the event rates for overall hypoglycemia (mild, moderate and severe) were all significantly lower in the AFREZZA-Gen2 group than in the insulin aspart group.

There was also a significant difference in weight outcomes. Patients in the AFREZZA-Gen2 group lost an average of 0.39 kg over the treatment period compared to an average gain of 0.93 kg in the insulin aspart group (p=0.0102).

The main safety objective of this study was to compare changes in FEV1 (forced expiratory volume in one second) from randomization to week 24 between the AFREZZA-Gen2 and AFREZZA-MedTone groups. Over this period, there was an insignificant difference of 0.01 L in mean change in FEV1 between the two AFREZZA groups (p=0.5364). Over the same 24-week treatment period, the decrease in FEV1 seen in the AFREZZA-Gen2 group was slightly greater than that seen in the aspart group (0.03 L). After cessation of the treatment period, FEV1 values in both AFREZZA groups increased, so that by the follow-up visit at week 28 there were virtually no differences in FEV1 among the three treatment groups.

In general, treatment with AFREZZA was well tolerated over 24 weeks by subjects with type 1 diabetes. The incidence of serious adverse events related to study drug was similar in the AFREZZA-Gen2 (2.3%), AFREZZA-MedTone (2.9%) and insulin aspart (1.8%) groups. There were no serious cardiovascular events reported in this study. The most common drug-related adverse event was cough, reported by 30.5% of AFREZZA-Gen2 patients, 20.8% of AFREZZA-MedTone patients and 0% of insulin aspart patients. Cough was predominantly dry, intermittent, and usually occurred within 10 minutes of inhalation. The incidence of cough was highest during the first week of the treatment period and diminished quickly thereafter. The discontinuation rate due to cough was low (AFREZZA-Gen2: 5.7%; AFREZZA-MedTone: 2.9%; insulin aspart: 0%).

*Study 175*

Study 175 was a double-blind, placebo-controlled study involving 353 patients with type 2 diabetes whose disease was inadequately controlled on metformin with or without a second or third oral medication. After a six-week run-in period during which all patients received dietary counseling and initiated blood glucose monitoring

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while continuing their oral medications, patients entered a 24-week treatment period in which they were randomized to one of two groups where, in addition to their oral medication, they received either:

AFREZZA inhalation powder, administered using the Gen2 inhaler (177 patients); or

Technosphere inhalation powder (placebo), administered using the Gen2 inhaler (176 patients).

The treatment period consisted of 12 weeks of prandial insulin titration followed by 12 weeks of relatively stable dosing. Subjects could not adjust or alter the doses of their oral medications during the study without discussion between the principal investigator and the medical monitor. There was also a safety follow-up visit four weeks after completion of the treatment period, during which all subjects returned to oral therapy only.

The primary endpoint of the study was the mean change in HbA1c levels from baseline to week 24 between the two groups. Over the 24-week treatment period, mean HbA1c levels decreased by 0.82% in the AFREZZA group compared to a decrease of 0.42% in the comparator oral-therapy group. The between-group difference in change in mean HbA1c levels was statistically significant ($p<0.0001$), thereby establishing the superiority of AFREZZA over the comparator oral-therapy treatment.

A significantly greater percentage of patients in the AFREZZA group reached specified HbA1c target levels than in the comparator oral-therapy group. After 24 weeks of treatment, 37.7% of patients in the AFREZZA group achieved A1c levels below 7.0% compared to only 19.0% of patients in the comparator oral-therapy group ($p=0.0005$), and 15.9% of patients in the AFREZZA group achieved A1c levels below 6.5% compared to only 4.2% of the patients receiving only oral therapy ($p=0.0021$).

During the treatment period, postprandial glucose excursions were reduced in the AFREZZA group compared to those in the comparator oral-therapy group. By week 24, mean blood glucose levels did not exceed 170.2 mg/dL postprandially in the AFREZZA group whereas mean blood glucose levels reached as high as 194.7 mg/dL postprandially in the comparator oral-therapy group.

Over the treatment period, mean fasting blood glucose levels decreased moderately in the AFREZZA group by 11.2 mg/dL compared to a decrease of 3.8 mg/dL in the comparator oral-therapy group. This difference was not statistically significant ($p=0.1698$).

Patients in the AFREZZA group gained an average of 0.49 kg over the treatment period compared to an average loss of 1.13 kg by patients in the comparator oral-therapy group ($p<0.0001$).

As expected, the incidence of mild and moderate hypoglycemia was higher in the AFREZZA group (67.2% of patients) compared to the comparator oral-therapy group (30.1% of patients; $p<0.0001$). However, there was not a significant difference in the incidence of severe hypoglycemia, which was reported in nine (5.1%) AFREZZA patients compared to three (1.7%) oral-therapy patients ($p=0.0943$).

In general, treatment with AFREZZA was well tolerated over 24 weeks by subjects with type 2 diabetes. The incidence of serious adverse events was lower in the AFREZZA group (2.8%) compared to the comparator oral-therapy group (5.1%). The incidence of serious cardiovascular events was low overall and balanced between the groups (AFREZZA: 2 events; oral therapy: 3 events). Similarly, the incidence of adverse events resulting in discontinuation was low overall and balanced between the treatment groups (AFREZZA: 4.0%; oral therapy: 5.1%). The most common adverse event was cough, occurring with comparable incidence in both the AFREZZA (23.7%) group and the oral therapy (19.9%) group (who were also taking a placebo powder). Cough was predominantly dry, intermittent, and usually occurred within 10 minutes of inhalation. The incidence of cough in both treatment groups was highest during the first week of the treatment period and diminished thereafter.

Since the release of these preliminary results, we have subjected the data from studies 171 and 175 to further analysis. Our intention is to present detailed results from both studies at a major scientific meeting in the first half of 2014 and to submit study reports for publication in peer-reviewed journals.

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*Regulatory Status*

In October 2013, we submitted the full results of these studies to the FDA as an amendment to our AFREZZA NDA. The Endocrinologic and Metabolic Drugs Advisory Committee of the FDA is scheduled to discuss our NDA on April 1, 2014. The target date for the FDA to complete its review of the AFREZZA NDA is April 15, 2014. However, the data collected from these clinical studies may not be sufficient to support FDA approval. Moreover, there can be no assurance that we will satisfy all of the FDA s requirements for approval of AFREZZA. The FDA could also request that we conduct additional clinical studies in order to provide sufficient data for approval of AFREZZA.

**Other Product Opportunities**

AFREZZA utilizes our proprietary Technosphere formulation technology; however, this technology is not limited to insulin delivery. We believe it represents a versatile drug delivery platform that may allow pulmonary administration of certain drugs that currently require administration by injection. Beyond convenience, we believe the key advantage of drugs inhaled as Technosphere formulations is that they can be absorbed very rapidly into the arterial circulation, essentially mimicking intra-arterial administration. Currently, we are actively working with several parties to assess the feasibility of formulating different active ingredients on Technosphere particles. Additionally, our inhaler technology has the potential to be utilized for the administration of dry powder formulations for various other applications.

Prior to the receipt of the Complete Response letters relating to AFREZZA, we had additional development programs aimed at developing products for treating different forms of cancer, some of which have since been out-licensed. During 2013, we conducted a limited amount of research with respect to our remaining oncology programs. Given our current resource constraints, we do not expect to allocate any significant funds to oncology product development activities in the near future.

**OUR STRATEGY**

The following are key elements of our strategy:

*Gain FDA approval of AFREZZA.* We resubmitted the full results of our completed studies to the FDA as an amendment to our AFREZZA NDA in October 2013. The target date for the FDA to complete its review of the AFREZZA NDA is April 15, 2014.

*Seek a development and commercialization partner for AFREZZA.* We are pursuing potential collaboration opportunities with large pharmaceutical companies in the United States, Europe and elsewhere to provide the financial and operational resources to develop, commercialize, market and sell AFREZZA. We have not yet licensed or transferred any of our rights to this product or to our platform technology.

*Capitalize on our proprietary Technosphere and inhaler technology for the delivery of active pharmaceutical ingredients.* We are actively exploring opportunities to out-license our proprietary Technosphere formulation technology. We believe that Technosphere formulations of active pharmaceutical ingredients have the potential to demonstrate clinical advantages over existing therapeutic options in a variety of therapeutic areas. Additionally, our inhaler technology has the potential to be utilized for the administration of dry powder formulations for various other applications.

**SALES AND MARKETING**

Our efforts to date have been directed at developing pharmaceutical products for a number of different markets. We currently have no sales or distribution capabilities and have no experience as a company in marketing or selling pharmaceutical products. However, we have built a small marketing team and are engaged in the planning and market research activities that we believe would typically be undertaken to support the late-stage development of a pharmaceutical product.

In order to commercially market our product candidates, we would either need to develop an internal sales team and continue to expand our marketing infrastructure or collaborate with third parties who have greater sales

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and marketing capabilities and have access to potentially large markets. To date, we have retained worldwide commercialization rights for all of our Technosphere-based product candidates, including AFREZZA. We intend to pursue potential collaboration opportunities to assist us in the commercialization of AFREZZA in the United States and other major markets.

To date, we have viewed our operations and managed our business as one segment operating in the United States.

**MANUFACTURING AND SUPPLY**

We formulate and fill the AFREZZA inhalation powder into plastic cartridges and blister package the cartridges in our Danbury, Connecticut facility. We believe that our Danbury facility has enough capacity to satisfy the initial commercial demand for AFREZZA, if approved, although the facility includes expansion space that can allow production capacity to be increased based on anticipated needs during the initial years of commercialization. The quality management systems of our facility were certified to be in conformance with the ISO 13485 and ISO 9001 standards. Our facility has been inspected twice by the FDA, once for a pre-approval inspection in the fall of 2009 and once for an annual inspection in May 2013. The FDA may conduct additional inspections of our facility.

Currently, our insulin inventory is from two sources. Between November 2007 and July 2011, we received a quantity of insulin pursuant to an insulin supply agreement with N.V. Organon, a subsidiary of Merck & Co., Inc., or the Supply Agreement. In June 2009, we acquired a quantity of bulk insulin from Pfizer Manufacturing Frankfurt GmbH, a subsidiary of Pfizer Inc., as well as Pfizer s rights under a license to manufacture insulin for pulmonary delivery. In addition, we acquired an option to purchase from Pfizer additional insulin inventory, in whole or in part, at a specified price, to the extent it remains available. Once we have used our existing supply of insulin, we will need to secure additional insulin from market sources.

The contract manufacturer that has been producing our clinical supplies of the Gen2 inhaler and the corresponding cartridges has performed qualification of the various cartridge and inhaler molds for commercial purposes. We may also seek to qualify an additional vendor.

Currently, we purchase the raw material from which we produce Technosphere particles from a major chemical manufacturer with facilities in Europe and North America. We also have the capability of manufacturing this chemical ourselves in our Danbury facility, which we intend to use as a back-up facility. Like us, our third-party manufacturers are subject to extensive governmental regulation. We rely on our manufacturers to comply with relevant regulatory requirements, including compliance with Quality System Regulations, or QSRs.

**INTELLECTUAL PROPERTY AND PROPRIETARY TECHNOLOGY**

Our success will depend in large measure on our ability to obtain and enforce our intellectual property rights, effectively maintain our trade secrets and avoid infringing the proprietary rights of third parties. Our policy is to file patent applications on what we deem to be important technological developments that might relate to our product candidates or methods of using our product candidates and to seek intellectual property protection in the United States, Europe, Japan and selected other jurisdictions for all significant inventions. We have obtained, are seeking, and will continue to seek patent protection on the compositions of matter, methods and devices flowing from our research and development efforts.

Our Technosphere drug delivery platform, including AFREZZA, enjoys patent protection relating to the particles, their manufacture, and their use for pulmonary delivery of drugs. We have additional patent coverage relating to the treatment of diabetes using AFREZZA. We have been granted patent coverage for our inhaler and cartridges in the form in which we expect our insulin product to be sold to the consumer, if and when approved by the FDA. We have additional pending patent applications, and expect to file further applications, relating to the drug delivery platform, methods of manufacture, the AFREZZA product and its use, and other Technosphere-based products, inhalers and inhaler cartridges. Overall, AFREZZA is protected by over 220 issued patents, and we also have over 300 pending applications in the United States and selected jurisdictions around the world that

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may provide additional protection if and when they are allowed. These include composition and inhaler and cartridge patents providing protection for AFREZZA with various expiration dates, the longer-lived of which will not expire until between 2029 and 2032. In addition, we have certain method of treatment claims that have terms extending into 2026 and 2029.

The field of pulmonary drug delivery is crowded and a substantial number of patents have been issued in these fields. In addition, because patent positions can be highly uncertain and frequently involve complex legal and factual questions, the breadth of claims obtained in any application or the enforceability of issued patents cannot be confidently predicted. Further, there can be substantial delays in commercializing pharmaceutical products, which can partially consume the statutory period of exclusivity through patents.

In addition, the coverage claimed in a patent application can be significantly reduced before a patent is issued, either in the United States or abroad. Statutory differences in patentable subject matter may limit the protection we can obtain on some of our inventions outside of the United States. For example, methods of treating humans are not patentable in many countries outside of the United States. These and other issues may limit the patent protection we are able to secure internationally. Consequently, we do not know whether any of our pending or future patent applications will result in the issuance of patents or, to the extent patents have been issued or will be issued, whether these patents will be subjected to further proceedings limiting their scope, will provide significant proprietary protection or competitive advantage, or will be circumvented or invalidated. Furthermore, patents already issued to us or our pending applications may become subject to disputes that could be resolved against us. In addition, in certain countries, including the United States, applications are generally published 18 months after the application s priority date. In any event, because publication of discoveries in scientific or patent literature often trails behind actual discoveries, we cannot be certain that we were the first inventor of the subject matter covered by our pending patent applications or that we were the first to file patent applications on such inventions.

Although we own a number of domestic and foreign patents and patent applications relating to our Technosphere-based investigational products, we have identified certain third-party patents having claims relating to pulmonary insulin delivery that may trigger an allegation of infringement upon the commercial manufacture and sale of AFREZZA. We believe that we are not infringing any valid claims of any patent owned by a third party. However, if a court were to determine that our inhaled insulin product was infringing any of these patent rights, we would have to establish with the court that these patents were invalid in order to avoid legal liability for infringement of these patents. Proving patent invalidity can be difficult because issued patents are presumed valid. Therefore, in the event that we are unable to prevail in an infringement or invalidity action we will either have to acquire the third-party patents outright or seek a royalty-bearing license. Royalty-bearing licenses effectively increase costs and therefore may materially affect product profitability. Furthermore, if the patent holder refuses to either assign or license us the infringed patents, it may be necessary to cease manufacturing the product entirely and/or design around the patents. In either event, our business would be harmed and our profitability could be materially adversely impacted. If third parties file patent applications, or are issued patents claiming technology also claimed by us in pending applications, we may be required to participate in interference proceedings in the United States Patent and Trademark Office, or USPTO, to determine priority of invention. We may also be required to participate in interference proceedings involving our issued patents.

We also rely on trade secrets and know-how, which are not protected by patents, to maintain our competitive position. We require our officers, employees, consultants and advisors to execute proprietary information and invention and assignment agreements upon commencement of their relationships with us. These agreements provide that all confidential information developed or made known to the individual during the course of our relationship must be kept confidential, except in specified circumstances. These agreements also provide that all inventions developed by the individual on behalf of us must be assigned to us and that the individual will cooperate with us in connection with securing patent protection on the invention if we wish to pursue such protection. There can be no assurance, however, that these agreements will provide meaningful protection for our inventions, trade secrets or other proprietary information in the event of unauthorized use or disclosure of such information.

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We also execute confidentiality agreements with outside collaborators. However, disputes may arise as to the ownership of proprietary rights to the extent that outside collaborators apply technological information to our projects that are developed independently by them or others, or apply our technology to outside projects, and there can be no assurance that any such disputes would be resolved in our favor. In addition, any of these parties may breach the agreements and disclose our confidential information or our competitors might learn of the information in some other way. If any trade secret, know-how or other technology not protected by a patent were to be disclosed to or independently developed by a competitor, our business, results of operations and financial condition could be adversely affected.

**COMPETITION**

The pharmaceutical and biotechnology industries are highly competitive and characterized by rapidly evolving technology and intense research and development efforts. We expect to compete with companies, including major international pharmaceutical companies, and other institutions that have substantially greater financial, research and development, marketing and sales capabilities and have substantially greater experience in undertaking preclinical and clinical testing of products, obtaining regulatory approvals and marketing and selling biopharmaceutical products. We will face competition based on, among other things, product efficacy and safety, the timing and scope of regulatory approvals, product ease of use and price.

**Diabetes Treatments**

We believe that AFREZZA has important competitive advantages in the delivery of insulin when compared with currently known alternatives. However, new drugs or further developments in alternative drug delivery methods may provide greater therapeutic benefits, or comparable benefits at lower cost, than AFREZZA. There can be no assurance that existing or new competitors will not introduce products or processes competitive with or superior to our product candidates.

We have set forth below more detailed information about certain of our competitors. The following is based on information currently available to us.

**Rapid-acting (Injected) Insulin**

Currently, there is no approved insulin product that is absorbed into the bloodstream as rapidly as AFREZZA, i.e., reaching peak levels within 12 to 15 minutes after administration. There are several formulations of rapid-acting insulin analogs that reach peak insulin levels within 45 to 90 minutes after injection. The principal products in this category are insulin lispro, which is marketed by Eli Lilly & Company, or Lilly; insulin aspart, which is marketed by Novo Nordisk A/S, or Novo Nordisk; and insulin glulisine, which is marketed by Sanofi.

Several insulin products in development are reported to have a time-action profile that is more rapid than that of the currently available rapid-acting insulin analogs. Halozyme Therapeutics, Inc. has conducted Phase 2 clinical studies to evaluate the safety and efficacy of a formulation of human insulin or an insulin analog that is co-administered with human hyaluronidase enzyme. This enzyme temporarily degrades a naturally occurring, space-filling substance that is a major component of normal tissues throughout the body, thereby facilitating the penetration and diffusion of insulin that is injected under the skin.

Novo Nordisk is conducting Phase 3 clinical studies of NN1218, an insulin analog that is intended to provide faster onset of action than aspart.

Biodel, Inc. has conducted a Phase 2 clinical trial of BIOD-123, a formulation of human insulin with certain excipients that increase the rate of absorption following injection.

**Inhaled Insulin Delivery Systems**

In January 2006, Exubera®, developed by Pfizer in collaboration with Nektar Therapeutics, Inc., was approved for the treatment of adults with type 1 and type 2 diabetes. Exubera® was slow to gain market acceptance and, in October 2007, Pfizer announced that it was discontinuing the product. In September 2008, we announced a

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collaboration agreement with Pfizer pursuant to which certain patients with a continuing medical need for inhaled insulin were transitioned to AFREZZA on a compassionate use basis. Pfizer subsequently withdrew the NDA for Exubera from the FDA.

In January 2008, Novo Nordisk announced that it was halting development of its inhaled insulin product, having reached the conclusion that the product did not have adequate commercial potential.

In March 2008, Lilly announced that it was terminating the development of its AIR® inhaled insulin system. Lilly stated that this decision resulted from increasing uncertainties in the regulatory environment and after a thorough evaluation of the evolving commercial and clinical potential of its product compared to existing medical therapies.

In August 2013, Dance Biopharm, Inc. announced that it had conducted a Phase 1/2 clinical study of an inhaled insulin product that utilizes a liquid formulation of human insulin, dispensed through a handheld electronic aerosol device.

**Non-insulin Medications**

We expect that AFREZZA, if approved, will compete with currently available non-insulin medication products for type 2 diabetes. These products include the following:

- GLP-1 agonists, such as exenatide or liraglutide, which mimic a naturally occurring hormone that stimulates the pancreas to secrete insulin when blood glucose levels are high.

- Inhibitors of dipeptidyl peptidase IV, such as sitagliptin or saxagliptin, are a class of drugs that work by blocking the enzyme that normally degrades GLP-1.

- Sulfonylureas and meglitinides, which are classes of drugs that act on the pancreatic cells to stimulate the secretion of insulin.

- Thiazolidinediones, such as pioglitizone, and biguanides, such as metformin, which lower blood glucose by improving the sensitivity of cells to insulin, or diminishing insulin resistance.

- Alpha-glucosidase inhibitors, which lower the amount of glucose absorbed from the intestines, thereby reducing the rise in blood glucose that occurs after a meal.

- SGLT-2 inhibitors, such as dapagliflozin and canagliflozin, are a new class of medications that lower blood glucose by increasing glucose excretion in urine.

**GOVERNMENT REGULATION AND PRODUCT APPROVAL**

The FDA and comparable regulatory agencies in state, local and foreign jurisdictions impose substantial requirements upon the clinical development, manufacture and marketing of medical devices and new drug and biologic products. These agencies, through regulations that implement the Federal Food, Drug, and Cosmetic Act, as amended, or FDCA, and other regulations, regulate research and development activities and the development, testing, manufacture, labeling, storage, shipping, approval, recordkeeping, advertising, promotion, sale and distribution of such products. In addition, if any of our subsequently approved products are marketed abroad, they will also be subject to export requirements and to regulation by foreign governments. The regulatory approval process is generally lengthy, expensive and uncertain. Failure to comply with applicable FDA and other regulatory requirements can result in sanctions being imposed on us or the manufacturers of our products, including hold letters on clinical research, civil or criminal fines or other penalties, product recalls, or seizures, or total or partial suspension of production or injunctions, refusals to permit products to be imported into or exported out of the United States, refusals of the FDA to grant approval of drugs or to allow us to enter into government supply contracts, withdrawals of previously approved marketing applications and criminal prosecutions.

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The steps typically required before an unapproved new drug or biologic product for use in humans may be marketed in the United States include:

Preclinical studies that include laboratory evaluation of product chemistry and formulation, as well as animal studies to assess the potential safety and efficacy of the product. Certain preclinical tests must be conducted in compliance with good laboratory practice regulations. Violations of these regulations can, in some cases, lead to invalidation of the studies, or requiring such studies to be repeated. In some cases, long-term preclinical studies are conducted while clinical studies are ongoing.

Submission to the FDA of an investigational new drug application, or IND, which must become effective before human clinical trials may commence. The results of the preclinical studies are submitted to the FDA as part of the IND. Unless the FDA objects, the IND becomes effective 30 days following receipt by the FDA.

Approval of clinical protocols by independent institutional review boards, or IRBs, at each of the participating clinical centers conducting a study. The IRBs consider, among other things, ethical factors, the potential risks to individuals participating in the trials and the potential liability of the institution. The IRB also approves the consent form signed by the trial participants.

Adequate and well-controlled human clinical trials to establish the safety and efficacy of the product. Clinical trials involve the administration of the drug to healthy volunteers or to patients under the supervision of a qualified medical investigator according to an approved protocol. The clinical trials are conducted in accordance with protocols that detail the objectives of the study, the parameters to be used to monitor participant safety and efficacy or other criteria to be evaluated. Each protocol is submitted to the FDA as part of the IND. Human clinical trials are typically conducted in the following four sequential phases that may overlap or be combined:

In Phase 1, the drug is initially introduced into a small number of individuals and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. Phase 1 clinical trials are often conducted in healthy human volunteers and such cases do not provide evidence of efficacy. In the case of severe or life-threatening diseases, the initial human testing is often conducted in patients rather than healthy volunteers. Because these patients already have the target disease, these studies may provide initial evidence of efficacy that would traditionally be obtained in Phase 2 clinical trials. Consequently, these types of trials are frequently referred to as Phase 1/2 clinical trials. The FDA receives reports on the progress of each phase of clinical testing and it may require the modification, suspension or termination of clinical trials if it concludes that an unwarranted risk is presented to patients or healthy volunteers.

Phase 2 involves clinical trials in a limited patient population to further identify any possible adverse effects and safety risks, to determine the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

Phase 3 clinical trials are undertaken to further evaluate dosage, clinical efficacy and to further test for safety in an expanded patient population at geographically dispersed clinical study sites. Phase 3 clinical trials usually include a broader patient population so that safety and efficacy can be substantially established. Phase 3 clinical trials cannot begin until Phase 2 evaluation demonstrates that a dosage range of the product may be effective and has an acceptable safety profile.

Phase 4 clinical trials are performed if the FDA requires, or a company pursues, additional clinical trials after a product is approved. These clinical trials may be made a condition to be satisfied after a drug receives approval. The results of Phase 4 clinical trials can confirm the effectiveness of a product candidate and can provide important safety information to augment the FDA s voluntary adverse drug reaction reporting system.

Concurrent with clinical trials and preclinical studies, companies also must develop information about the chemistry and physical characteristics of the drug and finalize a process for manufacturing the product in accordance with the FDA s current good manufacturing practices, or cGMP, requirements for drug products. The manufacturing process must be capable of consistently producing quality batches of the

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product and the manufacturer must develop methods for testing the quality, purity, and potency of the final products. Additionally, appropriate packaging must be selected and tested and chemistry stability studies must be conducted to demonstrate that the product does not undergo unacceptable deterioration over its shelf-life.

Submission to the FDA of an NDA based on the clinical trials. The results of product development, preclinical studies, and clinical trials are submitted to the FDA in the form of an NDA for approval of the marketing and commercial shipment of the product. Under the Pediatric Research Equity Act, NDAs are required to include an assessment, generally based on clinical study data, of the safety and efficacy of drugs for all relevant pediatric populations. The statute provides for waivers or deferrals in certain situations but we can make no assurances that such situations will apply to us or our product candidates.

In its review of an NDA, the FDA may also convene an advisory committee of external experts to provide input on certain review issues relating to risk, benefit and interpretation of clinical trial data. The FDA may delay approval of an NDA if applicable regulatory criteria are not satisfied and/or the FDA requires additional testing or information. Before approving an NDA, the FDA may inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facility complies with cGMPs and will also inspect clinical trial sites for integrity of data supporting safety and efficacy. The FDA will issue either an approval of the NDA or a Complete Response Letter, detailing the deficiencies and information required in order for reconsideration of the NDA.

Medical products containing a combination of new drugs, biological products, or medical devices are regulated as combination products in the United States. A combination product generally is defined as a product comprised of components from two or more regulatory categories (e.g., drug/device, device/biologic, drug/biologic). Each component of a combination product is subject to the requirements established by the FDA for that type of component, whether a new drug, biologic, or device. In order to facilitate pre-market review of combination products, the FDA designates one of its centers to have primary jurisdiction for the pre-market review and regulation of the overall product. The determination whether a product is a combination product or two separate products is made by the FDA on a case-by-case basis. The FDA considers AFREZZA to be a drug-device combination product, so the review of our NDA for AFREZZA involves reviews within the Division of Metabolism and Endocrinology Products and the Division of Pulmonary, Allergy and Rheumatology Products, both within the FDA s Center for Drug Evaluation and Research, or CDER, as well as review within the Center for Devices and Radiological Health, the Center within the FDA that reviews Medical Devices. CDER s Division of Metabolism and Endocrinology Products is the lead group and obtains consulting reviews from the other two FDA groups.

The testing and approval process requires substantial time, effort and financial resources. Data that we submit are subject to varying interpretations, and the FDA and comparable regulatory authorities in foreign jurisdictions may not agree that our product candidates have been shown to be safe and effective. We cannot be certain that any approval of our products will be granted on a timely basis, if at all. If any of our products are approved for marketing by the FDA, we will be subject to continuing regulation by the FDA, including record-keeping requirements, reporting of adverse experiences with the product, submitting other periodic reports, drug sampling and distribution requirements, notifying the FDA and gaining its approval of certain manufacturing or labeling changes, and complying with certain electronic records and signature requirements. Prior to and following approval, if granted, all manufacturing sites are subject to inspection by the FDA and other national regulatory bodies and must comply with cGMP, QSR and other requirements enforced by the FDA and other national regulatory bodies through their facilities inspection program. Foreign manufacturing establishments must comply with similar regulations. In addition, our drug-manufacturing facilities located in Danbury and the facilities of our insulin supplier, the supplier(s) of our Technosphere material and the supplier(s) of our inhaler and cartridges are subject to federal registration and listing requirements and, if applicable, to state licensing requirements. Failure, including those of our suppliers, to obtain and maintain applicable federal registrations or state licenses, or to meet the inspection criteria of the FDA or the other national regulatory bodies, would disrupt our manufacturing processes and would harm our business. In complying with standards set forth in these regulations, manufacturers must continue to expend time, money and effort in the area of production and quality control to ensure full compliance. Currently, we believe we are operating under all of the necessary guidelines and permits.

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As a drug-device combination, we currently expect that our inhaler will be approved, if at all, as part of the NDA for AFREZZA. However, numerous device regulatory requirements still apply to the device part of the drug-device combination. These include:

- product labeling regulations;
- general prohibition against promoting products for unapproved or off-label uses;
- corrections and removals (*e.g.*, recalls);
- establishment registration and device listing;
- general prohibitions against the manufacture and distribution of adulterated and misbranded devices; and
- the Medical Device Reporting regulation, which requires that manufacturers report to the FDA if their device may have caused or contributed to a death or serious injury or malfunctioned in a way that would likely cause or contribute to a death or serious injury if it were to recur.

Further, the company we contract with to manufacture our inhaler and cartridges will be subject to the QSR, which requires manufacturers to follow elaborate design, testing, control, documentation and other quality assurance procedures during the manufacturing process of medical devices, among other requirements.

Failure to adhere to regulatory requirements at any stage of development, including the preclinical and clinical testing process, the review process, or at any time afterward, including after approval, may result in various adverse consequences. These consequences include action by the FDA or another national regulatory body that has the effect of delaying approval or refusing to approve a product; suspending or withdrawing an approved product from the market; seizing or recalling a product; or imposing criminal penalties against the manufacturer. In addition, later discovery of previously unknown problems may result in restrictions on a product, its manufacturer, or the NDA holder, or market restrictions through labeling changes or product withdrawal. Also, new government requirements may be established or current government requirements may be changed at any time, which could delay or prevent regulatory approval of our products under development. We cannot predict the likelihood, nature or extent of adverse governmental regulation that might arise from future legislative or administrative action, either in the United States or abroad.

In addition, the FDA imposes a number of complex regulations on entities that advertise and promote drugs, which include, among other requirements, standards for and regulations of direct-to-consumer advertising, off-label promotion, industry sponsored scientific and educational activities, and promotional activities involving the Internet. The FDA has very broad enforcement authority under the FDCA, and failure to comply with these regulations can result in penalties, including the issuance of a warning letter directing us to correct deviations from FDA standards, including corrective advertising to healthcare providers, a requirement that future advertising and promotional materials be pre-cleared by the FDA, and state and federal civil and criminal investigations and prosecutions.

Products manufactured in the United States and marketed outside the United States are subject to certain FDA regulations, as well as regulation by the country in which the products are to be sold. We also would be subject to foreign regulatory requirements governing clinical trials and drug product sales if products are studied or marketed abroad. Whether or not FDA approval has been obtained, approval of a product by the comparable regulatory authorities of foreign countries usually must be obtained prior to the marketing of the product in those countries. The approval process varies from jurisdiction to jurisdiction and the time required may be longer or shorter than that required for FDA approval.

Product development and approval within this regulatory framework may take a number of years, involve the expenditure of substantial resources and are uncertain. Many drug products ultimately do not reach the market because they are not found to be safe or effective or cannot meet the FDA s other regulatory requirements. In addition, there can be no assurance that the current regulatory framework will not change or that additional regulation will not arise at any stage of our product development that may affect approval, delay the submission or review of an application or require additional expenditures by us. There can be no assurance that we will be able to obtain necessary regulatory clearances or

approvals on a timely basis, if at all, for any of our product

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candidates under development, and delays in receipt or failure to receive such clearances or approvals, the loss of previously received clearances or approvals, or failure to comply with existing or future regulatory requirements could have a material adverse effect on our business and results of operations.

In addition to the foregoing, we are subject to numerous federal, state and local laws relating to such matters as laboratory practices, the experimental use of animals, the use and disposal of hazardous or potentially hazardous substances, controlled drug substances, privacy of individually identifiable healthcare information, safe working conditions, manufacturing practices, environmental protection and fire hazard control.

*Healthcare Regulatory and Pharmaceutical Pricing*

If our product candidates are approved by the FDA, government coverage and reimbursement policies will both directly and indirectly affect our ability to successfully commercialize our product candidates, and such coverage and reimbursement policies will be affected by future healthcare reform measures. Government health administration authorities, private health insurers and other organizations generally decide which drugs they will pay for and establish reimbursement levels for healthcare. In particular, in the United States, private health insurers and other third-party payors often provide reimbursement for products and services based on the level at which the government (through the Medicare or Medicaid programs) provides reimbursement for such treatments. In the United States, the European Union and other potentially significant markets for our product candidates, government authorities and third-party payors are increasingly attempting to limit or regulate the price of medical products and services, particularly for new and innovative products and therapies, which has resulted in lower average selling prices. Further, the increased emphasis on managed healthcare in the United States and on country and regional pricing and reimbursement controls in the European Union will put additional pressure on product pricing, reimbursement and usage, which may adversely affect our future product sales and results of operations. These pressures can arise from rules and practices of managed care groups, judicial decisions and governmental laws and regulations related to Medicare, Medicaid and healthcare reform, pharmaceutical reimbursement policies and pricing in general.

The United States and some foreign jurisdictions have enacted or are considering a number of additional legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. Among policy makers and payors in the U.S. and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives, including, most recently, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively, PPACA, enacted in March 2010. The Physician Payments Sunshine Act within the PPACA, and its implementing regulations, require certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children s Health Insurance Program (with certain exceptions) to report information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to repot annually certain ownership and investment interests held by physicians and their immediate family members.

Further, if a drug product is reimbursed by Medicare, Medicaid or other federal or state healthcare programs, we, including our sales, marketing and scientific/educational grant programs must comply with the False Claims Act, as amended, the federal Anti-Kickback Statute, as amended, and similar state laws. If a drug product is reimbursed by Medicare or Medicaid, pricing and rebate programs must comply with, as applicable, the Medicaid rebate requirements of the Omnibus Budget Reconciliation Act of 1990, as amended, and the Medicare Prescription Drug Improvement and Modernization Act of 2003. Additionally, PPACA substantially changes the way healthcare is financed by both governmental and private insurers. Among other cost containment measures, PPACA establishes: an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents; a new Medicare Part D coverage gap discount program; and a new formula that increases the rebates a manufacturer must pay under the Medicaid Drug Rebate Program. In the future, there may continue to be additional proposals relating to the reform of the U.S. health care system, some

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of which could further limit the prices we are able to charge for our products, or the amounts of reimbursement available for our products. If drug products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply. All of these activities are also potentially subject to federal and state consumer protection and unfair competition laws.

In addition, we may be subject to data privacy and security regulation by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology and Clinical Health Act, or HITECH, and its implementing regulations, imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA s privacy and security standards directly applicable to business associates independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Also, many states have similar healthcare statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, that apply regardless of the payer. Additional state laws require pharmaceutical companies to implement a comprehensive compliance program and/or limit expenditure for, or payments to, individual medical or health professionals.

We may incur significant costs to comply with these laws and regulations now or in the future. If our operations are found to be in violation of any of the federal and state laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including criminal and significant civil monetary penalties, damages, fines, imprisonment, exclusion of products from reimbursement under government programs, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

**RESEARCH AND DEVELOPMENT EXPENSES; LONG-LIVED ASSETS**

A significant portion of our operating expenses relates to research and development. Our research and development expenses totaled $100.0 million, $101.5 million and $109.7 million for the years ended December 31, 2011, 2012 and 2013, respectively.

Our long-lived assets located in the United States totaled $193.0 million, $184.0 million and $176.6 million as of December 31, 2011, 2012 and 2013, respectively.

**EMPLOYEES**

As of December 31, 2013, we had 265 full-time employees. Nine of these employees were engaged in basic research and development, 113 in manufacturing, 79 in clinical research and development, regulatory affairs and quality assurance and 64 in administration, finance, management, information systems, marketing, corporate development and human resources. Thirty-six of these employees had a Ph.D. degree and/or M.D. degree and were engaged in activities relating to research and development, manufacturing, quality assurance or business development.

None of our employees are subject to a collective bargaining agreement. We believe relations with our employees are good.

**CORPORATE INFORMATION**

We were incorporated in the State of Delaware on February 14, 1991. Our principal executive offices are located at 28903 North Avenue Paine, Valencia, California 91355, and our telephone number at that address is (661) 775-5300. MannKind Corporation and the MannKind Corporation logo are our service marks. Our website address is http://www.mannkindcorp.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the

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Securities Exchange Act of 1934, as amended, or the Exchange Act, are available free of charge on our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The contents of these websites are not incorporated into this Annual Report. Further, our references to the URLs for these websites are intended to be inactive textual reference only.

**RECENT EVENTS**

On February 28, 2014, we amended our existing facility agreement dated July 1, 2013, or the Facility Agreement, with Deerfield Private Design Fund II, L.P., or Deerfield Private Design Fund, and Deerfield Private Design International II, L.P., referred to collectively as Deerfield, to provide for the issuance of tranche B notes to Deerfield in a maximum aggregate principal amount equal to (x) if the FDA approves the NDA for AFFREZZA and Deerfield purchases the fourth tranche of 9.75% Senior Convertible Notes due 2019, or 2019 notes, originally issuable pursuant to the Facility Agreement, 150% of the aggregate principal amount of 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $90.0 million, and (y) otherwise, 33.33% of the aggregate principal amount of 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $20.0 million, in each case subject to the satisfaction of certain other conditions. Any tranche B notes, if and when issued, would bear interest at the rate of 9.75% per year, subject to reduction to 8.75% if we enter into a collaboration with a third party to commercialize AFFREZZA, on the outstanding principal amount, payable in cash quarterly in arrears on the last business day of December, March, June and September of each year. We are required to repay 25% of the original principal amount of any tranche B notes on the third, fourth, fifth and sixth anniversaries of the applicable issue dates of such notes, provided that the entire outstanding principal amount of all tranche B notes will become due and payable no later than December 31, 2019. The tranche B notes will be prepayable without penalty or premium commencing two years after issuance thereof.

In addition, pursuant to the amendment, the outstanding 2019 notes held by Deerfield were amended and restated such that Deerfield may, subject to certain limitations, convert up to an additional $60.0 million principal amount under such 2019 notes into common stock after the effective date of the amendment, at a minimum conversion price of $5.00 per share unless we otherwise consent. We also agreed to register for resale up to 12,000,000 shares of common stock issuable upon conversion of the outstanding 2019 notes, as amended and restated, as of the date of the amendment.

On March 3, 2014, we entered into two At-The-Market Issuance Sales Agreements, or the ATM Agreements, one with MLV & Co. LLC, or MLV, and one with Meyers Associates, L.P. (doing business as Brinson Patrick, a division of Meyers Associates, L.P.), or Brinson Patrick, pursuant to which we may issue and sell our common stock having aggregate sales proceeds of up to $50.0 million from time to time through MLV or Brinson Patrick, acting as our sales agents. We currently anticipate that all or substantially all sales of common stock under the ATM Agreements will be made in at the market offerings as defined in Rule 415 of the Securities Act of 1933, as amended, or the Securities Act. We have not yet sold or issued any shares of our common stock under the ATM Agreements.

For additional information relating to these recent events, see Section 9B of Part II of this Annual Report on Form 10-K.

**SCIENTIFIC ADVISORS**

We seek advice from a number of leading scientists and physicians on scientific, technical and medical matters. These advisors are leading scientists in the areas of pharmacology, chemistry, immunology and biology. Our scientific advisors are consulted regularly to assess, among other things:

- our research and development programs;
- the design and implementation of our clinical programs;
- our patent and publication strategies;
- market opportunities from a clinical perspective;

new technologies relevant to our research and development programs; and

specific scientific and technical issues relevant to our business.

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Our diabetes program has been supported by the following scientific advisors (and their primary affiliations):

| Name | Primary Affiliation |
|---|---|
| Geremia Bolli | University of Perugia |
| Steven Edelman, MD | University of California, San Diego |
| Brian Frier, MD, FECP, BS | Edinburgh Royal Infirmary |
| Lois Jovanovic, MD | Sansum Medical Research Institute |
| Mark Peyrot, MD | Loyola College Center |
| Daniel Porte, MD | University of California, San Diego |
| Julio Rosenstock, MD | Dallas Diabetes and Endocrinology Center |
| Jay Skyler, MD, MACP | University of Miami, Diabetes Research Institute |

**EXECUTIVE OFFICERS OF THE REGISTRANT**

The following table sets forth our current executive officers and their ages as of December 31, 2013:

| Name | Age | Position(s) |
|---|---|---|
| Alfred E. Mann | 88 | Chairman of the Board of Directors and Chief Executive Officer |
| Hakan S. Edstrom | 63 | President, Chief Operating Officer and Director |
| Matthew J. Pfeffer | 56 | Corporate Vice President and Chief Financial Officer |
| Juergen A. Martens, Ph.D. | 58 | Corporate Vice President, Technical Operations and Chief Technical Officer |
| Diane M. Palumbo | 60 | Corporate Vice President, Human Resources |
| David B. Thomson, Ph.D., J.D. . | 47 | Corporate Vice President, General Counsel and Secretary |

*Alfred E. Mann* has been one of our directors since April 1999, our Chairman of the Board since December 2001 and our Chief Executive Officer since October 2003. He founded and formerly served as Chairman and Chief Executive Officer of MiniMed, Inc., a publicly traded company focused on diabetes therapy and microinfusion drug delivery that was acquired by Medtronic, Inc. in August 2001. Mr. Mann also founded and, from 1972 through 1992, served as Chief Executive Officer of Pacesetter Systems, Inc. and its successor, Siemens Pacesetter, Inc., a manufacturer of cardiac pacemakers, now the Cardiac Rhythm Management Division of St. Jude Medical Corporation. Mr. Mann founded and since 1993, has served as Chairman and until January 2008, as Co-Chief Executive Officer of Advanced Bionics Corporation, a medical device manufacturer focused on neurostimulation to restore hearing to the deaf and to treat chronic pain and other neural deficits, that was acquired by Boston Scientific Corporation in June 2004. In January 2008, the former stockholders of Advanced Bionics Corporation repurchased certain segments from Boston Scientific Corporation and formed Advanced Bionics LLC for cochlear implants and Infusion Systems LLC for infusion pumps. Mr. Mann was non-executive Chairman of both entities. Advanced Bionics LLC was acquired by Sonova Holdings on December 30, 2009. Infusion Systems LLC was acquired by the Alfred E. Mann Foundation in February 2010. Mr. Mann has also founded and is non-executive Chairman of Second Sight Medical Products, Inc., which is developing a visual prosthesis for the blind; Bioness Inc., which is developing rehabilitation neurostimulation systems; Quallion LLC, which produces batteries for medical products and for the military and aerospace industries; and Stellar Microelectronics Inc., a supplier of electronic assemblies to the medical, military and aerospace industries. Mr. Mann also founded and is the managing member of PerQFlo, LLC, which is developing drug delivery systems. Mr. Mann is the managing member of the Alfred Mann Foundation and is also non-executive Chairman of Alfred Mann Institutes at the University of Southern California, AMI Purdue and AMI Technion, and the Alfred Mann Foundation for Biomedical Engineering, which is establishing additional institutes at other research universities. Mr. Mann holds bachelor s and master s degrees in Physics from the University of California at Los Angeles, honorary doctorates from Johns Hopkins University, the University of Southern California, Western University and the Technion-Israel Institute of Technology and is a member of the National Academy of Engineering.

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*Hakan S. Edstrom* has been our President and Chief Operating Officer since April 2001 and has served as one of our directors since December 2001. Mr. Edstrom was with Bausch & Lomb, Inc., a health care product company, from January 1998 to April 2001, advancing to the position of Senior Corporate Vice President and President of Bausch & Lomb, Inc. Americas Region. From 1981 to 1997, Mr. Edstrom was with Pharmacia Corporation, where he held various executive positions, including President and Chief Executive Officer of Pharmacia Ophthalmics Inc. Mr. Edstrom was educated in Sweden and holds a master s degree in Business Administration from the Stockholm School of Economics.

*Matthew J. Pfeffer* has been our Corporate Vice President and Chief Financial Officer since April 2008. Previously, Mr. Pfeffer served as Chief Financial Officer and Senior Vice President of Finance and Administration of VaxGen, Inc. from March 2006 until April 2008, with responsibility for finance, tax, treasury, human resources, IT, purchasing and facilities functions. Prior to VaxGen, Mr. Pfeffer served as CFO of Cell Genesys, Inc. During his nine year tenure at Cell Genesys, Mr. Pfeffer served as Director of Finance before being named CFO in 1998. Prior to that, Mr. Pfeffer served in a variety of financial management positions at other companies, including roles as Corporate Controller, Manager of Internal Audit and Manager of Financial Reporting. Mr. Pfeffer began his career at Price Waterhouse. Mr. Pfeffer graduated from the University of California, Berkeley and is a Certified Public Accountant.

*Juergen A. Martens, Ph.D.* has been our Corporate Vice President of Operations and Chief Technology Officer since September 2005. From 2000 to August 2005, he was employed by Nektar Therapeutics most recently as Vice President of Pharmaceutical Technology Development. Previously, he held technical management positions at Aerojet Fine Chemicals from 1998 to 2000 and at FMC Corporation from 1996 to 1998. From 1987 to 1996, Dr. Martens held a variety of management positions with increased responsibility in R&D, plant management, and business process development at Lonza, in Switzerland and in the United States. Dr. Martens holds a bachelor s degree in chemical engineering from the Technical College Mannheim/Germany, a bachelor s and master s degree in Chemistry and a doctorate in Physical Chemistry from the University of Marburg/Germany.

*Diane M. Palumbo* has been our Corporate Vice President of Human Resources since November 2004. From July 2003 to November 2004, she was President of her own human resources consulting company. From June 1991 to July 2003, Ms. Palumbo held various positions with Amgen, Inc., a California-based biopharmaceutical company, including Senior Director, Human Resources. In addition, Ms. Palumbo has held Human Resources positions with Unisys and Mitsui Bank Ltd. of Tokyo. She holds a master s degree in Business Administration from St. John s University, New York and a bachelor s degree, magna cum laude, also from St. John s University.

*David B. Thomson, Ph.D., J.D.* has been our Corporate Vice President, General Counsel and Corporate Secretary since January 2002. Prior to joining us, he practiced corporate/commercial and securities law at a major Toronto law firm. Earlier in his career, Dr. Thomson was a post-doctoral fellow at the Rockefeller University. Dr. Thomson obtained his bachelor s degree, master s degree and Ph.D. degree from Queens University and obtained his J.D. degree from the University of Toronto.

Executive officers serve at the discretion of our Board of Directors. There are no family relationships between any of our directors and executive officers.

**Item 1A.** ***Risk Factors***

*You should consider carefully the following information about the risks described below, together with the other information contained in this Annual Report before you decide to buy or maintain an investment in our common stock. We believe the risks described below are the risks that are material to us as of the date of this Annual Report. Additional risks and uncertainties that we are unaware of may also become important factors that affect us. If any of the following risks actually occur, our business, financial condition, results of operations and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of the money you paid to buy our common stock.*

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**RISKS RELATED TO OUR BUSINESS**

***We depend heavily on the successful development and commercialization of our lead product candidate, AFREZZA, which is not yet approved.***

To date, we have not commercialized any product candidates. We have expended significant time, money and effort in the development of our lead product candidate, AFREZZA, which has not yet received regulatory approval and which may not be approved by the FDA in a timely manner, or at all. Our other product candidates are generally in early clinical or preclinical development. We anticipate that in the near term, our ability to generate revenues will depend on the successful development and commercialization of AFREZZA.

In August 2013, we released the results of two Phase 3 clinical studies of AFREZZA, both of which met their primary efficacy endpoints and safety objectives.

In October 2013, we submitted the full results of these studies to the FDA as an amendment to our AFREZZA NDA. The Endocrinologic and Metabolic Drugs Advisory Committee of the FDA is scheduled to discuss our NDA on April 1, 2014. The target date for the FDA to complete its review of the AFREZZA NDA is April 15, 2014. However, the data collected from these clinical studies may not be sufficient to support FDA approval. Moreover, there can be no assurance that we will satisfy all of the FDA s requirements for approval of AFREZZA. The FDA could also request that we conduct additional clinical studies in order to provide sufficient data for approval of AFREZZA. There can be no assurance that we will obtain approval of the NDA in a timely manner, or at all.

We must receive the necessary approvals from the FDA before AFREZZA can be marketed and sold in the United States and must receive the necessary approvals from similar foreign regulatory agencies before AFREZZA can be marketed outside of the United States. Even if we were to receive regulatory approval, we ultimately may be unable to gain market acceptance of AFREZZA for a variety of reasons, including the treatment and dosage regimen, potential adverse effects, the availability of alternative treatments and lack of coverage or adequate reimbursement. If we fail to commercialize AFREZZA, our business, financial condition and results of operations will be materially and adversely affected.

We have sought to develop our product candidates through our internal research programs. All of our product candidates will require additional research and development and, in some cases, significant preclinical, clinical and other testing prior to seeking regulatory approval to market them. Accordingly, these product candidates will not be commercially available for a number of years, if at all.

A significant portion of the research that we have conducted involves new and unproven compounds and technologies, including AFREZZA and our Technosphere platform technology. Even if our research programs identify candidates that initially show promise, these candidates may fail to progress to clinical development for any number of reasons, including discovery upon further research that these candidates have adverse effects or other characteristics that indicate they are unlikely to be effective. In addition, the clinical results we obtain at one stage are not necessarily indicative of future testing results. If we fail to successfully complete the development and commercialization of AFREZZA or develop or expand our other product candidates, or are significantly delayed in doing so, our business and results of operations will be harmed and the value of our stock could decline.

***We have a history of operating losses, we expect to continue to incur losses and we may never generate positive cash flow from operations.***

We are a development stage company with no commercial products. All of our product candidates are still being developed, and all but AFREZZA are still in the early stages of development. Our product candidates will require significant additional development, clinical studies, regulatory clearances and additional investment before they can be commercialized. We cannot be certain when AFREZZA may be approved or if it will be approved.

We have never been profitable or generated positive cash flow from operations and, as of December 31, 2013, we had incurred a cumulative net loss of $2.3 billion. The cumulative net loss has resulted principally from costs

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incurred in our research and development programs, the write-off of goodwill and general operating expenses. We expect to make substantial expenditures and to incur increasing operating losses in the future in order to further develop and commercialize our product candidates, including costs and expenses to complete clinical studies, seek regulatory approvals and market our product candidates, including AFREZZA. This cumulative net loss may increase significantly as we continue development and clinical study efforts. Our losses have had, and are expected to continue to have, an adverse impact on our working capital, total assets and stockholders equity. As of December 31, 2013, we had a stockholders deficit of $30.7 million. Our ability to achieve and sustain positive cash flow from operations and profitability depends upon obtaining regulatory approvals for and successfully commercializing AFREZZA, either alone or with third parties. We do not currently have the required approvals to market any of our product candidates, and we may not receive them. We may not generate positive cash flow from operations or be profitable even if we succeed in commercializing any of our product candidates. As a result, we cannot be sure when we will generate positive cash flow from operations or become profitable, if at all.

***We will be required to raise additional capital to fund our operations, and our inability to do so could raise substantial doubt about our ability to continue as a going concern.***

Based on our current expectations, we believe that our existing capital resources will enable us to continue planned operations at least into the third quarter of 2014. We cannot assure you that our plans will not change or that changed circumstances will not result in the depletion of our capital resources more rapidly than we currently anticipate. We will need to raise additional funds, through the sale of equity or debt securities, the entry into strategic business collaborations, the establishment of other funding facilities, licensing arrangements, asset sales, through additional borrowings from The Mann Group, or other means, in order to continue the development and commercialization of AFREZZA and other product candidates and to support our other ongoing activities. It may be difficult for us to raise additional funds on favorable terms, or at all. As of December 31, 2013, we had a stockholders deficit of $30.7 million which may raise concerns about our solvency and affect our ability to raise additional capital. The amount of additional funds we need will depend on a number of factors, including:

- the election of any or all of the holders of our 5.75% senior convertible notes due 2015, or the 2015 notes, to require us to repay or repurchase such notes if and when required;
- our ability to refinance existing indebtedness, including indebtedness under the 2015 notes which mature in August 2015;
- the satisfaction of the conditions to the sale and purchase of 2019 notes and/or tranche B notes under the Facility Agreement, or failing the satisfaction of such conditions, whether Deerfield chooses to waive satisfaction of such conditions and purchase additional 2019 notes and/or tranche B notes;
- the extent to which the 2015 notes or 2019 notes are converted into shares of our common stock;
- rate of progress and costs of our clinical studies and research and development activities, including costs of procuring clinical materials and operating our manufacturing facilities;
- our obligation to make milestone payments pursuant to the milestone rights, or the Milestone Rights, issued to the Deerfield Private Design Fund and Horizon Santé FLML SÁRL, referred to collectively as the Milestone Purchasers pursuant to our Milestone Rights Purchase Agreement dated July 1, 2013, or the Milestone Agreement;
- our success in establishing strategic business collaborations or other sales or licensing of assets, and the timing and amount of any payments we might receive from any such transactions;

the costs of preparing applications for regulatory approvals for our product candidates, including AFREZZA, either ourselves or with any commercialization partner;

actions taken by the FDA and other regulatory authorities affecting our product candidates and competitive products;

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our degree of success in commercializing AFREZZA assuming receipt of required regulatory approvals;

the emergence of competing technologies and products and other market developments;

the costs of preparing, filing, prosecuting, maintaining and enforcing patent claims and other intellectual property rights or defending against claims of infringement by others;

the level of our legal expenses;

the costs associated with litigation; and

the costs of discontinuing projects and technologies, and/or decommissioning existing facilities, if we undertake any such activities.

We have raised capital in the past through the sale of equity and debt securities. We may in the future pursue the sale of additional equity and/or debt securities, including sales of our common stock through the ATM Agreements, or the establishment of other funding facilities including asset based borrowings. There can be no assurances, however, that we will be able to raise additional capital on acceptable terms, or at all. Issuances of additional debt or equity securities or the conversion of any of our currently outstanding convertible debt securities into shares of our common stock or the exercise of our currently outstanding warrants for shares of our common stock could impact the rights of the holders of our common stock and may dilute their ownership percentage. Moreover, the establishment of other funding facilities may impose restrictions on our operations. These restrictions could include limitations on additional borrowing and specific restrictions on the use of our assets, as well as prohibitions on our ability to create liens, pay dividends, redeem our stock or make investments. We also may seek to raise additional capital by pursuing opportunities for the licensing or sale of certain intellectual property and other assets. We cannot offer assurances, however, that any strategic collaborations, sales of securities or sales or licenses of assets will be available to us on a timely basis or on acceptable terms, if at all. We may be required to enter into relationships with third parties to develop or commercialize products or technologies that we otherwise would have sought to develop independently, and any such relationships may not be on terms as commercially favorable to us as might otherwise be the case.

In the event that sufficient additional funds are not obtained through strategic collaboration opportunities, sales of securities, funding facilities, licensing arrangements and/or asset sales on a timely basis, we will be required to reduce expenses through the delay, reduction or curtailment of our projects, including AFREZZA development activities, or further reduction of costs for facilities and administration. Moreover, if we do not obtain such additional funds, there will be substantial doubt about our ability to continue as a going concern and increased risk of insolvency and loss of investment to the holders of our securities. As of the date hereof, we have not obtained a solvency opinion or otherwise conducted a valuation of our properties to determine whether our debts exceed the fair value of our property within the meaning of applicable solvency laws. If we are or become insolvent, investors in our stock may lose the entire value of their investment.

We do not anticipate generating operating cash flow before AFREZZA is commercialized, which we expect will require us to reach an agreement with a commercialization partner, and therefore cannot provide assurances that changed or unexpected circumstances, including, among other things, delays in obtaining regulatory approval and in identifying and reaching agreements with a commercialization partner, will not result in the depletion of our capital resources more rapidly than we currently anticipate, in which case we may be required to raise additional capital. There can be no assurances that we will be able to raise additional capital on acceptable terms, or at all. If planned operating results are not achieved or we are not successful in raising additional capital through equity or debt financings or entering into a strategic business collaboration with a pharmaceutical or biotechnology company, we will be required to reduce expenses through the delay, reduction or curtailment of our projects, including AFREZZA development activities, or further reduction of costs for facilities and administration, and there will be continued substantial doubt about our ability to continue as a going concern.

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***We have a substantial amount of debt pursuant to our 2015 notes and 2019 notes and may be unable to make required payments of interest and principal as they become due.***

As of December 31, 2013, we had $213.5 million of outstanding debt pursuant to our 2015 notes and 2019 notes, consisting of:

$100.0 million principal amount of 2015 notes bearing interest at 5.75% per annum and maturing on August 15, 2015; and

$113.5 million principal amount of 2019 notes bearing interest at 9.75% per annum and maturing between 2016 and December 31, 2019.

In addition, pursuant to the Facility Agreement, we may issue up to $40.0 million principal amount of additional 2019 notes subject to receipt of approval of AFREZZA from the FDA prior to December 30, 2014 and, pursuant to the February 28, 2014 amendment to the Facility Agreement, tranche B notes in a maximum principal amount equal to (x) if the FDA approves the NDA for AFFREZZA and Deerfield purchases the fourth tranche of 2019 notes, 150% of the aggregate principal amount of the 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment to the Facility Agreement, up to $90.0 million, and (y) otherwise, 33.33% of the aggregate principal amount of the 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment of the Facility Agreement, up to $20.0 million, in each case subject to the satisfaction of certain other conditions. There can be no assurance that we will have sufficient resources to make any required repayments of principal under the 2015 notes, 2019 notes or, if issued, tranche B notes when required. Further, if we undergo a fundamental change, as that term is defined in the indentures governing the terms of the 2015 notes, or certain Major Transactions as defined in the Facility Agreement in respect of the 2019 notes and, if issued, tranche B notes, each holder of the applicable notes will have the option to require us to repurchase all or any portion of such holder s notes at a repurchase price of 100% of the principal amount of such notes to be repurchased plus accrued and unpaid interest, if any. The 2015 notes bear interest at the rate of 5.75% per year on the outstanding principal amount, payable in cash semiannually in arrears on February 15 and August 15 of each year, and the 2019 notes bear interest at the rate of 9.75% per year on the outstanding principal amount, payable in cash quarterly in arrears on the last business day of December, March, June and September of each year. Any tranche B notes, if and when issued, would bear interest at the rate of 9.75% per year, subject to reduction to 8.75% if we enter into a collaboration with a third party to commercialize AFFREZZA, on the outstanding principal amount, payable in cash quarterly in arrears on the last business day of December, March, June and September of each year. While we have been able to timely make our required interest payments to date, we cannot guarantee that we will be able to do so in the future. If we fail to pay interest on the 2015 notes, 2019 notes or, if issued, tranche B notes, or if we fail to repay or repurchase the 2015 notes, 2019 notes or, if issued, tranche B notes, when required, we will be in default under the indenture or other applicable instrument for such note(s), and may also suffer an event of default under the terms of other borrowing arrangements that we may enter into from time to time. Any of these events could have a material adverse effect on our business, results of operations and financial condition, up to and including the note holders initiating bankruptcy proceedings or causing us to cease operations altogether.

***Our agreements with Deerfield relating to our 2019 notes, tranche B notes and the Milestone Rights contain covenants that we may not be able to meet and place restrictions on our operating and financial flexibility.***

Our indebtedness under the Facility Agreement, including any indebtedness under the 2019 notes and any future indebtedness we incur as the result of our sale of additional 2019 notes and/or tranche B notes is secured by substantially all of our assets, including our intellectual property, accounts receivables, equipment, general intangibles, inventory (including the insulin inventory) and investment property, and all of the proceeds and products of the foregoing. Our obligations under the Facility Agreement and the Milestone Agreement are also secured by certain mortgages on our facilities in Danbury, Connecticut and Valencia, California.

The Facility Agreement includes customary representations, warranties and covenants by us, including restrictions on our ability to incur additional indebtedness, grant certain liens, engage in certain mergers and acquisitions, make certain distributions and make certain voluntary prepayments. Events of default under the Facility Agreement include: our failure to timely make payments due under the 2019 notes or the tranche B

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notes; inaccuracies in our representations and warranties to Deerfield; our failure to comply with any of our covenants under any of the Facility Agreement, Milestone Agreement or certain other related security agreements and documents entered into in connection with the Facility Agreement, subject to a cure period with respect to most covenants; our insolvency or the occurrence of certain bankruptcy-related events; certain judgments against us; the suspension, cancellation or revocation of governmental authorizations that are reasonably expected to have a material adverse effect on our business; the acceleration of a specified amount of our indebtedness; our cash and cash equivalents, including amounts available to us under our loan arrangement with The Mann Group, falling below $25.0 million as of the last day of any fiscal quarter; our failure to timely deliver any shares issuable upon conversion of the 2019 notes; and our failure to cause the shares issuable upon conversion of the 2019 notes to be freely tradable within certain agreed upon timeframes. If one or more events of default under the Facility Agreement occurs and continues beyond any applicable cure period, the holders of the 2019 notes and tranche B notes may declare all or any portion of the 2019 notes and tranche B notes to be immediately due and payable. The Milestone Agreement includes customary representations and warranties and covenants by us, including restrictions on transfers of intellectual property related to AFREZZA. The milestones are subject to acceleration in the event we transfer our intellectual property related to AFREZZA in violation of the terms of the Milestone Agreement.

There can be no assurance that we will be able to comply with the covenants under any of the foregoing agreements, and we cannot predict whether the holders of the 2019 notes or tranche B notes would demand repayment of the outstanding balance of the 2019 notes or tranche B notes or exercise any other remedies available to such holders if we were unable to comply with these covenants. The covenants and restrictions contained in the foregoing agreements could significantly limit our ability to respond to changes in our business or competitive activities or take advantage of business opportunities that may create value for our stockholders. In addition, our inability to meet or otherwise comply with the covenants under these agreements could have an adverse impact on our financial position and results of operations and could result in an event of default under the terms of our other indebtedness, including our indebtedness under the 2015 notes. In the event of certain future defaults under the foregoing agreements for which we are not able to obtain waivers, the holders of the 2015 notes, 2019 notes and tranche B notes may accelerate all of our repayment obligations, and, with respect to the 2019 notes and tranche B notes, take control of our pledged assets, potentially requiring us to renegotiate the terms of our indebtedness on terms less favorable to us, or to immediately cease operations.

If we enter into additional debt arrangements, the terms of such additional arrangements could further restrict our operating and financial flexibility. In the event we must cease operations and liquidate our assets, the rights of any holders of our outstanding debt would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation.

***If we do not achieve our projected development and commercialization goals in the timeframes we announce and expect, our business will be harmed and the market price of our common stock could decline.***

For planning purposes, we estimate the timing of the accomplishment of various scientific, clinical, regulatory and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of scientific studies and clinical studies and the submission of regulatory filings. From time to time, we publicly announce the expected timing of some of these milestones. All of these milestones are based on a variety of assumptions. The actual timing of the achievement of these milestones can vary dramatically from our estimates, in many cases for reasons beyond our control, depending on numerous factors, including:

- the rate of progress, costs and results of our clinical studies and research and development activities;
- our ability to identify and enroll patients who meet clinical study eligibility criteria;
- our ability to access sufficient, reliable and affordable supplies of components used in the manufacture of our product candidates, including insulin and other materials for AFREZZA;

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the costs of expanding and maintaining manufacturing operations, as necessary;

the extent to which our clinical studies compete for clinical sites and eligible subjects with clinical studies sponsored by other companies;

our ability to enter into sales and marketing collaborations for AFREZZA; and

actions by regulators.

In addition, if we do not obtain sufficient additional funds through sales of securities, strategic collaborations or the license or sale of certain of our assets on a timely basis, we will be required to reduce expenses by delaying, reducing or curtailing our development of AFREZZA. If we fail to commence or complete, or experience delays in or are forced to curtail, our proposed clinical programs or otherwise fail to adhere to our projected development goals in the timeframes we announce and expect (or within the timeframes expected by analysts or investors), our business and results of operations will be harmed and the market price of our common stock may decline.

***We face substantial competition in the development of our product candidates and may not be able to compete successfully, and our product candidates may be rendered obsolete by rapid technological change.***

A number of established pharmaceutical companies have or are developing technologies for the treatment of diabetes. We also face substantial competition for the development of our other product candidates.

Many of our existing or potential competitors have, or have access to, substantially greater financial, research and development, production, and sales and marketing resources than we do and have a greater depth and number of experienced managers. As a result, our competitors may be better equipped than we are to develop, manufacture, market and sell competing products. In addition, gaining favorable reimbursement is critical to the success of AFREZZA. Many of our competitors have existing infrastructure and relationships with managed care organizations and reimbursement authorities which can be used to their advantage.

The rapid rate of scientific discoveries and technological changes could result in one or more of our product candidates becoming obsolete or noncompetitive. Our competitors may develop or introduce new products that render our technology and AFREZZA less competitive, uneconomical or obsolete. Our future success will depend not only on our ability to develop our product candidates but to improve them and keep pace with emerging industry developments. We cannot assure you that we will be able to do so.

We also expect to face competition from universities and other non-profit research organizations. These institutions carry out a significant amount of research and development in the areas of diabetes and cancer. These institutions are becoming increasingly aware of the commercial value of their findings and are more active in seeking patent and other proprietary rights as well as licensing revenues.

***If we fail to enter into a strategic collaboration with respect to AFREZZA, we may not be able to execute on our business model.***

We have held extensive discussions with a number of pharmaceutical companies concerning a potential strategic business collaboration for AFREZZA. To date we have not reached an agreement on a collaboration with any of these companies. We cannot predict when, if ever, we will conclude an agreement with a partner. There can be no assurance that any such collaboration will be available to us on a timely basis or on acceptable terms. If we are not able to enter into a collaboration on terms that are favorable to us, we may be unable to undertake and fund product development, clinical studies, manufacturing and/or marketing activities at our own expense, which would delay or otherwise impede the commercialization of AFREZZA. Our product candidates are intended to be used by a large number of healthcare professionals who will require substantial education and support. For example, a broad base of physicians, including primary care physicians and endocrinologists, treat patients with diabetes. A large sales force would be required in order to educate these physicians about the benefits and advantages of AFREZZA and to provide adequate support for them. With respect to the commercialization of AFREZZA, if approved, if we fail to enter into collaborations, we would be required to

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establish our own direct sales, marketing and distribution capabilities. Establishing these capabilities can be time-consuming and expensive and would delay our ability to commercialize AFREZZA. Because we lack experience in selling pharmaceutical products to the diabetes market, we would be at a disadvantage compared to our potential competitors, many of whom have substantially more resources and experience than we do. We, acting alone, would not initially be able to field a sales force as large as our competitors or provide the same degree of marketing support. Also, we would not be able to match our competitors spending levels for pre-launch marketing preparation, including medical education. We cannot assure you that we will succeed in entering into acceptable collaborations, that any such collaboration will be successful or, if not, that we will successfully develop our own sales, marketing and distribution capabilities.

We will face similar challenges as we seek to develop our other product candidates. Our current strategy for developing, manufacturing and commercializing our other product candidates includes evaluating the potential for collaborating with pharmaceutical and biotechnology companies at some point in the drug development process and for these collaborators to undertake the advanced clinical development and commercialization of our product candidates. It may be difficult for us to find third parties that are willing to enter into collaborations on economic terms that are favorable to us, or at all. Failure to enter into a collaboration with respect to any other product candidate could substantially increase our requirements for capital and force us to substantially reduce our development efforts.

***If we enter into collaborative agreements with respect to AFREZZA and if our third-party collaborators do not perform satisfactorily or if our collaborations fail, development or commercialization of AFREZZA may be delayed and our business could be harmed.***

We may enter into license agreements, partnerships or other collaborative arrangements to support the financing, development and marketing of AFREZZA. We may also license technology from others to enhance or supplement our technologies. These various collaborators may enter into arrangements that would make them potential competitors. These various collaborators also may breach their agreements with us and delay our progress or fail to perform under their agreements, which could harm our business.

If we enter into collaborative arrangements, we will have less control over the timing, planning and other aspects of our clinical studies, and the sale and marketing of AFREZZA and our other product candidates. We cannot offer assurances that we will be able to enter into satisfactory arrangements with third parties as contemplated or that any of our existing or future collaborations will be successful.

***Continued testing of our product candidates, including AFREZZA, may not yield successful results, and even if it does, we may still be unable to commercialize our product candidates.***

Our research and development programs are designed to test the safety and efficacy of our product candidates through extensive nonclinical and clinical testing. We may experience numerous unforeseen events during, or as a result of, the testing process that could delay or prevent commercialization of any of our product candidates, including the following:

- safety and efficacy results obtained in our nonclinical and early clinical testing may be inconclusive or may not be predictive of results that we may obtain in our future clinical studies or following long-term use, and we may as a result be forced to stop developing a product candidate;

- the analysis of data collected from clinical studies of our product candidates may not reach the statistical significance necessary, or otherwise be sufficient to support FDA or other regulatory approval for the claimed indications;

- after reviewing preclinical and/or clinical data, we or any potential collaborators may abandon projects that we previously believed were promising; and

- our product candidates may not produce the desired effects or may result in adverse health effects or other characteristics that preclude regulatory approval or limit their commercial use if approved.

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Forecasts about the effects of the use of drugs, including AFREZZA, over terms longer than the clinical studies or in much larger populations may not be consistent with the clinical results. If use of a drug results in adverse health effects or reduced efficacy or both, the FDA or other regulatory agencies may terminate our ability to market and sell the drug, may narrow the approved indications for use or otherwise require restrictive product labeling or marketing, or may require further clinical studies, which may be time-consuming and expensive and may not produce favorable results.

As a result of any of these events, we, any collaborator, the FDA, or any other regulatory authorities, may suspend or terminate clinical studies or marketing of the drug at any time. Any suspension or termination of our clinical studies or marketing activities may harm our business and results of operations and the market price of our common stock may decline.

***If our suppliers fail to deliver materials and services needed for the production of AFREZZA in a timely and sufficient manner, or they fail to comply with applicable regulations, our business and results of operations would be harmed and the market price of our common stock could decline.***

For AFREZZA to be commercially viable, we need access to sufficient, reliable and affordable supplies of insulin, our AFREZZA inhaler, the related cartridges and other materials. We must rely on our suppliers to comply with relevant regulatory and other legal requirements, including the production of insulin in accordance with the FDA s current Good Manufacturing Practices, or cGMP for drug products, and the production of the AFREZZA inhaler and related cartridges in accordance with Quality System Regulations, or QSRs. The supply of any of these materials may be limited or any of the manufacturers may not meet relevant regulatory requirements, and if we are unable to obtain any of these materials in sufficient amounts, in a timely manner and at reasonable prices, or if we encounter delays or difficulties in our relationships with manufacturers or suppliers, the development or manufacturing of AFREZZA may be delayed. Any such events could delay market introduction and subsequent sales of AFREZZA and, if so, our business and results of operations will be harmed and the market price of our common stock may decline.

***We have never manufactured AFREZZA or any other product candidates in commercial quantities, and if we fail to develop an effective manufacturing capability for our product candidates or to engage third-party manufacturers with this capability, we may be unable to commercialize these products.***

We use our Danbury, Connecticut facility to formulate AFREZZA inhalation powder, fill plastic cartridges with the powder, package the cartridges in blister packs, and place the blister packs into foil pouches. We will utilize a contract packager to do the final kitting and cartoning of foil pouched blisters containing cartridges, as well as inhalers and the package insert. Although the Danbury facility has been qualified and undergone two inspections by the FDA, our facility may need to undergo further inspection before we can distribute AFREZZA commercially. The manufacture of pharmaceutical products requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, especially in scaling up initial production. These problems include difficulties with production costs and yields, quality control and assurance and shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. If we engage a third-party manufacturer, we would need to transfer our technology to that third-party manufacturer and gain FDA approval, potentially causing delays in product delivery. In addition, our third-party manufacturer may not perform as agreed or may terminate its agreement with us.

Any of these factors could cause us to delay or suspend clinical studies, regulatory submissions or required approvals of our product candidates, could entail higher costs and may result in our being unable to effectively commercialize our products. Furthermore, if we or a third-party manufacturer fail to deliver the required commercial quantities of any product on a timely basis, and at commercially reasonable prices and acceptable quality, and we were unable to promptly find one or more replacement manufacturers capable of production at a substantially equivalent cost, in substantially equivalent volume and quality on a timely basis, we would likely be unable to meet demand for such products and we would lose potential revenues.

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***If any product that we develop does not become widely accepted by physicians, patients, third-party payors and the healthcare community, we may be unable to generate significant revenue, if any.***

AFREZZA and our other product candidates are new and unproven. Even if any of our product candidates obtain regulatory approval, they may not gain market acceptance among physicians, patients, third-party payors and the healthcare community. Failure to achieve market acceptance would limit our ability to generate revenue and would adversely affect our results of operations.

The degree of market acceptance of AFREZZA and our other product candidates will depend on many factors, including the:

- claims for which FDA approval can be obtained, including superiority claims;
- effectiveness of our or our third party collaborator(s) efforts to educate physicians about the benefits and advantages of AFREZZA or our other products and to provide adequate support for them, and the perceived advantages and disadvantages of competitive products;
- willingness of the healthcare community and patients to adopt new technologies;
- ability to manufacture the product in sufficient quantities with acceptable quality and cost;
- perception of patients and the healthcare community, including third-party payors, regarding the safety, efficacy and benefits compared to competing products or therapies;
- convenience and ease of administration relative to existing treatment methods;
- coverage and pricing and reimbursement relative to other treatment therapeutics and methods; and
- marketing and distribution support.

Because of these and other factors, any product that we may develop may not gain market acceptance, which would materially harm our business, financial condition and results of operations.

***If third-party payors do not cover any products for which we receive regulatory approval or adequately reimburse consumers for any such products, our products might not be used or purchased, which would adversely affect our revenues.***

Our future revenues and ability to generate positive cash flow from operations may be affected by the continuing efforts of governments and third-party payors to contain or reduce the costs of healthcare through various means. For example, in certain foreign markets the pricing of prescription pharmaceuticals is subject to governmental control. In the United States, there has been, and we expect that there will continue to be, a number of federal and state proposals to implement similar governmental controls. We cannot be certain what legislative proposals will be adopted or what actions federal, state or private payors for healthcare goods and services may take in response to any drug pricing reform proposals or legislation. Such reforms may make it difficult to complete the development and testing of AFREZZA and our other product candidates, and therefore may limit our ability to generate revenues from sales of our product candidates and achieve profitability. Further, to the extent that such reforms have a material adverse effect on the business, financial condition and profitability of other companies that are prospective collaborators for some of our product candidates, our ability to commercialize our product candidates under development may be adversely affected.

In the United States and elsewhere, sales of prescription pharmaceuticals still depend in large part on the availability of reimbursement to the consumer from third-party payors, such as governmental and private insurance plans. Third-party payors are increasingly challenging the prices charged for medical products and services. The market for our product candidates for which we may receive regulatory approval will depend significantly on access to third-party payors drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement. The industry competition to be included in such formularies often leads to downward pricing pressures on pharmaceutical companies. Also, third-party payors may refuse to include a particular branded drug in their formularies or otherwise restrict patient access to a branded drug when

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a less costly generic equivalent or other alternative is available. In addition, because each third-party payor individually approves coverage and reimbursement levels, obtaining coverage and adequate reimbursement is a time-consuming and costly process. We would be required to provide scientific and clinical support for the use of any product to each third-party payor separately with no assurance that approval would be obtained. This process could delay the market acceptance of any product and could have a negative effect on our future revenues and operating results. Even if we succeed in bringing one or more products to market, we cannot be certain that any such products would be considered cost-effective or that coverage and adequate reimbursement to the consumer would be available. Patients will be unlikely to use our products unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our products.

In addition, in many foreign countries, particularly the countries of the European Union, the pricing of prescription drugs is subject to government control. In some non-U.S. jurisdictions, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the EU provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. We may face competition for our product candidates from lower-priced products in foreign countries that have placed price controls on pharmaceutical products. In addition, there may be importation of foreign products that compete with our own products, which could negatively impact our profitability.

If we are unable to obtain coverage of, and adequate payment levels for, our product candidates from third-party payors, physicians may limit how much or under what circumstances they will prescribe or administer them and patients may decline to purchase them. This in turn could affect our ability to successfully commercialize our products and impact our profitability, results of operations, financial condition, and future success.

***Healthcare legislation may make it more difficult to receive revenues, even if we have products that are approved.***

In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory proposals in recent years to change the healthcare system in ways that could impact our ability to sell our products profitably. In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively, PPACA, became law in the United States. PPACA substantially changes the way healthcare is financed by both governmental and private insurers and significantly affects the healthcare industry. Among the provisions of PPACA of importance to our potential product candidates are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;

- a 2.3% medical device excise tax on certain transactions, including many U.S. sales of medical devices, which currently includes and we expect will continue to include U.S. sales of drug-device combination products;

- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, retroactive to January 1, 2010, to 23% and 13% of the average manufacturer price for most branded and generic drugs, respectively;

- expansion of healthcare fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;

- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer s outpatient drugs to be covered under Medicare Part D;

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extension of manufacturers Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;

expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals beginning in 2014 and by adding new mandatory eligibility categories for certain individuals with income at or below 133% of the Federal Poverty Level, thereby potentially increasing manufacturers Medicaid rebate liability;

expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;

new requirements to report certain financial arrangements with physicians and teaching hospitals, as defined in PPACA and its implementing regulations, including reporting any payments or transfers of value made or distributed to prescribers, teaching hospitals and other healthcare providers and reporting any ownership and investment interests held by physicians and their immediate family members and applicable group purchasing organizations during the preceding calendar year, with reporting to the Centers for Medicare & Medicaid Services, or CMS, required by March 31, 2014 and by the 90th day of each subsequent calendar year;

a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and

a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

In addition, other legislative changes have been proposed and adopted since PPACA was enacted. On August 2, 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation s automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, or the ATRA, which, among other things, reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our customers and accordingly, our financial operations.

We expect that PPACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product, and could seriously harm our future revenues. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products.

***If we fail to comply with federal and state healthcare laws, including fraud and abuse and health information privacy and security laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.***

As a biopharmaceutical company, even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients rights are and will be applicable to our business. We could be subject to healthcare fraud and abuse and patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include:

the federal Anti-Kickback Statute, which constrains our marketing practices, educational programs, pricing policies, and relationships with healthcare providers or other entities, by prohibiting, among other things,

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soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, either the referral of an individual or the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;

federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;

the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information; and

state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers, and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of available statutory and regulatory exceptions, it is possible that some of our business activities could be subject to challenge under one or more of such laws. To the extent that any of our product candidates is ultimately sold in a foreign country, we may be subject to similar foreign laws and regulations. If we or our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, imprisonment, exclusion of products from reimbursement under U.S. federal or state healthcare programs, and the curtailment or restructuring of our operations. Any penalties, damages, fines, curtailment or restructuring of our operations could materially adversely affect our ability to operate our business and our financial results. Although compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, the risks cannot be entirely eliminated. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management s attention from the operation of our business. Moreover, achieving and sustaining compliance with applicable federal and state privacy, security and fraud laws may prove costly.

***If product liability claims are brought against us, we may incur significant liabilities and suffer damage to our reputation.***

The testing, manufacturing, marketing and sale of AFREZZA and our other product candidates expose us to potential product liability claims. A product liability claim may result in substantial judgments as well as consume significant financial and management resources and result in adverse publicity, decreased demand for a product, injury to our reputation, withdrawal of clinical studies volunteers and loss of revenues. We currently carry worldwide liability insurance in the amount of $10.0 million. In addition, we carry local policies per study in each country in which we conduct clinical studies that require us to carry coverage based on local statutory requirements. We intend to obtain product liability coverage for commercial sales in the future if AFREZZA is approved. However, we may not be able to obtain insurance coverage that will be adequate to satisfy any liability that may arise, and because insurance coverage in our industry can be very expensive and difficult to obtain, we cannot assure you that we will be able to obtain sufficient coverage at an acceptable cost, if at all. If losses from such claims exceed our liability insurance coverage, we may ourselves incur substantial liabilities. If we are required to pay a product liability claim our business and results of operations would be harmed and the market price of our common stock may decline.

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***If we lose any key employees or scientific advisors, our operations and our ability to execute our business strategy could be materially harmed.***

We face intense competition for qualified employees among companies in the biotechnology and biopharmaceutical industries. Our success depends upon our ability to attract, retain and motivate highly skilled employees. We may be unable to attract and retain these individuals on acceptable terms, if at all. In addition, in order to commercialize our product candidates successfully, we may be required to expand our work force, particularly in the areas of manufacturing, and, if we are unable to enter into collaborations with third parties to commercialize AFREZZA or any other approved products, sales and marketing. These activities will require the addition of new personnel, including management, and the development of additional expertise by existing personnel, and we cannot assure you that we will be able to attract or retain any such new personnel on acceptable terms, if at all.

The loss of the services of any principal member of our management and scientific staff could significantly delay or prevent the achievement of our scientific and business objectives. All of our employees are at will and we currently do not have employment agreements with any of the principal members of our management or scientific staff, and we do not have key person life insurance to cover the loss of any of these individuals. Replacing key employees may be difficult and time-consuming because of the limited number of individuals in our industry with the skills and experience required to develop, gain regulatory approval of and commercialize our product candidates successfully.

We have relationships with scientific advisors at academic and other institutions to conduct research or assist us in formulating our research, development or clinical strategy. These scientific advisors are not our employees and may have commitments to, and other obligations with, other entities that may limit their availability to us. We have limited control over the activities of these scientific advisors and can generally expect these individuals to devote only limited time to our activities. Failure of any of these persons to devote sufficient time and resources to our programs could harm our business. In addition, these advisors are not prohibited from, and may have arrangements with, other companies to assist those companies in developing technologies that may compete with our product candidates.

***If our Chairman and Chief Executive Officer is unable to devote sufficient time and attention to our business, our operations and our ability to execute our business strategy could be materially harmed.***

Alfred Mann, our Chairman and Chief Executive Officer, is involved in many other business and charitable activities. As a result, the time and attention Mr. Mann devotes to the operation of our business varies, and he may not expend the same time or focus on our activities as other, similarly situated chief executive officers. If Mr. Mann is unable to devote the time and attention necessary to running our business, we may not be able to execute our business strategy and our business could be materially harmed.

***If our internal controls over financial reporting are not considered effective, our business and stock price could be adversely affected.***

Section 404 of the Sarbanes-Oxley Act of 2002 requires us to evaluate the effectiveness of our internal controls over financial reporting as of the end of each fiscal year, and to include a management report assessing the effectiveness of our internal controls over financial reporting in our annual report on Form 10-K for that fiscal year. Section 404 also requires our independent registered public accounting firm to attest to, and report on, our internal controls over financial reporting.

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our internal controls over financial reporting will prevent 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. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud involving a company have been, or will be, detected. The design of any system of controls

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is based in part on certain assumptions about the likelihood of future events, and we cannot assure you that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. We cannot assure you that we or our independent registered public accounting firm will not identify a material weakness in our internal controls in the future. A material weakness in our internal controls over financial reporting would require management and our independent registered public accounting firm to evaluate our internal controls as ineffective. If our internal controls over financial reporting are not considered effective, we may experience a loss of public confidence, which could have an adverse effect on our business and on the market price of our common stock.

***Our operations might be interrupted by the occurrence of a natural disaster or other catastrophic event.***

We expect that at least for the foreseeable future, our manufacturing facility in Danbury, Connecticut will be the sole location for the manufacturing of AFREZZA. This facility and the manufacturing equipment we use would be costly to replace and could require substantial lead time to repair or replace. In addition, we are headquartered in Valencia, California. This facility contains our principal executive offices and is used to provide support for the development of our AFREZZA programs. We depend on our facilities and on collaborators, contractors and vendors for the continued operation of our business, some of whom are located in Europe. Natural disasters or other catastrophic events, including interruptions in the supply of natural resources, political and governmental changes, severe weather conditions, wildfires and other fires, explosions, actions of animal rights activists, terrorist attacks, volcanic eruptions, earthquakes and wars could disrupt our operations or those of our collaborators, contractors and vendors. We might suffer losses as a result of business interruptions that exceed the coverage available under our and our contractors insurance policies or for which we or our contractors do not have coverage. For example, we are not insured against a terrorist attack. Any natural disaster or catastrophic event could have a significant negative impact on our operations and financial results. Moreover, any such event could delay our research and development programs and adversely affect, which may include stopping, our readiness for commercial production.

***We deal with hazardous materials and must comply with environmental laws and regulations, which can be expensive and restrict how we do business.***

Our research and development work involves the controlled storage and use of hazardous materials, including chemical and biological materials. In addition, our manufacturing operations involve the use of a chemical that may form an explosive mixture under certain conditions. Our operations also produce hazardous waste products. We are subject to federal, state and local laws and regulations (i) governing how we use, manufacture, store, handle and dispose of these materials (ii) imposing liability for costs of cleaning up, and damages to natural resources from past spills, waste disposals on and off-site, or other releases of hazardous materials or regulated substances, and (iii) regulating workplace safety. Moreover, the risk of accidental contamination or injury from hazardous materials cannot be completely eliminated, and in the event of an accident, we could be held liable for any damages that may result, and any liability could fall outside the coverage or exceed the limits of our insurance. Currently, our general liability policy provides coverage up to $1.0 million per occurrence and $2.0 million in the aggregate and is supplemented by an umbrella policy that provides a further $4.0 million of coverage; however, our insurance policy excludes pollution liability coverage and we do not carry a separate hazardous materials policy. In addition, we could be required to incur significant costs to comply with environmental laws and regulations in the future. Finally, current or future environmental laws and regulations may impair our research, development or production efforts or have an adverse impact on our business, results of operations and financial condition.

When we purchased the facilities located in Danbury, Connecticut in 2001, a soil and groundwater investigation and remediation was being conducted by a former site operator (the responsible party) under the oversight of the Connecticut Department of Environmental Protection. During the construction of our expanded manufacturing facility, we excavated contaminated soil under the footprint of our building expansion location.

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The responsible party reimbursed us for our increased excavation and disposal costs of contaminated soil in the amount of $1.625 million. It has conducted at its expense all work and will make all filings necessary to achieve closure for the environmental remediation conducted at the site, and has agreed to indemnify us for any future costs and expenses we may incur that are directly related to the final closure. If we are unable to collect these future costs and expenses, if any, from the responsible party, our business and results of operations may be harmed.

**RISKS RELATED TO REGULATORY APPROVALS**

***Our product candidates must undergo costly and time-consuming rigorous nonclinical and clinical testing and we must obtain regulatory approval prior to the sale and marketing of any product. The results of this testing or issues that develop in the review and approval by a regulatory agency may subject us to unanticipated delays or prevent us from marketing any products.***

Our research and development activities, as well as the manufacturing and marketing of our product candidates, including AFREZZA, are subject to regulation, including regulation for safety, efficacy and quality, by the FDA in the United States and comparable authorities in other countries. FDA regulations and the regulations of comparable foreign regulatory authorities are wide-ranging and govern, among other things:

product design, development, manufacture and testing;

product labeling;

product storage and shipping;

pre-market clearance or approval;

advertising and promotion; and

product sales and distribution.

Clinical testing can be costly and take many years, and the outcome is uncertain and susceptible to varying interpretations. We cannot be certain if or when the FDA might request additional studies, under what conditions such studies might be requested, or what the size or length of any such studies might be. The clinical studies of our product candidates may not be completed on schedule, the FDA or foreign regulatory agencies may order us to stop or modify our research, or these agencies may not ultimately approve any of our product candidates for commercial sale. The data collected from our clinical studies may not be sufficient to support regulatory approval of our various product candidates, including AFREZZA. Even if we believe the data collected from our clinical studies are sufficient, the FDA has substantial discretion in the approval process and may disagree with our interpretation of the data. Our failure to adequately demonstrate the safety and efficacy of any of our product candidates would delay or prevent regulatory approval of our product candidates, which could prevent us from achieving profitability.

The requirements governing the conduct of clinical studies and manufacturing and marketing of our product candidates, including AFREZZA, outside the United States vary widely from country to country. Foreign approvals may take longer to obtain than FDA approvals and can require, among other things, additional testing and different clinical study designs. Foreign regulatory approval processes include essentially all of the risks associated with the FDA approval processes. Some of those agencies also must approve prices of the products. Approval of a product by the FDA does not ensure approval of the same product by the health authorities of other countries. In addition, changes in regulatory policy in the United States or in foreign countries for product approval during the period of product development and regulatory agency review of each submitted new application may cause delays or rejections.

The process of obtaining FDA and other required regulatory approvals, including foreign approvals, is expensive, often takes many years and can vary substantially based upon the type, complexity and novelty of the products involved. We are not aware of any precedent for the successful commercialization of products based on our technology. In January 2006, the FDA approved the first pulmonary insulin product, Exubera. This approval

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has had an impact on, and notwithstanding the voluntary withdrawal of the product from the market by its manufacturer could still impact, the development and registration of AFREZZA in different ways. For example, Exubera may be used as a reference for safety and efficacy evaluations of AFREZZA, and the approval standards set for Exubera may be applied to other inhaled insulin products that follow, including AFREZZA.

The FDA is regulating AFREZZA as a combination product because of the complex nature of the system that includes the combination of a new drug (AFREZZA) and a new medical device (the inhaler used to administer the insulin). The review of our NDA for AFREZZA involves several separate review groups of the FDA including: (1) the Metabolic and Endocrine Drug Products Division; (2) the Pulmonary Drug Products Division; and (3) the Center for Devices and Radiological Health, which reviews medical devices. The Metabolic and Endocrine Drug Products Division is the lead group and obtains consulting reviews from the other two FDA groups. We can make no assurances at this time about what impact FDA review by multiple groups will have on the approvability of our product or that we will obtain approval of the NDA in a timely manner or at all.

Also, questions that have been raised about the safety of marketed drugs generally, including pertaining to the lack of adequate labeling, may result in increased cautiousness by the FDA in reviewing new drugs based on safety, efficacy, or other regulatory considerations and may result in significant delays in obtaining regulatory approvals. Such regulatory considerations may also result in the imposition of more restrictive drug labeling or marketing requirements as conditions of approval, which may significantly affect the marketability of our drug products. FDA review of AFREZZA as a combination product may lengthen the product development and regulatory approval process, increase our development costs and delay or prevent the commercialization of AFREZZA. Other product candidates that we may develop could face similar obstacles and costs.

***We have only limited experience in filing and pursuing applications necessary to gain regulatory approvals, which may impede our ability to obtain timely approvals from the FDA or foreign regulatory agencies, if at all.***

We will not be able to commercialize AFREZZA or any other product candidates unless we have obtained regulatory approval. Until we prepared and submitted our NDA for AFREZZA, we had no experience as a company in late-stage regulatory filings, such as preparing and submitting NDAs, which may place us at risk of delays, overspending and human resources inefficiencies. Any delay in obtaining, or inability to obtain, regulatory approval could harm our business.

***If we do not comply with regulatory requirements at any stage, whether before or after marketing approval is obtained, we may be subject to criminal prosecution, fined or forced to remove a product from the market or experience other adverse consequences, including restrictions or delays in obtaining regulatory marketing approval.***

Even if we comply with regulatory requirements, we may not be able to obtain the labeling claims necessary or desirable for product promotion. We may also be required to undertake post-marketing studies. In addition, if we or other parties identify adverse effects after any of our products are on the market, or if manufacturing problems occur, regulatory approval may be withdrawn and a reformulation of our products, additional clinical studies, changes in labeling of, or indications of use for, our products and/or additional marketing applications may be required. If we encounter any of the foregoing problems, our business and results of operations will be harmed and the market price of our common stock may decline.

***Even if we obtain regulatory approval for our product candidates, such approval may be limited and we will be subject to stringent, ongoing government regulation.***

Even if regulatory authorities approve any of our product candidates, they could approve less than the full scope of uses or labeling that we seek or otherwise require special warnings or other restrictions on use or marketing or could require potentially costly post-marketing follow-up clinical studies. Regulatory authorities may limit the segments of the diabetes population to which we or others may market AFREZZA or limit the target population for our other product candidates. There are no assurances that any advantages of AFREZZA

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will be agreed to by the FDA or otherwise included in product labeling or advertising and, as a result, AFREZZA may not have our expected competitive advantages when compared to other insulin products.

The manufacture, marketing and sale of any of our product candidates will be subject to stringent and ongoing government regulation. The FDA may also withdraw product approvals if problems concerning the safety or efficacy of a product appear following approval. We cannot be sure that FDA and United States Congressional initiatives or actions by foreign regulatory bodies pertaining to ensuring the safety of marketed drugs or other developments pertaining to the pharmaceutical industry will not adversely affect our operations.

We also are required to register our establishments and list our products with the FDA and certain state agencies. We and any third-party manufacturers or suppliers must continually adhere to federal regulations setting forth requirements, known as cGMP (for drugs) and QSR (for medical devices), and their foreign equivalents, which are enforced by the FDA and other national regulatory bodies through their facilities inspection programs. If our facilities, or the facilities of our manufacturers or suppliers, cannot pass a preapproval plant inspection, the FDA will not approve the marketing of our product candidates. In complying with cGMP and foreign regulatory requirements, we and any of our potential third-party manufacturers or suppliers will be obligated to expend time, money and effort in production, record-keeping and quality control to ensure that our products meet applicable specifications and other requirements. QSR requirements also impose extensive testing, control and documentation requirements. State regulatory agencies and the regulatory agencies of other countries have similar requirements. In addition, we will be required to comply with regulatory requirements of the FDA, state regulatory agencies and the regulatory agencies of other countries concerning the reporting of adverse events and device malfunctions, corrections and removals (e.g., recalls), promotion and advertising and general prohibitions against the manufacture and distribution of adulterated and misbranded devices. Failure to comply with these regulatory requirements could result in civil fines, product seizures, injunctions and/or criminal prosecution of responsible individuals and us. Any such actions would have a material adverse effect on our business and results of operations.

***Our suppliers will be subject to FDA inspection before the agency approves an NDA for AFREZZA.***

When we are required to find a new or additional supplier of insulin, we will be required to evaluate the new supplier s ability to provide insulin that meets regulatory requirements, including cGMP requirements as well as our specifications and quality requirements, which would require significant time and expense and could delay the manufacturing and future commercialization of AFREZZA. We also depend on suppliers for other materials that comprise AFREZZA, including our AFREZZA inhaler and cartridges. Each supplier must comply with relevant regulatory requirements including QSR, and is subject to inspection by the FDA. There can be no assurance, in the conduct of an inspection of any of our suppliers, that the agency would find that the supplier substantially complies with the QSR or cGMP requirements, where applicable. If we or any potential third-party manufacturer or supplier fails to comply with these requirements or comparable requirements in foreign countries, regulatory authorities may subject us to regulatory action, including criminal prosecutions, fines and suspension of the manufacture of our products.

***Reports of side effects or safety concerns in related technology fields or in other companies clinical studies could delay or prevent us from obtaining regulatory approval or negatively impact public perception of our product candidates.***

At present, there are a number of clinical studies being conducted by us and other pharmaceutical companies involving insulin delivery systems. If we discover that AFREZZA is associated with a significantly increased frequency of adverse events, or if other pharmaceutical companies announce that they observed frequent adverse events in their studies involving insulin therapies, we could encounter delays in the timing of our clinical studies, difficulties in obtaining approval of AFREZZA or be subject to class warnings in the label for AFREZZA, if approved. In addition, the public perception of AFREZZA might be adversely affected, which could harm our business and results of operations and cause the market price of our common stock to decline, even if the concern relates to another company s products or product candidates.

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There are also a number of clinical studies being conducted by other pharmaceutical companies involving compounds similar to, or competitive with, our other product candidates. Adverse results reported by these other companies in their clinical studies could delay or prevent us from obtaining regulatory approval or negatively impact public perception of our product candidates, which could harm our business and results of operations and cause the market price of our common stock to decline.

**RISKS RELATED TO INTELLECTUAL PROPERTY**

***If we are unable to protect our proprietary rights, we may not be able to compete effectively, or operate profitably.***

Our commercial success depends, in large part, on our ability to obtain and maintain intellectual property protection for our technology. Our ability to do so will depend on, among other things, complex legal and factual questions, and it should be noted that the standards regarding intellectual property rights in our fields are still evolving. We attempt to protect our proprietary technology through a combination of patents, trade secrets and confidentiality agreements. We own a number of domestic and international patents, have a number of domestic and international patent applications pending and have licenses to additional patents. We cannot assure you that our patents and licenses will successfully preclude others from using our technologies, and we could incur substantial costs in seeking enforcement of our proprietary rights against infringement. Even if issued, the patents may not give us an advantage over competitors with alternative technologies.

Moreover, the term of a patent is limited and, as a result, the patents protecting our products expire at various dates. For example, some patents providing protection for our AFREZZA inhalation powder expired in 2012. Other patents providing similar protection have terms extending into 2020, 2030 and 2031. In addition, patents providing protection for our inhaler and cartridges have terms extending into 2023, 2031 and 2032, and we have method of treatment claims that extend into 2026 and 2029. As and when these different patents expire, AFREZZA could become subject to increased competition. As a consequence, we may not be able to recover our development costs.

Moreover, the issuance of a patent is not conclusive as to its validity or enforceability and it is uncertain how much protection, if any, will be afforded by our patents. A third party may challenge the validity or enforceability of a patent after its issuance by various proceedings such as oppositions in foreign jurisdictions or re-examinations or other review in the United States. In some instances we may seek re-examination or reissuance of our own patents. If we attempt to enforce our patents, they may be challenged in court where they could be held invalid, unenforceable, or have their breadth narrowed to an extent that would destroy their value.

On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to United States patent law. These include provisions that affect the way patent applications will be prosecuted, subjected to post-grant challenge, and may also affect patent litigation. The United States Patent and Trademark Office, or USPTO is continuing to develop regulations and procedures to govern administration of the Leahy-Smith Act, and while all of the substantive changes to patent law associated with the Leahy-Smith Act have become effective, many changes have only recently become effective. Moreover there will be a transitional period of many years during which some applications may be eligible for prosecution under the previous rules. There are many ambiguities in this new law and how the courts will interpret it cannot be predicted with confidence. Accordingly, it is not clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

We also rely on unpatented technology, trade secrets, know-how and confidentiality agreements. We require our officers, employees, consultants and advisors to execute proprietary information and invention and assignment agreements upon commencement of their relationships with us. We also execute confidentiality agreements with outside collaborators. There can be no assurance, however, that these agreements will provide meaningful protection for our inventions, trade secrets, know-how or other proprietary information in the event

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of unauthorized use or disclosure of such information. If any trade secret, know-how or other technology not protected by a patent were to be disclosed to or independently developed by a competitor, our business, results of operations and financial condition could be adversely affected.

***If we become involved in lawsuits to protect or enforce our patents or the patents of our collaborators or licensors, we would be required to devote substantial time and resources to prosecute or defend such proceedings.***

Competitors may infringe our patents or the patents of our collaborators or licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover its technology. A court may also decide to award us a royalty from an infringing party instead of issuing an injunction against the infringing activity. An adverse determination of any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference proceedings brought by the USPTO, may be necessary to determine the priority of inventions with respect to our patent applications or those of our collaborators or licensors. Additionally, the Leahy-Smith Act has greatly expanded the options for post-grant review of patents that can be brought by third parties. Litigation, post-grant review, or interference proceedings may fail and, even if successful, may result in substantial costs and be a distraction to our management. We may not be able, alone or with our collaborators and licensors, to prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States. We may not prevail in any litigation, post-grant review, or interference proceeding in which we are involved. Even if we do prevail, these proceedings can be very expensive and distract our management.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, 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, the market price of our common stock may decline.

***If our technologies conflict with the proprietary rights of others, we may incur substantial costs as a result of litigation or other proceedings and we could face substantial monetary damages and be precluded from commercializing our products, which would materially harm our business.***

Biotechnology patents are numerous and may, at times, conflict with one another. As a result, it is not always clear to industry participants, including us, which patents cover the multitude of biotechnology product types. Ultimately, the courts must determine the scope of coverage afforded by a patent and the courts do not always arrive at uniform conclusions.

A patent owner may claim that we are making, using, selling or offering for sale an invention covered by the owner s patents and may go to court to stop us from engaging in such activities. Such litigation is not uncommon in our industry.

Patent lawsuits can be expensive and would consume time and other resources. There is a risk that a court would decide that we are infringing a third party s patents and would order us to stop the activities covered by the patents, including the commercialization of our products. In addition, there is a risk that we would have to pay the other party damages for having violated the other party s patents (which damages may be increased, as well as attorneys fees ordered paid, if infringement is found to be willful), or that we will be required to obtain a license from the other party in order to continue to commercialize the affected products, or to design our products in a manner that does not infringe a valid patent. We may not prevail in any legal action, and a required license under the patent may not be available on acceptable terms or at all, requiring cessation of activities that were found to infringe a valid patent. We also may not be able to develop a non-infringing product design on commercially reasonable terms, or at all.

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Moreover, certain components of AFREZZA may be manufactured outside the United States and imported into the United States. As such, third parties could file complaints under 19 U.S.C. Section 337(a)(1)(B), or a 337 action, with the International Trade Commission, or the ITC. A 337 action can be expensive and would consume time and other resources. There is a risk that the ITC would decide that we are infringing a third party s patents and either enjoin us from importing the infringing products or parts thereof into the United States or set a bond in an amount that the ITC considers would offset our competitive advantage from the continued importation during the statutory review period. The bond could be up to 100% of the value of the patented products. We may not prevail in any legal action, and a required license under the patent may not be available on acceptable terms, or at all, resulting in a permanent injunction preventing any further importation of the infringing products or parts thereof into the United States. We also may not be able to develop a non-infringing product design on commercially reasonable terms, or at all.

Although we own a number of domestic and foreign patents and patent applications relating to AFREZZA, we have identified certain third-party patents having claims relating to pulmonary insulin delivery that may trigger an allegation of infringement upon the commercial manufacture and sale of AFREZZA. If a court were to determine that AFREZZA was infringing any of these patent rights, we would have to establish with the court that these patents were invalid or unenforceable in order to avoid legal liability for infringement of these patents. However, proving patent invalidity or unenforceability can be difficult because issued patents are presumed valid. Therefore, in the event that we are unable to prevail in a non-infringement or invalidity action we will have to either acquire the third-party patents outright or seek a royalty-bearing license. Royalty-bearing licenses effectively increase production costs and therefore may materially affect product profitability. Furthermore, should the patent holder refuse to either assign or license us the infringed patents, it may be necessary to cease manufacturing the product entirely and/or design around the patents, if possible. In either event, our business would be harmed and our profitability could be materially adversely impacted.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, 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, the market price of our common stock may decline.

In addition, patent litigation may divert the attention of key personnel and we may not have sufficient resources to bring these actions to a successful conclusion. At the same time, some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. An adverse determination in a judicial or administrative proceeding or failure to obtain necessary licenses could prevent us from manufacturing and selling our products or result in substantial monetary damages, which would adversely affect our business and results of operations and cause the market price of our common stock to decline.

***We may not obtain trademark registrations for our potential trade names.***

We have not selected trade names for some of our product candidates; therefore, we have not filed trademark registrations for all of our potential trade names for our product candidates in all jurisdictions, nor can we assure that we will be granted registration of those potential trade names for which we have filed. No assurance can be given that any of our trademarks will be registered in the United States or elsewhere, or once registered that, prior to our being able to enter a particular market, they will not be cancelled for non-use. Nor can we give assurances, that the use of any of our trademarks will confer a competitive advantage in the marketplace.

Furthermore, even if we are successful in our trademark registrations, the FDA has its own process for drug nomenclature and its own views concerning appropriate proprietary names. It also has the power, even after granting market approval, to request a company to reconsider the name for a product because of evidence of confusion in the marketplace. We cannot assure you that the FDA or any other regulatory authority will approve of any of our trademarks or will not request reconsideration of one of our trademarks at some time in the future.

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**RISKS RELATED TO OUR COMMON STOCK**

***Our stock price is volatile.***

The stock market, particularly in recent years, has experienced significant volatility particularly with respect to pharmaceutical and biotechnology stocks, and this trend may continue. The volatility of pharmaceutical and biotechnology stocks often does not relate to the operating performance of the companies represented by the stock. Our business and the market price of our common stock may be influenced by a large variety of factors, including:

- the progress and results of our clinical studies;
- general economic, political or stock market conditions;
- legislative developments;
- announcements by us or our competitors concerning clinical study results, acquisitions, strategic alliances, technological innovations, newly approved commercial products, product discontinuations, or other developments;
- the availability of critical materials used in developing and manufacturing AFREZZA or other product candidates;
- developments or disputes concerning our patents or proprietary rights;
- the expense and time associated with, and the extent of our ultimate success in, securing regulatory approvals;
- announcements by us concerning our financial condition or operating performance;
- changes in securities analysts estimates of our financial condition or operating performance;
- general market conditions and fluctuations for emerging growth and pharmaceutical market sectors;
- sales of large blocks of our common stock, including sales by our executive officers, directors and significant stockholders;
- the status of any legal proceedings or regulatory matters against or involving us or any of our executive officers and directors;
- the existence of, and the issuance of shares of our common stock pursuant to, the share lending agreement and the short sales of our common stock effected in connection with the sale of our 2015 notes;

the conversion of any of our 2015 notes or 2019 notes into shares of our common stock; and

discussion of AFREZZA, our other product candidates, competitors products, or our stock price by the financial and scientific press, the healthcare community and online investor communities such as chat rooms. In particular, it may be difficult to verify statements about us and our investigational products that appear on interactive websites that permit users to generate content anonymously or under a pseudonym and statements attributed to company officials may, in fact, have originated elsewhere.

Any of these risks, as well as other factors, could cause the market price of our common stock to decline.

***If other biotechnology and biopharmaceutical companies or the securities markets in general encounter problems, the market price of our common stock could be adversely affected.***

Public companies in general and companies included on the NASDAQ Global Market in particular have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. There has been particular volatility in the market prices of securities of biotechnology and other life sciences companies, and the market prices of these companies have often fluctuated because of problems or successes in a given market segment or because investor interest has shifted to

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other segments. These broad market and industry factors may cause the market price of our common stock to decline, regardless of our operating performance. We have no control over this volatility and can only focus our efforts on our own operations, and even these may be affected due to the state of the capital markets.

In the past, following periods of large price declines in the public market price of a company s securities, securities class action litigation has often been initiated against that company. Litigation of this type could result in substantial costs and diversion of management s attention and resources, which would hurt our business. Any adverse determination in litigation could also subject us to significant liabilities.

***Our Chairman and Chief Executive Officer and principal stockholder can individually control our direction and policies, and his interests may be adverse to the interests of our other stockholders. After his death, his stock will be left to his funding foundations for distribution to various charities, and we cannot assure you of the manner in which those entities will manage their holdings.***

At February 17, 2014, our Chairman and Chief Executive Officer, Alfred E. Mann beneficially owned 40.6% of our outstanding shares of capital stock. By virtue of his holdings, Mr. Mann may be able to continue to effectively control the election of the members of our board of directors, our management and our affairs and prevent corporate transactions such as mergers, consolidations or the sale of all or substantially all of our assets that may be favorable from our standpoint or that of our other stockholders or cause a transaction that we or our other stockholders may view as unfavorable.

Subject to compliance with United States federal and state securities laws, Mr. Mann is free to sell the shares of our stock he holds at any time. Upon his death, we have been advised by Mr. Mann that his shares of our capital stock will be left to the Alfred E. Mann Medical Research Organization, or AEMMRO, and AEM Foundation for Biomedical Engineering, or AEMFBE, not-for-profit medical research foundations that serve as funding organizations for Mr. Mann s various charities, including the Alfred Mann Foundation, or AMF, and the Alfred Mann Institutes at the University of Southern California, the Technion-Israel Institute of Technology, and Purdue University, and that may serve as funding organizations for any other charities that he may establish. The AEMMRO is a membership foundation consisting of six members, including Mr. Mann, his wife, three of his children and Dr. Joseph Schulman, the chief scientist of the AEMFBE. The AEMFBE is a membership foundation consisting of five members, including Mr. Mann, his wife, and the same three of his children. Although we understand that the members of AEMMRO and AEMFBE have been advised of Mr. Mann s objectives for these foundations, once Mr. Mann s shares of our capital stock become the property of the foundations, we cannot assure you as to how those shares will be distributed or how they will be voted.

***The future sale of our common stock, the conversion of our senior convertible notes into common stock or the exercise of our warrants for common stock could negatively affect our stock price.***

As of February 17, 2014, we had 377,208,424 shares of common stock outstanding. Substantially all of these shares are available for public sale, subject in some cases to volume and other limitations or delivery of a prospectus. If our common stockholders sell substantial amounts of common stock in the public market, or the market perceives that such sales may occur, the market price of our common stock may decline. Likewise the issuance of additional shares of our common stock upon the conversion of some or all of our senior convertible notes, or upon the exercise of some or all of the warrants we issued in February 2012, could adversely affect the trading price of our common stock. In addition, the existence of these notes and warrants may encourage short selling of our common stock by market participants. Furthermore, if we were to include in a company-initiated registration statement shares held by our stockholders pursuant to the exercise of their registration rights, the sale of those shares could impair our ability to raise needed capital by depressing the price at which we could sell our common stock.

In addition, we will need to raise substantial additional capital in the future to fund our operations. If we raise additional funds by issuing equity securities, including through the ATM Agreements, or additional convertible debt, the market price of our common stock may decline and our existing stockholders may experience significant dilution.

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***Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.***

We are incorporated in Delaware. Certain anti-takeover provisions under Delaware law and in our certificate of incorporation and amended and restated bylaws, as currently in effect, may make a change of control of our company more difficult, even if a change in control would be beneficial to our stockholders. Our anti-takeover provisions include provisions such as a prohibition on stockholder actions by written consent, the authority of our board of directors to issue preferred stock without stockholder approval, and supermajority voting requirements for specified actions. In addition, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibits stockholders owning 15% or more of our outstanding voting stock from merging or combining with us in certain circumstances. These provisions may delay or prevent an acquisition of us, even if the acquisition may be considered beneficial by some of our stockholders. In addition, they may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management.

***Because we do not expect to pay dividends in the foreseeable future, you must rely on stock appreciation for any return on your investment.***

We have paid no cash dividends on any of our capital stock to date, and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. As a result, we do not expect to pay any cash dividends in the foreseeable future, and payment of cash dividends, if any, will also depend on our financial condition, results of operations, capital requirements and other factors and will be at the discretion of our board of directors. Furthermore, we may in the future become subject to contractual restrictions on, or prohibitions against, the payment of dividends. Accordingly, the success of your investment in our common stock will likely depend entirely upon any future appreciation. There is no guarantee that our common stock will appreciate or maintain its current price. You could lose the entire value of your investment in our common stock.

**Item 1B.** ***Unresolved Staff Comments***

None.

**Item 2.** ***Properties***

In 2001, we acquired a facility in Danbury, Connecticut that included two buildings comprising approximately 190,000 square feet encompassing 17.5 acres. In September 2008, we completed the construction of approximately 140,000 square feet of new manufacturing space providing us with two buildings totaling approximately 328,000 square feet, housing our research and development, administrative and manufacturing functions, for AFREZZA, filling and packaging. We believe the Danbury facility will have sufficient space to satisfy potential commercial demand for the launch of AFREZZA and, with the expansion completed, the first few years thereafter for AFREZZA and other AFREZZA-related products.

We own and occupy approximately 142,000 square feet of laboratory, office and warehouse space in Valencia, California. The facility contains our principal executive offices and houses our research and development laboratories for our cancer and other programs. We also use this facility to provide support for the development of our AFREZZA programs.

Our obligations under the Facility Agreement and the Milestone Agreement are secured by certain mortgages on our facilities in Danbury, Connecticut and Valencia, California.

We lease approximately 23,000 square feet of office space in Paramus, New Jersey pursuant to a lease that expires in May 2014. The facility houses our medical, regulatory affairs, clinical operations and administrative staff.

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**Item 3.** ***Legal Proceedings***

We are subject to legal proceedings and claims which arise in the ordinary course of our business. As of the date hereof, we believe that the final disposition of such matters will not have a material adverse effect on our financial position, results of operations or cash flows. We maintain liability insurance coverage to protect our assets from losses arising out of or involving activities associated with ongoing and normal business operations.

**Item 4.** ***Mine Safety Disclosures***

Not applicable.

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## PART II

**Item 5.** ***Market for the Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities***

**Common Stock Market Price**

Our common stock has been traded on the NASDAQ Global Market under the symbol MNKD since July 28, 2004. The following table sets forth for the quarterly periods indicated, the high and low sales prices for our common stock as reported by the NASDAQ Global Market.

| | High | Low |
|---|---|---|
| Year ended December 31, 2012 | | |
| First quarter | $ 3.48 | $ 2.14 |
| Second quarter | $ 2.49 | $ 1.57 |
| Third quarter | $ 3.11 | $ 2.02 |
| Fourth quarter | $ 2.91 | $ 1.82 |
| Year ended December 31, 2013 | | |
| First quarter | $ 3.67 | $ 2.32 |
| Second quarter | $ 8.06 | $ 3.39 |
| Third quarter | $ 8.70 | $ 5.37 |
| Fourth quarter | $ 5.84 | $ 4.21 |

The closing sales price of our common stock on the NASDAQ Global Market was $5.58 on February 17, 2014 and there were 199 registered holders of record as of that date.

**Performance Measurement Comparison**

*The material in this section is not soliciting material, is not deemed filed with the SEC and shall not be incorporated by reference by any general statement incorporating by reference this Annual Report on Form 10-K into any of our filings under the Securities Act, or the Exchange Act, except to the extent we specifically incorporate this section by reference.*

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**Performance Measurement Comparison**

The following graph illustrates a comparison of the cumulative total stockholder return (change in stock price plus reinvested dividends) of our common stock with (i) the NASDAQ Composite Index and (ii) the NASDAQ Biotechnology Index. The comparisons in the graph are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock.

Assumes a $100 investment, on December 31, 2008, in (i) our common stock, (ii) the securities comprising the NASDAQ Composite Index and (iii) the securities comprising the NASDAQ Biotechnology Index.

**Dividend Policy**

We have never declared or paid any cash dividends on our common stock. We currently intend to retain all available funds and any future earnings for use in the operation and expansion of our business. Accordingly, we do not anticipate paying any cash dividends on our common stock in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors. In addition, under the terms of the Facility Agreement, we are restricted from distributing any of our assets or declaring and distributing a dividend to our stockholders.

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**Item 6.** ***Selected Financial Data***

The following selected consolidated financial data should be read in conjunction with our consolidated financial statements and notes thereto and with Management s Discussion and Analysis of Financial Condition and Results of Operations, which are included elsewhere in this Annual Report on Form 10-K. The selected financial data included in this section are not intended to replace our audited financial statements and the related notes included elsewhere in this annual report.

| | Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| **Statement of Operations Data:** | **2009** | **2010** | **2011** | **2012** | **2013** |
| | (In thousands, except per share amounts) | | | | |
| Revenue | $ | $ 93 | $ 50 | $ 35 | $ |
| Operating expenses: | | | | | |
| Research and development | 156,331 | 112,279 | 99,959 | 101,522 | 109,719 |
| General and administrative | 53,447 | 40,312 | 40,630 | 45,473 | 59,682 |
| Total operating expenses | 209,778 | 152,591 | 140,589 | 146,995 | 169,401 |
| Loss from operations | (209,778) | (152,498) | (140,539) | (146,960) | (169,401) |
| Other income (expense) | 51 | (725) | 1,541 | (1,191) | (635) |
| Interest expense on note payable to principal stockholder | (5,679) | (10,249) | (10,883) | (10,491) | (6,309) |
| Interest expense on senior convertible notes | (4,768) | (7,128) | (10,941) | (11,139) | (15,153) |
| Interest income | 70 | 40 | 18 | 7 | 8 |
| Loss before provision for income taxes | (220,104) | (170,560) | (160,804) | (169,774) | (191,490) |
| Income taxes | | | | 408 | |
| Net loss applicable to common stockholders | $ (220,104) | $ (170,560) | $ (160,804) | $ (169,366) | $ (191,490) |
| Basic and diluted net loss per share | $ (2.07) | $ (1.50) | $ (1.32) | $ (.94) | $ (0.64) |
| Shares used to compute basic and diluted net loss per share | 106,534 | 113,672 | 121,817 | 180,855 | 299,591 |

| | December 31, | | | | |
|---|---|---|---|---|---|
| **Balance Sheet Data:** | **2009** | **2010** | **2011** | **2012** | **2013** |
| | (In thousands) | | | | |
| Cash and cash equivalents | $ 30,019 | $ 66,061 | $ 2,681 | $ 61,840 | $ 70,790 |
| Total assets | 247,397 | 277,256 | 199,553 | 251,314 | 258,646 |
| Senior convertible notes | 112,765 | 209,335 | 210,642 | 212,026 | 98,439 |
| Facility financing obligation | | | | | 102,300 |
| Note payable to our principal stockholder | 165,000 | 235,319 | 277,203 | 119,635 | 49,521 |
| Deficit accumulated during the development stage | (1,604,182) | (1,774,742) | (1,935,546) | (2,104,912) | (2,296,402) |
| Total stockholders equity (deficit) | (59,221) | (185,532) | (313,652) | (110,679) | (30,713) |

**Item 7.** ***Management s Discussion and Analysis of Financial Condition and Results of Operations***

The following discussion of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and notes thereto included in this Annual Report on Form 10-K.

**OVERVIEW**

We are a biopharmaceutical company focused on the discovery and development of therapeutic products for diseases such as diabetes. Our lead product candidate, AFREZZA, is an ultra rapid-acting insulin therapy that is intended to improve glycemic control in adults with type 1 or type 2 diabetes.

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We are a development stage enterprise and have incurred significant losses since our inception in 1991. As of December 31, 2013, we have incurred a cumulative net loss of $2.3 billion and a stockholders deficit of $30.7 million. We incurred net losses of approximately $160.8 million, $169.4 million and $191.5 million in the years ended December 31, 2011, 2012 and 2013, respectively. To date, we have not generated any product revenues and have funded our operations through the sale of equity securities and convertible debt securities, the Facility Agreement, and borrowings under a loan arrangement provided by our principal stockholder, or the Loan Arrangement. As discussed below in Liquidity and Capital Resources, if we are unable to obtain additional funding in the future, there will continue to be substantial doubt about our ability to continue as a going concern.

We do not expect to record sales of any product prior to regulatory approval and commercialization of AFREZZA. We currently do not have the required approvals to market any of our product candidates, and we may not receive such approvals. We may not be able to achieve positive cash flow from operations even if we succeed in commercializing any of our product candidates. We expect to make substantial expenditures and to incur additional operating losses for at least the next several years as we:

- continue the clinical development of AFREZZA and new inhalation systems for the treatment of diabetes;
- seek regulatory approval to sell AFREZZA in the United States and other markets;
- seek development and commercialization collaborations for AFREZZA; and
- develop additional applications of our proprietary Technosphere formulation technology for the pulmonary delivery of other drugs.

Our business is subject to significant risks, including but not limited to the risks inherent in our ongoing clinical trials and the regulatory approval process, our potential inability to enter into sales and marketing collaborations or to commercialize AFREZZA in a timely manner. Additional significant risks also include the results of our research and development efforts, competition from other products and technologies and uncertainties associated with obtaining and enforcing patent rights.

**RESEARCH AND DEVELOPMENT EXPENSES**

Our research and development expenses consist mainly of costs associated with the clinical trials of our product candidates that have not yet received regulatory approval for marketing and for which no alternative future use has been identified. This includes the salaries, benefits and stock-based compensation of research and development personnel, raw materials, such as insulin purchases, laboratory supplies and materials, facility costs, costs for consultants and related contract research, licensing fees, and depreciation of equipment. We track research and development costs by the type of cost incurred. We partially offset research and development expenses with the recognition of estimated amounts receivable from the State of Connecticut pursuant to a program under which we can exchange qualified research and development income tax credits for cash.

Our research and development staff conducts our internal research and development activities, which include research, product development, clinical development, manufacturing and related activities. This staff is located in our facilities in Valencia, California; Paramus, New Jersey; and Danbury, Connecticut. We expense research and development costs as we incur them.

Clinical development timelines, likelihood of success and total costs vary widely. We are focused on advancing AFREZZA through regulatory filings.

At this time, due to the risks inherent in the clinical trial process and given the early stage of development of our product candidates other than AFREZZA, we are unable to estimate with any certainty the costs that we will incur in the continued development of our product candidates for commercialization. The costs required to complete the development of AFREZZA will be largely dependent on the cost and efficiency of our clinical trial operations and discussions with the FDA regarding its requirements.

During the first quarter of 2011, we implemented a restructuring to streamline operations, reduce operating expenses, extend our cash runway and focus our resources on securing FDA approval of the NDA for AFREZZA. In connection with the restructuring, we recorded charges to research and development expenses of

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approximately $4.7 million for employee severance and other related termination benefits. The restructuring resulted in research and development operating cost savings of approximately $9.5 million in 2011. These savings were partially offset by increased costs associated with the additional trials required by the FDA.

**GENERAL AND ADMINISTRATIVE EXPENSES**

Our general and administrative expenses are driven by salaries, benefits and stock-based compensation for administrative, finance, business development, human resources, legal and information systems support personnel. In addition, general and administrative expenses include professional service fees and business insurance costs.

In connection with the restructuring, we recorded charges to general and administrative expenses of approximately $1.6 million for employee severance and other related termination benefits. The restructuring resulted in general and administrative operating cost savings of approximately $2.8 million in 2011. These savings were offset by increased professional fees.

**CRITICAL ACCOUNTING POLICIES**

We have based our discussion and analysis of our financial condition and results of operations on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making estimates of expenses such as stock option expenses and judgments about the carrying values of assets and liabilities. Actual results may differ from these estimates under different assumptions or conditions. The significant accounting policies that are critical to the judgments and estimates used in the preparation of our financial statements are described in more detail below.

**Milestone Rights**

In connection with the execution of the Facility Agreement on July 1, 2013, we issued Milestone Rights to the Milestone Purchasers. The Milestone Rights provide the Milestone Purchasers certain rights to receive payments up to $90.0 million upon the occurrence of specified strategic and sales milestones, including the first commercial sale of an AFREZZA product, and the achievement of specified net sales figures. We analyzed the Milestone Rights under the provisions of Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, 815 *Derivatives and Hedging*, referred to as ASC 815, and determined that the instruments do not meet the definition of a freestanding derivative. Since we have not elected to apply the fair value option to the Milestone Rights, we have recorded the Milestone Rights at their estimated fair value and accounted for the Milestone Rights as a liability by applying the indexed debt guidance contained in paragraphs ASC 470-10-25-3 and 35-4.

The initial fair value estimate of the Milestone Rights was calculated using the income approach in which the cash flows associated with the specified contractual payments were adjusted for both the expected timing and the probability of achieving the milestones and discounted to present value using a selected market discount rate. The expected timing and probability of achieving the milestones was developed with consideration given to both internal data, such as progress made to date and assessment of criteria required for achievement, and external data, such as market research studies. The discount rate was selected based on an estimation of required rate of returns for similar investment opportunities using available market data.

The Milestone Rights liability will be remeasured as the specified milestone events are achieved. Specifically, as each milestone event is achieved, the portion of the initially recorded Milestone Rights liability that pertains to such milestone event being achieved, will be remeasured to the amount of the specified related milestone payment. The resulting change in the balance of the Milestone Rights liability due to remeasurement will be recorded in our Statement of Operations as interest expense. Furthermore, the Milestone Rights liability will be

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reduced upon each milestone payment being paid. As a result, each milestone payment would be effectively allocated between a reduction of the recorded Milestone Rights liability and an expense representing a return on a portion of the Milestone Rights liability paid to the investor for the achievement of the related milestone event.

**Commitment Asset**

In connection with the issuance of the first tranche of the 2019 notes and the Milestone Rights, we recorded a commitment asset, or the Commitment Asset, on July 1, 2013. The Commitment Asset represents the right to receive additional funding under future tranches of 2019 notes pursuant to the Facility Agreement. The initial value of the Commitment Asset was calculated using the income approach by estimating the fair value of the future tranches using a market debt rate commensurate with the risk of the future tranches and the fair value of the cash expected to be received by us and by assessing the probability of the commitments being funded in the future based on the operational hurdles required for funding being met. The Commitment Asset attributable to each future tranche of 2019 notes under the Facility Agreement is derecognized and recorded as a debt discount on the 2019 notes when issued. The debt discount is amortized using the effective interest rate method over the life of the 2019 notes. Prior to derecognition occurring, we monitor the Commitment Asset on an ongoing basis to determine whether an impairment indicator is present that would result in a full or partial write down of the Commitment Asset as a result of events that may lead to the subsequent tranches of 2019 notes not being issued. Based on the monitoring procedures performed through December 31, 2013, we did not identify any indicators of impairment.

**Impairment of Long-Lived Assets**

Assessing long-lived assets for impairment requires us to make assumptions and judgments regarding the carrying value of these assets. We evaluate long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The assets are considered to be impaired if we determine that the carrying value may not be recoverable based upon our assessment of the following events or changes in circumstances:

- significant changes in our strategic business objectives and utilization of the assets;
- a determination that the carrying value of such assets cannot be recovered through undiscounted cash flows;
- loss of legal ownership or title to the assets;
- a significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset (asset group), including an adverse action or assessment by a regulator; or
- the impact of significant negative industry or economic trends.

If we believe our assets to be impaired, the impairment we recognize is the amount by which the carrying value of the assets exceeds the fair value of the assets. Any write-downs would be treated as permanent reductions in the carrying amount of the asset and an operating loss would be recognized. In addition, we base the useful lives and related amortization or depreciation expense on our estimate of the useful lives of the assets. If a change were to occur in any of the above-mentioned factors or estimates, our reported results could materially change.

To date, we have had recurring operating losses, and the recoverability of our long-lived assets is contingent upon executing our business plan. If we are unable to execute our business plan, we may be required to write down the value of our long-lived assets in future periods.

**Clinical Trial Expenses**

Our clinical trial accrual process seeks to account for expenses resulting from our obligations under contract with vendors, consultants, and clinical site agreements in connection with conducting clinical trials. The financial terms of these contracts are subject to negotiations which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided to us

under such

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contracts. Our objective is to reflect the appropriate trial expenses in our financial statements by matching period expenses with period services and efforts expended. We account for these expenses according to the progress of the trial as measured by patient progression and the timing of various aspects of the trial. We determine accrual estimates through discussions with internal clinical personnel and outside service providers as to the progress or state of completion of trials, or the services completed. Service provider status is then compared to the contractual obligated fee to be paid for such services. During the course of a clinical trial, we adjust our rate of clinical expense recognition if actual results differ from our estimates. In the event that we do not identify certain costs that have begun to be incurred or we underestimate or overestimate the level of services performed or the costs of such services, our reported expenses for a period would be too low or too high. The date on which certain services commence, the level of services performed on or before a given date and the cost of the services are often judgmental. We make these judgments based upon the facts and circumstances known to us in accordance with generally accepted accounting principles.

Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in our reporting amounts that are too high or too low for any particular period.

**Stock-Based Compensation**

We account for stock-based compensation in accordance with ASC 718 *Compensation- Stock Compensation*. ASC 718 requires all share-based payments to employees, including grants of stock options, restricted stock units, performance-based awards and the compensatory elements of employee stock purchase plans, to be recognized in the income statement based upon the fair value of the awards at the grant date. We use the Black-Scholes option valuation model to estimate the grant date fair value of employee stock options and the compensatory elements of employee stock purchase plans. Restricted stock units are valued based on the market price on the grant date. We evaluate stock awards with performance conditions as to the probability that the performance conditions will be met and estimate the date at which the performance conditions will be met in order to properly recognize stock-based compensation expense over the requisite service period. As of December 31, 2013, we had $107,108 and $3.7 million of unrecognized expenses related to performance-based options and restricted stock units, respectively, for milestones where achievement was not considered probable.

**Forward Contracts**

In February and October 2012, we entered into agreements with The Mann Group whereby we agreed to sell and The Mann Group agreed to purchase common stock and/or warrants. These agreements have been accounted for as forward contracts, having met the definition of derivative instruments in accordance with the provisions of ASC 815. We determine the fair value of the forward contract upon its issuance, record fair value adjustments of the forward contract to Other income (expense) during the reporting period and through the settlement of the forward contract, and reclassify the forward contract to equity upon settlement of the forward contract. The fair value of the forward purchase contract is highly sensitive to the discount applied for lack of marketability and the stock price, and changes in this discount and/or the stock price could cause the value of the forward purchase contract to change significantly.

**Accounting for Income Taxes**

We must make management judgments when determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against our net deferred tax assets. At December 31, 2013, we have established a valuation allowance of $817.0 million against all of our net deferred tax asset balance, due to uncertainties related to the realizability of our deferred tax assets as a result of our history of operating losses. The valuation allowance is based on our estimates of taxable income by jurisdiction in which we operate and the period over which our deferred tax assets will be recoverable. In the event that actual results differ from these estimates or we adjust these estimates in future periods, we may need to change the valuation allowance, which could materially impact our financial position and results of operations.

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**RESULTS OF OPERATIONS**

**Years ended December 31, 2012 and 2013**

**Revenues**

During the year ended December 31, 2012, we recognized $35,000 in revenue under a license agreement, and during the year ended December 31, 2013, we recognized no revenue. We do not anticipate sales of any product prior to regulatory approval and commercialization of AFREZZA.

**Research and Development Expenses**

The following table provides a comparison of the research and development expense categories for the years ended December 31, 2012 and 2013 (dollars in thousands):

| | Year Ended December 31, | | | |
|---|---|---|---|---|
| | 2012 | 2013 | $ Change | % Change |
| Clinical | $ 47,936 | $ 42,711 | $ (5,225) | (11)% |
| Manufacturing | 40,094 | 40,530 | 436 | 1% |
| Research | 7,614 | 6,351 | (1,263) | (17)% |
| Research and development tax credit | (289) | (282) | 7 | (2)% |
| Stock-based compensation expense | 6,167 | 20,409 | 14,242 | 231% |
| Research and development expenses | $ 101,522 | $ 109,719 | $ 8,197 | 8% |

The increase in research and development expenses for the year ended December 31, 2013 compared to the year ended December 31, 2012, was driven by an increase in stock-based compensation expense of $14.2 million in connection with company-wide performance-based grants in the first and second quarters of 2013, as well as a full year of expense from grants in early 2012, and the achievement of predetermined milestones in the fourth quarter of 2013. This increase is offset by a decrease of $5.2 million in clinical study related expenses from the completion of two Phase 3 studies in the second quarter of 2013, and $1.3 million in reduced research expenses resulting from the positive effect of our cost cutting measures in addition to decreasing efforts in other non-AFREZZA related research as we focused on our primary objective of gaining approval of AFREZZA.

We anticipate that our overall research and development expenses will increase in 2014 compared to 2013 due to the preparation for commercialization of AFREZZA.

**General and Administrative Expenses**

The following table provides a comparison of the general and administrative expense categories for the years ended December 31, 2012 and 2013 (dollars in thousands):

| | Year Ended December 31, | | | |
|---|---|---|---|---|
| | 2012 | 2013 | $ Change | % Change |
| Salaries, employee related and other general expenses | $ 38,348 | $ 34,905 | $ (3,443) | (9)% |
| Stock-based compensation expense | 7,125 | 24,777 | 17,652 | 248% |
| General and administrative expenses | $ 45,473 | $ 59,682 | $ 14,209 | 31% |

General and administrative expenses for the year ended December 31, 2013 increased as compared to the prior year driven by an increase in stock-based compensation expense of $17.7 million in connection with company-wide performance-based grants to all employees, in the first and second quarters of 2013, as well as a full year of expense from grants in early 2012, and the achievement of predetermined milestones in the

fourth quarter of 2013. This increase was partially offset by a $4.2 million decrease in legal and professional fees.

We expect general and administrative expenses to be higher in 2014 as compared to 2013 due to increased stock compensation expense.

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**Other Income (Expense)**

Other expense for the year ended December 31, 2013 was $0.6 million as compared to other expense of $1.2 million for the year ended December 31, 2012. In 2013, other expense reflects the loss on conversion of debt to equity at the end of 2013 related to the conversion by Deerfield in accordance with the Facility Agreement. In 2012, other expense reflects the adjustment in fair value of forward purchase contracts with our principal stockholder.

**Interest Income and Expense**

Interest expense for the year ended December 31, 2013 was relatively consistent compared to the year ended December 31, 2012, due to lower interest expense on our note payable to our principal stockholder in 2013 due to a lower carrying value being offset by higher interest expense associated with the 2019 notes issued in 2013.

**Years ended December 31, 2011 and 2012**

**Revenues**

During the years ended December 31, 2011 and December 31, 2012, we recognized $50,000 and $35,000, respectively, in revenue under a license agreement.

**Research and Development Expenses**

The following table provides a comparison of the research and development expense categories for the years ended December 31, 2011 and 2012 (dollars in thousands):

| | Year Ended December 31, | | | |
|---|---|---|---|---|
| | 2011 | 2012 | $ Change | % Change |
| Clinical | $ 25,280 | $ 47,936 | $ 22,656 | 90% |
| Manufacturing | 58,523 | 40,094 | (18,429) | (31)% |
| Research | 11,399 | 7,614 | (3,785) | (33)% |
| Research and development tax credit | (609) | (289) | 320 | (53)% |
| Stock-based compensation expense | 5,366 | 6,167 | 801 | 15% |
| Research and development expenses | $ 99,959 | $ 101,522 | $ 1,563 | 2% |

The increase in research and development expenses for the year ended December 31, 2012 compared to the year ended December 31, 2011, was due to $24.9 million of increased clinical trial related expenses in connection with studies 171 and 175 conducted in 2012 and increased clinical distribution costs in support of our clinical trials, offset by the non-recurring $16.0 million expense recorded in 2011 related to our termination of the Supply Agreement with Organon and receipt of insulin, decreased salary related expenses of $8.6 million due to the February 2011 restructuring as well as the positive effect of our cost cutting measures on operating expenses.

In 2012, clinical trial related expenses increased $24.9 million in connection with studies 171 and 175 subsequent to completion of enrollment in the end of September and early October of 2012, partially offset by $2.1 million in salary related cost savings resulting from the February 2011 reduction in force. In 2012, manufacturing expenses decreased as no insulin purchases were made subsequent to the termination of the Supply Agreement in 2011. In 2011, we paid $16.0 million in connection with the settlement of the dispute arising from our termination of the Supply Agreement. Additionally, the February 2011 reduction in force resulted in $4.3 million in salary related manufacturing cost savings partially offset by increased clinical distribution costs in support of our clinical trials. Decreased salary related expenses of $2.2 million resulting from the February 2011 reduction in force and $0.9 million in reduced purchased services contributed to decreased research expenses in 2012.

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**General and Administrative Expenses**

The following table provides a comparison of the general and administrative expense categories for the years ended December 31, 2011 and 2012 (dollars in thousands):

| | Year Ended December 31, | | | |
|---|---|---|---|---|
| | 2011 | 2012 | $ Change | % Change |
| Salaries, employee related and other general expenses | $ 34,792 | $ 38,348 | $ 3,556 | 10% |
| Stock-based compensation expense | 5,838 | 7,125 | 1,287 | 22% |
| General and administrative expenses | $ 40,630 | $ 45,473 | $ 4,843 | 12% |

General and administrative expenses for the year ended December 31, 2012 increased as compared to the prior year due to a litigation settlement charge of $6.5 million, increased stock-based compensation expense of $1.3 million resulting from special awards issued to employees, partially offset by decreased salary related costs of $2.6 million as a result of the February 2011 reduction in force.

**Other Income (Expense)**

Other expense for the year ended December 31, 2012 was $1.2 million as compared to other income of $1.5 million for the year ended December 31, 2011. In 2012, other expense reflects the adjustment in fair value of forward purchase contracts with our principal stockholder. In 2011, other income is comprised of realized gains of $1.3 million on the termination of foreign exchange hedging contracts related to the Supply Agreement with Organon. We terminated these contracts in the first quarter of 2011.

**Interest Income and Expense**

Interest expense for the year ended December 31, 2012 increased compared to the year ended December 31, 2011, due to the interest expense associated with additional principal drawn down and capitalization of accrued interest to principal in 2012 under a loan arrangement with The Mann Group.

**LIQUIDITY AND CAPITAL RESOURCES**

We have funded our operations through the sale of equity securities and convertible debt securities and borrowings under a loan arrangement with The Mann Group.

In October 2007, we entered into a $350.0 million loan arrangement with our principal stockholder, or the Loan Arrangement. In February 2009, as a result of our principal stockholder being licensed as a finance lender under the California Finance Lenders Law, the promissory note underlying the Loan Arrangement was revised to reflect the lender as The Mann Group LLC, an entity controlled by our principal stockholder. Until January 1, 2013, interest on outstanding principal amounts accrued at a fixed rate equal to the one-year London Interbank Offered Rate (LIBOR) rate as reported by the *Wall Street Journal* on the date of such advance plus 3% per annum. Based on the amended terms of the agreement, the rate was fixed at 5.84% going forward. We amended the promissory note underlying the Loan Arrangement on October 31, 2013 to extend the maturity date to January 5, 2020 and extend the date through which we can borrow under the promissory note to December 31, 2019. We also increased the aggregate borrowing amount under the Loan Arrangement from $350.0 million to $370.0 million but provided that repayments or cancellations of principal under the Loan Arrangement will not be available for reborrowing.

As of December 31, 2013, the total principal amount outstanding under the Loan Arrangement was $49.5 million, and the amount available for future borrowings was $30.1 million. We anticipate using a portion of these available borrowings to capitalize into principal, upon mutual agreement of the parties, accrued interest as it becomes due and payable under the Loan Arrangement. Interest is due and payable quarterly in arrears on the first day of each calendar quarter for the preceding quarter, or at such other time as we and The Mann Group mutually agree. All or any portion of accrued and unpaid interest that becomes due and payable may be paid-in-kind and capitalized at any time upon mutual agreement of both parties. The Mann Group can require us to

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prepay up to $200.0 million in advances that have been outstanding for at least 12 months (less approximately $105.0 million aggregate principal amount that was cancelled in connection with two common stock purchase agreements). If The Mann Group exercises its right to require prepayment, we will have 90 days after The Mann Group provides written notice (or the number of days to maturity of the note if less than 90 days) to prepay such advances. However, pursuant to a letter agreement entered into in August 2010, The Mann Group has agreed to not require us to prepay amounts outstanding under the amended and restated promissory note if the prepayment would require us to use our working capital resources. In addition, The Mann Group entered into a subordination agreement with Deerfield pursuant to which The Mann Group agreed with Deerfield not to demand or accept any payment under the Loan Arrangement until our payment obligations to Deerfield under the Facility Agreement have been satisfied in full. Subject to the foregoing, in the event of a default under our loan arrangement with The Mann Group, all unpaid principal and interest either becomes immediately due and payable or may be accelerated at The Mann Group s option, and the interest rate will increase to the one-year LIBOR rate calculated on the date of the initial advance or in effect on the date of default, whichever is greater, plus 5% per annum. All borrowings under the Loan Arrangement are unsecured. The Loan Arrangement contains no financial covenants. There are no warrants associated with the Loan Arrangement.

On March 18, 2013, we entered into at-the-market issuance sales agreements with two sales agents, under which we were permitted to issue and sell shares of our common stock having an aggregate offering price of up to $50.0 million under each sales agreement (provided that in no event were we permitted to issue and sell more than $50.0 million of shares of our common stock under both agreements in the aggregate) from time to time through either of the sales agents. As of December 31, 2013, we sold $48.9 million in common stock through these sales agreements, net of fees, and no further sales under these agreements will be made.

On July 1, 2013, we entered into the Facility Agreement with Deerfield, providing for the sale of up to $160.0 million of 2019 notes to Deerfield in four equal tranches of $40.0 million principal amount. In connection with the Facility Agreement, on July 1, 2013 we also issued the Milestone Rights to the Milestone Purchasers. The Milestone Rights provide Milestone Purchasers certain rights to receive payments of up to $90.0 million upon the occurrence of specified strategic and sales milestones including the first commercial sale of an AFREZZA product and the achievement of specified net sales figures.

On July 1, 2013, Deerfield purchased the first tranche of 2019 notes and the Milestone Rights for an aggregate of $40.0 million. The closing of the second tranche of 2019 notes, which was subject to achievement and reporting of certain results from our two Phase 3 clinical studies of AFREZZA, occurred on September 5, 2013. The closing of the third tranche of 2019 notes occurred in connection with the repayment of our 3.75% Senior Convertible notes due 2013, or the 2013 notes, on December 9, 2013. There can be no assurance that the conditions required for the purchase of the fourth tranche of 2019 notes will be met or met in a timeframe necessary to support our liquidity needs.

On February 28, 2014, we amended our existing facility agreement to provide for the issuance of tranche B notes to Deerfield in a maximum aggregate principal amount equal to (x) if the FDA approves the NDA for AFFREZZA and Deerfield purchases the fourth tranche of 2019 notes originally issuable pursuant to the Facility Agreement, 150% of the aggregate principal amount of 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $90.0 million, and (y) otherwise, 33.33% of the aggregate principal amount of 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $20.0 million, in each case subject to the satisfaction of certain other conditions. The amended Facility Agreement also provides that, subject to certain limitations, Deerfield may convert up to an additional $60.0 million of the 2019 notes issued and outstanding on the date of the amendment into shares of our common stock following the effective date of the amendment. There can be no assurance that the conditions required for the purchase of additional 2019 notes pursuant to the amendment will be met or met or met in a timeframe necessary to support our liquidity needs.

On March 3, 2014, we entered into the ATM Agreements, under which we may issue or sell shares of our common stock having an aggregate offering price of up to $50.0 million from time to time through MLV or Brinson Patrick, as our sales agents. We expect that all or substantially all sales of common stock made under the ATM Agreements will be made in at the market offerings as defined in Rule 415 of the Securities Act. We

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have not yet sold or issued any shares of our common stock under the ATM Agreements. There can be no assurance that we will be able to access capital through the ATM Agreements on a timely basis, or at all.

During the year ended December 31, 2013, we used $128.7 million of cash for our operations and had a net loss of $191.5 million, which included $59.2 million of non-cash charges consisting of depreciation and accretion, and stock-based compensation. By comparison, during the year ended December 31, 2012, we used $119.9 million of cash for our operations and had a net loss of $169.4 million, which included $36.2 million of non-cash charges consisting of depreciation and accretion, stock-based compensation, fair value of forward purchase contracts and common stock issued pursuant to litigation settlement. The operating cash flow decreased by $10.6 million due to decreases in the following: accrued expenses associated with the clinical trials, accrued interest associated with our loan arrangement with The Mann Group due to the capitalization of the outstanding balance in October 2013, and accrued expenses related to equipment in 2013. As a result, cash used for operations for the year ended December 31, 2013 increased by $8.9 million compared to the prior year. We expect our negative operating cash flow to continue at least until we obtain regulatory approval and achieve commercialization of AFREZZA.

During the year ended December 31, 2013 we used $8.0 million of cash for investing activities, compared to $0.6 million of cash used for the year ended December 31, 2012. The increase of $7.4 million from prior year is due to the purchased $8.0 million of machinery and equipment to expand our manufacturing operations and our quality systems that support clinical trials for AFREZZA in the current year, as compared to $0.6 million of machinery and equipment purchased in 2012.

Our financing activities generated $145.7 million of cash for the year ended December 31, 2013, as compared to $179.6 million for the year ended December 31, 2012. For the year ended December 31, 2013, cash provided by financing activities was from $119.5 million in proceeds received from the issuance of the 2019 notes and the Milestone Rights and $94.2 million in net proceeds from the warrants exercised. Additionally, there were $48.9 million in net proceeds from use of our prior at-the-market issuance sales agreements. On December 15, 2013, we paid $115.0 million to repay the 2013 notes upon maturity. For the year ended December 31, 2012, cash from financing activities include $167.7 million in net proceeds from the sale of common stock during the first and fourth quarter and $12.8 million in borrowings from The Mann Group.

As of December 31, 2013, we had $70.8 million in cash and cash equivalents. We believe that our existing capital resources will enable us to continue planned operations at least into the third quarter of 2014. However, we cannot provide assurances that our plans will not change or that changed circumstances will not result in the depletion of the capital resources more rapidly than we currently anticipate. We will need to raise additional capital, whether through a sale of equity or debt securities, a strategic business collaboration with a pharmaceutical company, the establishment of other funding facilities, licensing arrangements, asset sales or other means, in order to continue the development and commercialization of AFREZZA and other product candidates and to support our other ongoing activities. However, we cannot provide assurances that such additional capital will be available whether through the sale of equity or debt securities, a strategic business collaboration with a pharmaceutical company, the establishment of other funding facilities, licensing arrangements, asset sales or other means.

We intend to use our capital resources to continue the development and commercialization of AFREZZA, if approved. We are expending a portion of our capital to scale up our manufacturing capabilities in our Danbury facilities. We also intend to use our capital resources for general corporate purposes.

We have held extensive discussions with a number of pharmaceutical companies concerning a potential strategic business collaboration for AFREZZA. We cannot predict when, if ever, we could conclude an agreement with a partner. There can be no assurance that any such collaboration will be available to us on a timely basis or on acceptable terms, if at all.

If we enter into a strategic business collaboration with a pharmaceutical or biotechnology company, we would expect, as part of the transaction, to receive additional capital. In addition, we expect to pursue the sale of equity and/or debt securities, including sales of our common stock through the ATM Agreements, or the establishment of other funding facilities. Issuances of debt or additional equity could impact the rights of our existing stockholders, dilute the ownership percentages of our existing stockholders and may impose restrictions on our

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operations. These restrictions could include limitations on additional borrowing, specific restrictions on the use of our assets as well as prohibitions on our ability to create liens, pay dividends, redeem our stock or make investments. We also may seek to raise additional capital by pursuing opportunities for the licensing, sale or divestiture of certain intellectual property and other assets, including our Technosphere technology platform. There can be no assurance, however, that any strategic collaboration, sale of securities or sale or license of assets will be available to us on a timely basis or on acceptable terms, if at all. If we are unable to raise additional capital, we may be required to enter into agreements with third parties to develop or commercialize products or technologies that we otherwise would have sought to develop independently, and any such agreements may not be on terms as commercially favorable to us.

However, we cannot provide assurances that our plans will not change or that changed circumstances will not result in the depletion of our capital resources more rapidly than we currently anticipate. If planned operating results are not achieved or we are not successful in raising additional capital through equity or debt financing or entering a business collaboration, we may be required to reduce expenses through the delay, reduction or curtailment of our projects, including AFREZZA development activities, or further reduction of costs for facilities and administration, and there will continue to be substantial doubt about our ability to continue as a going concern.

**Off-Balance Sheet Arrangements**

As of December 31, 2013, we did not have any off-balance sheet arrangements.

**COMMITMENTS AND CONTINGENCIES**

Our contractual obligations represent future cash commitments and liabilities under agreements with third parties, and exclude contingent liabilities for which we cannot reasonably predict future payments. Accordingly, the table below excludes contractual obligations relating to milestone and royalty payments due to third parties, all of which are contingent upon certain future events. The expected timing of payment of the obligations presented (excluding payments in respect of the Milestone Rights) below are estimated based on current information. Future payments relate to operating lease obligations, the senior convertible notes, and open purchase order and supply commitments consisted of the following at December 31, 2013 (in thousands):

| | Payments Due in | | | | |
|---|---|---|---|---|---|
| **Contractual Obligations** | **Less Than One Year** | **1-3 Years** | **3-5 Years** | **More Than 5 Years** | **Total** |
| Open purchase order and supply commitments(1) | $ 23,991 | $ 7,470 | $ 600 | $ | $ 32,061 |
| 2015 notes(2) | 5,750 | 103,610 | | | 109,360 |
| Note payable to principal stockholder(3) | 2,894 | 8,689 | 55,554 | | 67,137 |
| Facility financing obligation(4) | 11,066 | 85,594 | 63,431 | | 160,091 |
| Operating lease obligations | 326 | 73 | | | 399 |
| Total contractual obligations | $ 44,027 | $ 205,436 | $ 119,585 | $ | $ 369,048 |

(1) The amounts included in open purchase order and supply commitments are subject to performance under the purchase order or contract by the supplier of the goods or services and do not become our obligation until such performance is rendered. The amount shown is principally for the purchase of materials for our clinical trials, the acquisition of manufacturing equipment, and commitments related to the expansion of our manufacturing plant.

(2) The amounts include future interest payments at fixed rates of 5.75% and payment of the notes in full upon maturity in 2015.

(3) The obligation for the note payable to the principal stockholder includes future principal and interest payments related to the $49.5 million of borrowings as of December 31, 2013. Interest is paid based on a fixed rate equal to the one-year LIBOR rate on December 31, 2013 plus 5% and the outstanding principal amount and all accrued interest thereon will be due on January 5, 2020.

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(4) The facility financing obligation includes the first three tranches of the 2019 notes sold to Deerfield pursuant to the Facility Agreement, in an aggregate principal amount of $120.0 million, and future interest payments at fixed rates of 9.75% and required amortization payments of the 2019 notes as specified in the Facility Agreement. The calculation takes into account the conversion of $6.5 million of principal amount of 2019 notes into common stock in December 2013. In January 2014, an additional $33.5 million of principal was converted into common stock, consequently relieving us of that commitment and the interest associated with that portion of the 2019 notes.

**RELATED PARTY TRANSACTIONS**

For a description of our related party transactions see Note 6 Related-Party Arrangements in the notes to our financial statements.

**RECENT ACCOUNTING PRONOUNCEMENTS**

In February 2013, the FASB issued ASU 2013-02, *Comprehensive Income (Topic 220) Reporting of Amounts Reclassified out of Accumulated Other Comprehensive Income*. These amendments do not change the current requirements for reporting net income or other comprehensive income in the financial statements. These amendments provide for additional disclosure requirements for amounts reclassified out of accumulated other comprehensive income. These amendments are effective prospectively for interim and annual periods beginning after December 15, 2012. Early adoption is permitted. Effective January 1, 2013, we adopted the new requirements as set forth in ASU 2013-02 in the disclosure of comprehensive income on our consolidated financial statements. The adoption of the new requirements did not have a significant impact on our consolidated financial statements.

In July, 2013, the FASB ASU 2013-11, *Income Taxes (Topic 740): Presentation of an Unrecognized Tax Benefit when a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists (a consensus of the FASB Emerging Issues Task Force)*. The amendments in this ASU provide guidance on the financial statements presentation of an unrecognized tax benefit when a net operating loss carryforward, a similar tax loss, or a tax credit carryforward exists. An unrecognized tax benefit should be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, a similar tax loss, or a tax credit carryforward with certain exceptions, in which case such an unrecognized tax benefit should be presented in the financial statements as a liability. The amendments in this ASU do not require new recurring disclosures. The amendments in this ASU are effective for fiscal years, and interim periods within those years, beginning after December 15, 2013. We are evaluating the impact, if any, of the adoption of ASU 2013-11 will have on our consolidated financial statements.

**Item 7A.** ***Quantitative and Qualitative Disclosures About Market Risk***

We are exposed to market risk related to changes in interest rates impacting our short-term investment portfolio as well as the interest rate on the promissory note underlying our loan arrangement with The Mann Group. The interest rate on amounts borrowed under our loan arrangement with The Mann Group for the year ended December 31, 2013 was a fixed rate equal to 5.84%. As of December 31, 2013, the total principal amount outstanding under the Loan Arrangement was $49.5 million. We also have debt related to the 2015 notes at a fixed interest rate of 5.75% and debt related to the Facility Agreement at a fixed interest rate of 9.75%. Due to the fixed interest rates of our debt, we do not currently have any exposure to changes in our interest expense as a result of changes in interest rates. Our current policy requires us to maintain a highly liquid short-term investment portfolio consisting mainly of U.S. money market funds and investment-grade corporate, government and municipal debt. None of these investments are entered into for trading purposes. Our cash is deposited in and invested through highly rated financial institutions in North America. We continue to utilize our loan arrangement with The Mann Group to fund operations. As of December 31, 2013, the amount available for borrowing under our loan arrangement with The Mann Group was $30.1 million. If a 10% change in interest rates were to have occurred on December 31, 2013, this change would not have had a material effect on the value of our short-term investment portfolio or on our interest expense obligations with respect to outstanding borrowed amounts.

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**Item 8.** ***Financial Statements and Supplementary Data***

The information required by this Item is included in Items 15(a)(1) and (2) of Part IV of this Annual Report on Form 10-K.

**Item 9.** ***Changes in and Disagreements With Accountants on Accounting and Financial Disclosure***

None.

**Item 9A.** ***Controls and Procedures***

**Evaluation of Disclosure Controls and Procedures**

Our management, with the participation of our chief executive and financial officers, evaluated the effectiveness of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of December 31, 2013. The term disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2013, our chief executive officer and chief financial officer concluded that, as of such date, our disclosure controls and procedures were effective at a reasonable assurance level.

**Management s Report on Internal Control Over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act as a process designed by, or under the supervision of, a company s principal executive and principal financial officers and effected by a company s board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP. Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in *Internal Control Integrated Framework (1992)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework set forth in *Internal Control Integrated Framework (1992)*, our management concluded that our internal control over financial reporting was effective as of December 31, 2013. Deloitte & Touche LLP, the independent registered public accounting firm that audited the financial statements included in this 2013 Form 10-K, has issued an attestation report on our internal control over financial reporting as of December 31, 2013, which is included herein.

**Changes in Internal Control Over Financial Reporting**

There were no changes in our internal controls over financial reporting during the quarter ended December 31, 2013 identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that have materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Stockholders of MannKind Corporation

Valencia, California

We have audited the internal control over financial reporting of MannKind Corporation and subsidiaries (the Company ) as of December 31, 2013, based on criteria established in *Internal Control Integrated Framework (1992)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management s Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company s internal control over financial reporting is a process designed by, or under the supervision of, the company s principal executive and principal financial officers, or persons performing similar functions, and effected by the company s board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2013, based on the criteria established in *Internal Control Integrated Framework* (1992) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated financial statements as of and for the year ended December 31, 2013 of the Company and our report dated March 3, 2014 expressed an unqualified opinion on those financial statements and includes an explanatory paragraph relating to the Company s ability to continue as a going concern.

/s/ DELOITTE & TOUCHE LLP

Los Angeles, California

March 3, 2014

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**Item 9B.** ***Other Information.***

Deerfield Facility Amendment

On February 28, 2014, we entered into a First Amendment to Facility Agreement and Registration Rights Agreement with Deerfield to provide for the issuance pursuant to the Facility Agreement of tranche B notes to Deerfield in a maximum principal amount equal to (x) if the FDA approves the NDA for AFFREZZA and Deerfield purchased the fourth tranche of 2019 notes, 150% of the aggregate principal amount of the 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $90.0 million, and (y) otherwise, 33.33% of the aggregate principal amount of the 2019 notes that Deerfield has converted into our common stock on and after the effective date of the amendment, up to $20.0 million, in each case subject to the satisfaction of certain other conditions. Any tranche B notes, if and when issued, would bear interest at the rate of 9.75% per year, subject to reduction to 8.75% if we enter into a collaboration with a third party to commercialize AFFREZZA, on the outstanding principal amount, payable in cash quarterly in arrears on the last business day of December, March, June and September of each year. We are required to repay 25% of the original principal amount of any tranche B notes on the third, fourth, fifth and sixth anniversaries of the applicable issue dates of such notes, provided that the entire outstanding principal amount of all tranche B notes will become due and payable no later than December 31, 2019. The tranche B notes will be prepayable without penalty or premium commencing two years after issuance thereof.

In addition, pursuant to the amendment, the outstanding 2019 notes held by Deerfield were amended and restated such that Deerfield may, subject to certain limitations, convert up to an additional $60.0 million principal amount under such 2019 notes into common stock after the effective date of the amendment. Pursuant to the amendment, we also amended our Registration Rights Agreement with Deerfield dated July 1, 2013 and agreed to register for resale up to 12,000,000 shares of common stock issuable upon conversion of the outstanding 2019 notes, as amended and restated, as of the date of the amendment, at a minimum conversion price of $5.00 per share unless we otherwise consent. The conversion price will be determined by the average of the volume weighted average prices per share during the three trading days immediately preceding the election to convert.

We relied on the exemption from registration contained in Section 4(a)(2) of the Securities Act and Regulation D, Rule 506 thereunder, in connection with the amendment and restatement of the 2019 notes as described above.

The foregoing description of the amendment is not complete and is qualified in its entirety by reference to the full text of the amendment, a copy of which is filed herewith as Exhibit 10.39 to this Annual Report on Form 10-K. The foregoing description of the amended and restated form of 2019 note is not complete and is qualified in its entirety by reference to the full text of the form of amended and restated 2019 note, a copy of which is filed herewith as Exhibit 4.7 to this Annual Report on Form 10-K.

At-The-Market Issuance Sales Agreements

On March 3, 2014, we entered into an At-The-Market Issuance Sales Agreement with MLV and an At-The-Market Issuance Sales Agreement with Brinson Patrick. We refer to the foregoing agreements as the ATM Agreements. Under each ATM Agreement, we may issue and sell shares of our common stock having an aggregate offering price of up to $50.0 million (provided that in no event may we issue and sell more than $50.0 million of our common stock under both agreements in the aggregate) from time to time through MLV or Brinson Patrick, as applicable, as our sales agent. We will issue and sell shares under only one ATM Agreement at any one time.

MLV and Brinson Patrick may each sell the common stock by any method that is deemed to be an at-the-market equity offering as defined in Rule 415 promulgated under the Securities Act, including sales made directly on or through The NASDAQ Global Market or to or through a market maker. MLV and Brinson Patrick may each also sell the common stock in negotiated transactions, subject to our approval. Subject to the terms and conditions of the respective ATM Agreements, MLV and Brinson Patrick will use commercially reasonable efforts consistent with their respective normal trading and sales practices and applicable laws, rules and regulations to sell our common stock from time to time, based upon our instructions (including any price, time or

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size limits or other parameters or conditions we may impose). We are not obligated to make any sales of common stock under either of the ATM Agreements. The offering of shares of our common stock pursuant to either ATM Agreement will terminate upon the earlier of (1) the sale of all common stock subject to the applicable ATM Agreement, (2) March 3, 2017 and (3) termination of the applicable ATM Agreement. Each ATM Agreement may be terminated by us or by MLV or Brinson Patrick, as applicable, at any time upon 10 days notice to the other party, or by MLV or Brinson Patrick, as applicable, at any time in certain circumstances, including but not limited to the occurrence of a material adverse change in us. We will pay MLV and Brinson Patrick a commission of up to 3.0% of the gross proceeds of the sales price per share of any common stock sold through MLV or Brinson Patrick, respectively, under their respective ATM Agreements. We have also provided MLV and Brinson Patrick with customary indemnification rights and reimbursement for up to $25,000 of legal expenses each.

The foregoing description of the ATM Agreements is not complete and is qualified in its entirety by reference to the full text of the agreements, copies of which are filed herewith as Exhibits 10.31 and 10.32 to this Annual Report on Form 10-K.

The foregoing description of the ATM Agreements shall not constitute an offer to sell or the solicitation of an offer to buy the securities discussed above in this Item 9B, nor shall there be any offer, solicitation or sale of the securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state

## PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K, because we will file our Proxy Statement within 120 days after the end of our fiscal year ended December 31, 2013 pursuant to Regulations 14A for our 2014 Annual Meeting of Stockholders, and the information included in the Proxy Statement is incorporated herein by reference.

**Item 10.** ***Directors, Executive Officers and Corporate Governance.***

(a) *Executive Officers* For information regarding the identification and business experience of our executive officers, see Executive Officers of the Registrant in Part I, Item 1 of this Annual Report on Form 10-K.

(b) *Directors* The information required by this Item regarding the identification and business experience of our directors and corporate governance matters is contained in the section entitled Proposal 1- Election of Directors and Corporate Governance Principles and Board and Committee Matters in the Proxy Statement, and is incorporated herein by reference.

Additional information required by this Item is incorporated herein by reference to the section entitled Section 16(a) Beneficial Ownership Reporting Compliance in the Proxy Statement.

We have adopted a Code of Business Conduct and Ethics Policy that applies to our directors and employees (including our principal executive officer, principal financial officer, principal accounting officer and controller), and have posted the text of the policy on our website (*www.mannkindcorp.com*) in connection with Investors materials. In addition, we intend to promptly disclose on our website (i) the nature of any amendment to the policy that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and (ii) the nature of any waiver, including an implicit waiver, from a provision of the policy that is granted to one of these specified individuals, the name of such person who is granted the waiver and the date of the waiver, to the extent any such waiver is required to be disclosed pursuant to the rules and regulations of the SEC.

**Item 11.** ***Executive Compensation***

The information under the caption Executive Compensation, Compensation of Directors, Compensation Committee Interlocks and Insider Participation and Compensation Committee Report in the Proxy Statement is incorporated herein by reference.

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**Item 12.** ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The information under the captions Security Ownership of Certain Beneficial Owners and Management and Securities Authorized for Issuance under Equity Compensation Plans in the Proxy Statement is incorporated herein by this reference.

**Item 13.** ***Certain Relationships, Related Transactions and Director Independence***

The information under the caption Certain Transactions and Corporate Governance Principles and Board and Committee Matters in the Proxy Statement is incorporated herein by reference.

**Item 14.** ***Principal Accounting Fees and Services***

The information under the caption Principal Accounting Fees and Services and Pre-Approval Policies and Procedures in the Proxy Statement is incorporated herein by reference.

With the exception of the information specifically incorporated by reference from the Proxy Statement in this Annual Report on Form 10-K, the Proxy Statement shall not be deemed to be filed as part of this report. Without limiting the foregoing, the information under the captions Report of the Audit Committee of the Board of Directors in the Proxy Statement is not incorporated by reference.

**PART IV**

**Item 15.** ***Exhibits, Financial Statement Schedules***

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

(1)(2) Financial Statements and Financial Statement Schedules. The following Financial Statements of MannKind Corporation, Financial Statement Schedules and Report of Independent Registered Public Accounting Firm are included in a separate section of this report beginning on page 67:



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

(3) Exhibits. The exhibits listed under Item 15(b) hereof are filed or furnished with, or incorporated by reference into, this Annual Report on Form 10-K. Each management contract or compensatory plan or arrangement is identified separately in Item 15(b) hereof.

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

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**Exhibit Index**

| Exhibit Number | Description of Document |
|---|---|
| 3.1 | Amended and Restated Certificate of Incorporation (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 3.2 | Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to MannKind s Quarterly Report on Form 10-Q (File No. 000-50865), originally filed with the SEC on August 9, 2007). |
| 3.3 | Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to MannKind s Quarterly report on Form 10-Q (File No. 000-50865), originally filed with the SEC on August 2, 2010). |
| 3.4 | Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 3.5 | Amended and Restated Bylaws (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on November 19, 2007). |
| 4.1 | Form of common stock certificate (incorporated by reference to MannKind s Annual Report on Form 10-K (File No. 000-50865), originally filed with the SEC on March 18, 2013). |
| 4.2 | Registration Rights Agreement, dated October 15, 1998 by and among CTL Immuno Therapies Corp., Medical Research Group, LLC, McLean Watson Advisory Inc. and Alfred E. Mann, as amended (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 4.3 | Indenture, by and between MannKind and Wells Fargo Bank, N.A., dated August 24, 2010 (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 24, 2010). |
| 4.4 | Form of 5.75% Senior Convertible Note due 2015 (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 24, 2010). |
| 4.5 | Form of Warrant to Purchase Common Stock issued February 8, 2012 (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on February 6, 2012). |
| 4.6 | Form of 9.75% Senior Secured Convertible Promissory Note due 2019 (incorporated by reference to MannKind s current report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 4.7 | Form of Amended and Restated 9.75% Senior Secured Convertible Promissory Note due 2019. |
| 4.8 | Milestone Rights Purchase Agreement, dated as of July 1, 2013, by and among MannKind, Deerfield Private Design Fund II, L.P. and Horizon Santé FLML SÁRL (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 4.9 | Guaranty and Security Agreement, dated as of July 1, 2013, by and among MannKind, MannKind LLC, Deerfield Private Design Fund II, L.P., Deerfield Private Design International II, L.P. and Horizon Santé FLML SÁRL (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 4.10 | Registration Rights Agreement, dated as of July 1, 2013, by and among MannKind, Deerfield Private Design Fund II, L.P. and Deerfield Private Design International II, L.P. (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |

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| Exhibit Number | Description of Document |
|---|---|
| 4.11 | Facility Agreement, dated as of July 1, 2013, by and among MannKind Corporation, Deerfield Private Design Fund II, L.P. and Deerfield Private Design International II, L.P (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 4.12 | First Amendment to Facility Agreement and Registration Rights Agreement, dated as of February 28, 2014, by and among MannKind, Deerfield Private Design Fund II, L.P. and Deerfield Private Design International II, L.P. (included as Exhibit 10.39). |
| 5.1 | Opinion of Cooley LLP. |
| 10.1 | Amended and Restated Promissory Note made by MannKind in favor of The Mann Group LLC, dated October 18, 2012 (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on October 19, 2012). |
| 10.2 | Agreement, dated September 13, 2006, between MannKind and Torcon, Inc. (incorporated by reference to MannKind s Quarterly Report on Form 10-Q (File No. 000-50865), originally filed with the SEC on August 9, 2007). |
| 10.3 | Securities Purchase Agreement, dated August 2, 2005 by and among MannKind and the purchasers listed on Exhibit A thereto (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 5, 2005). |
| 10.4** | Supply Agreement, dated December 31, 2004, between MannKind and Vaupell, Inc. (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on February 23, 2005). |
| 10.5* | Form of Indemnity Agreement entered into between MannKind and each of its directors and officers (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.6* | Description of Officers Incentive Program (incorporated by reference to MannKind s Annual Report on Form 10-K (File No. 000-50865), originally filed with the SEC on March 16, 2006). |
| 10.7* | Executive Severance Agreement, dated October 10, 2007, between MannKind and Hakan Edstrom (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.8* | Executive Severance Agreement, dated October 10, 2007, between MannKind and David Thomson (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.9* | Executive Severance Agreement, dated October 10, 2007, between MannKind and Juergen Martens (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.10* | Executive Severance Agreement, dated October 10, 2007, between MannKind and Diane Palumbo (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.11* | Executive Severance Agreement, dated April 21, 2008, between MannKind and Matthew J. Pfeffer (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.12* | Change of Control Agreement, dated October 10, 2007, between MannKind and Hakan Edstrom (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |

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| Exhibit Number | Description of Document |
|---|---|
| 10.13* | Change of Control Agreement, dated October 10, 2007, between MannKind and David Thomson (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.14* | Change of Control Agreement, dated October 10, 2007, between MannKind and Juergen Martens (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.15* | Change of Control Agreement, dated October 10, 2007, between MannKind and Diane Palumbo (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.16* | Change of Control Agreement, dated April 21, 2008, between MannKind and Matthew J. Pfeffer (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), as amended, filed with the SEC on October 17, 2007). |
| 10.17* | 2004 Equity Incentive Plan, as amended (incorporated by reference to MannKind s proxy statement on Schedule 14A (File No. 000-50865), originally filed with the SEC on April 6, 2012). |
| 10.18* | Form of Stock Option Agreement under the 2004 Equity Incentive Plan (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.19* | Form of Phantom Stock Award Agreement under the 2004 Equity Incentive Plan (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on December 14, 2005). |
| 10.20* | 2004 Non-Employee Directors Stock Option Plan and form of stock option agreement there under (incorporated by reference to MannKind s Annual Report on Form 10-K (File No. 000-50865), originally filed with the SEC on March 16, 2006). |
| 10.21* | 2004 Employee Stock Purchase Plan and form of offering document there under (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.22* | Pharmaceutical Discovery Corporation 1999 Stock Plan and form of stock option plan there under (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.23* | AlleCure Corp. 2000 Stock Option and Stock Plan (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.24* | CTL Immunotherapies Corp. 2000 Stock Option and Stock Plan (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.25* | 2001 Stock Awards Plan (incorporated by reference to MannKind s Registration Statement on Form S-1 (File No. 333-115020), originally filed with the SEC on April 30, 2004, as amended). |
| 10.26** | Letter Agreement, dated June 4, 2011, between MannKind and N.V. Organon (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 10.27** | Insulin Maintenance and Call-Option Agreement, dated June 19, 2009, by and among Pfizer Manufacturing Frankfurt GmbH, Pfizer Inc. and MannKind (incorporated by reference to MannKind s Quarterly Report on Form 10-Q (File No. 000-50865), originally filed with the SEC on May 4, 2009). |

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| Exhibit Number | Description of Document |
|---|---|
| 10.28 | Purchase Agreement, dated August 18, 2010, by and between MannKind and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representative for the initial purchasers named therein (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 24, 2010). |
| 10.29 | Share Lending Agreement, dated August 18, 2010, by and between MannKind and Bank of America, N.A. (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 24, 2010). |
| 10.30 | Letter Agreement, dated August 10, 2010, by and between MannKind and Omni Capital Corporation (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on August 11, 2010). |
| 10.31 | At-The-Market Issuance Sales Agreement, dated March 3, 2014, by and between MannKind and MLV & Co. LLC. |
| 10.32 | At-The-Market Issuance Sales Agreement, dated March 3, 2014, by and between MannKind and Meyers Associates, L.P. (doing business as Brinson Patrick, a division of Meyers Associates, L.P.). |
| 10.33* | Acknowledgment and Agreement, dated as of October 31, 2013, by and between MannKind and The Mann Group LLC (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on November 4, 2013). |
| 10.34* | Non-Employee Director Compensation Program (incorporated by reference to MannKind s Quarterly Report on Form 10-Q (File No. 000-50865), originally filed with the SEC on August 9, 2013). |
| 10.35* | MannKind Corporation 2013 Equity Incentive Plan (incorporated by reference to MannKind s registration statement on Form S-8 (File No. 000-188790), originally filed with the SEC on May 23, 2013). |
| 10.36* | Form of Stock Option Grant Notice, Stock Option Agreement and Notice of Exercise under the MannKind 2013 Equity Incentive Plan (incorporated by reference to MannKind s registration statement on Form S-8 (File No. 000-188790), originally filed with the SEC on May 23, 2013). |
| 10.37* | Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under the MannKind 2013 Equity Incentive Plan (incorporated by reference to MannKind s registration statement on Form S-8 (File No. 000-188790), originally filed with the SEC on May 23, 2013). |
| 10.38 | Facility Agreement, dated as of July 1, 2013, by and among MannKind, Deerfield Private Design Fund II, L.P. and Deerfield Private Design International II, L.P. (incorporated by reference to MannKind s Current Report on Form 8-K (File No. 000-50865), originally filed with the SEC on July 1, 2013). |
| 10.39 | First Amendment to Facility Agreement and Registration Rights Agreement, dated as of February 28, 2014, by and among Mannkind, Deerfield Private Design Fund II, L.P., and Deerfield Private |
| 23.1 | Consent of Independent Registered Public Accounting Firm |
| 23.2 | Consent of Cooley LLP (included as Exhibit 5.1). |
| 31.1 | Certification of the Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended. |
| 31.2 | Certification of the Chief Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended. |

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| Exhibit Number | Description of Document |
|---|---|
| 32 | Certifications of the Chief Executive Officer and Chief Financial Officer pursuant to Rules 13a-14(b) and 15d-14(b) of the Securities Exchange Act of 1934, as amended and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350). |
| 101 | Interactive Data Files pursuant to Rule 405 of Regulation S-T. |

* Indicates management contract or compensatory plan.

** Confidential treatment has been granted with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.

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**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MannKind Corporation

By: /s/ Alfred E. Mann
Alfred E. Mann
Chief Executive Officer

Dated: March 3, 2014

**POWER OF ATTORNEY**

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Hakan S. Edstrom, Matthew Pfeffer and David Thomson, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place, and stead, in any and all capacities, to sign any and all amendments to this Report, and any other documents in connection therewith, and to file the same, with all exhibits thereto, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them or their or his substitute or substituted, may lawfully do or cause to be done by virtue hereof.

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

| Signature | Title | Date |
|---|---|---|
| /s/ Alfred E. Mann<br>Alfred E. Mann | Chief Executive Officer and Chairman of the Board of Directors<br>*(Principal Executive Officer)* | March 3, 2014 |
| /s/ Hakan S. Edstrom<br>Hakan S. Edstrom | President, Chief Operating Officer and Director | March 3, 2014 |
| /s/ Matthew J. Pfeffer<br>Matthew J. Pfeffer | Corporate Vice President and Chief Financial Officer<br>*(Principal Financial and Accounting Officer)* | March 3, 2014 |
| /s/ Ronald J. Consiglio<br>Ronald J. Consiglio | Director | March 3, 2014 |
| /s/ Michael Friedman<br>Michael Friedman, M.D. | Director | March 3, 2014 |
| /s/ Kent Kresa | Director | March 3, 2014 |

| | | |
|---|---|---|
| Kent Kresa | | |
| /s/ David H. MacCallum | Director | March 3, 2014 |
| David H. MacCallum | | |
| /s/ Henry L. Nordhoff | Director | March 3, 2014 |
| Henry L. Nordhoff | | |

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**MANNKIND CORPORATION AND SUBSIDIARIES**

**(A Development Stage Company)**

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**Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Stockholders of MannKind Corporation

Valencia, California

We have audited the accompanying consolidated balance sheets of MannKind Corporation and subsidiaries (a development stage company) (the Company ) as of December 31, 2012 and 2013 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, 2013 and for the period from February 14, 1991 (date of inception) to December 31, 2013. These financial statements are the responsibility of the Company s management. Our responsibility is to express an opinion on the financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of MannKind Corporation and subsidiaries as of December 31, 2012 and 2013, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2013 and for the period from February 14, 1991 (date of inception) to December 31, 2013, in conformity with accounting principles generally accepted in the United States of America.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company s existing cash resources and its operating losses since inception raise substantial doubt about its ability to continue as a going concern. Management s plans concerning these matters are also described in Note 1 to the consolidated financial statements. The financial statements do not include any adjustments that might result from the outcome of these uncertainties.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company s internal control over financial reporting as of December 31, 2013, based on the criteria established in *Internal Control Integrated Framework (1992)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 3, 2014 expressed an unqualified opinion on the Company s internal control over financial reporting.

/s/ DELOITTE & TOUCHE LLP

Los Angeles, California

March 3, 2014

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**MANNKIND CORPORATION AND SUBSIDIARIES**

**(A Development Stage Company)**

**CONSOLIDATED BALANCE SHEETS**

| | December 31, 2012 | 2013 |
|---|---|---|
| | (In thousands, except share data) | |
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 61,840 | $ 70,790 |
| State research and development credit exchange receivable current | 450 | |
| Prepaid expenses and other current assets | 4,520 | 5,485 |
| Total current assets | 66,810 | 76,275 |
| Property and equipment net | 183,961 | 176,557 |
| State research and development credit exchange receivable net of current portion | 313 | 298 |
| Other assets | 230 | 5,516 |
| Total | $ 251,314 | $ 258,646 |
| **LIABILITIES AND STOCKHOLDERS DEFICIT** | | |
| Current liabilities: | | |
| Accounts payable | $ 4,555 | $ 3,860 |
| Accrued expenses and other current liabilities | 25,777 | 21,634 |
| Facility financing obligation | | 102,300 |
| Senior convertible notes | 114,443 | |
| Total current liabilities | 144,775 | 127,794 |
| Senior convertible notes | 97,583 | 98,439 |
| Note payable to principal stockholder | 119,635 | 49,521 |
| Other liabilities | | 13,605 |
| Total liabilities | 361,993 | 289,359 |
| Commitments and contingencies | | |
| Stockholders deficit: | | |
| Undesignated preferred stock, $0.01 par value 10,000,000 shares authorized; no shares issued or outstanding at December 31, 2012 and 2013 | | |
| Common stock, $0.01 par value 550,000,000 shares authorized at December 31, 2012 and 2013, respectively; 286,035,082 and 369,391,972 shares issued and outstanding at December 31, 2012 and 2013, respectively | 2,860 | 3,697 |