

GLYCOMIMETICS INC  
Form 10-K  
March 16, 2015  
Table of Contents

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
**WASHINGTON, D.C. 20549**

**FORM 10-K**

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

**For the fiscal year ended December 31, 2014**

**Commission file number 001-36177**

**GlycoMimetics, Inc.**

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

**Delaware**  
**(State or other jurisdiction of**  
**incorporation or organization)**

**06-1686563**  
**(IRS Employer**  
**Identification No.)**

**401 Professional Drive, Suite 250**

**Gaithersburg, Maryland**  
**(Address of principal executive offices)**

**20879**  
**(Zip Code)**

**Registrant's telephone number, including area code: (240) 243-1201**

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

<b>Title of Each Class:</b>	<b>Name of Each Exchange on which Registered</b>
<b>Common Stock, \$0.001 par value</b>	<b>The NASDAQ Stock Market</b>

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

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 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.

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 definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act.

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>
Non-accelerated filer <input checked="" type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company <input type="checkbox"/>

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

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As of June 30, 2014, the last business day of the registrant's last completed second quarter, the aggregate market value of the Common Stock held by non-affiliates of the registrant was approximately \$79.1 million based on the closing price of the registrant's Common Stock, as reported by the NASDAQ Global Market, on such date.

At March 10, 2015, 18,994,838 shares of GlycoMimetics, Inc.'s Common Stock, \$0.001 par value, were outstanding.

**Table of Contents**

**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This Annual Report on Form 10-K (this Annual Report ) contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that involve substantial risks and uncertainties. The forward-looking statements are contained principally in Part I, Item 1. Business, Part I, Item 1A. Risk Factors, and Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, but are also contained elsewhere in this Annual Report. In some cases, you can identify forward-looking statements by the words may, might, will, could, would, should, expect, intend, plan, objective, anticipate, believe, estimate, predict, project, ongoing, or the negative of these terms, or other comparable terminology intended to identify statements about the future. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this Annual Report, we caution you that these statements are based on a combination of facts and factors currently known by us and our expectations of the future, about which we cannot be certain. Forward-looking statements include statements about:

our plans to develop and commercialize our glycomimetic drug candidates;

our planned clinical trials for our drug candidate GMI-1271;

our ability to achieve anticipated milestones under our collaboration with Pfizer for our drug candidate rivipansel (formerly known as GMI-1070);

the timing of and our ability to obtain and maintain regulatory approvals for our drug candidates;

the clinical utility of our drug candidates;

our commercialization, marketing and manufacturing capabilities and strategy;

our intellectual property position;

our ability to identify additional drug candidates with significant commercial potential that are consistent with our commercial objectives;

our estimates regarding future revenues, expenses and needs for additional financing; and

our beliefs about our capital expenditure requirements and that our capital resources will be sufficient to meet our anticipated cash requirements through at least the next 12 months.

You should refer to Item 1A. Risk Factors section of this Annual Report for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this Annual Report will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report.

**Table of Contents****TABLE OF CONTENTS**

	<b>Page</b>
<b><u>PART I</u></b>	1
ITEM 1. <u>BUSINESS</u>	1
ITEM 1A. <u>RISK FACTORS</u>	29
ITEM 1B. <u>UNRESOLVED STAFF COMMENTS</u>	59
ITEM 2. <u>PROPERTIES</u>	59
ITEM 3. <u>LEGAL PROCEEDINGS</u>	59
ITEM 4. <u>MINE SAFETY DISCLOSURES</u>	59
<b><u>PART II</u></b>	60
ITEM 5. <u>MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES</u>	60
ITEM 6. <u>SELECTED FINANCIAL DATA</u>	62
ITEM 7. <u>MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS</u>	63
ITEM 7A. <u>QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK</u>	78
ITEM 8. <u>FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA</u>	79
ITEM 9. <u>CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE</u>	79
ITEM 9A. <u>CONTROLS AND PROCEDURES</u>	79
ITEM 9B. <u>OTHER INFORMATION</u>	79
<b><u>PART III</u></b>	80
ITEM 10. <u>DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE</u>	80
ITEM 11. <u>EXECUTIVE COMPENSATION</u>	84
ITEM 12. <u>SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS</u>	94
ITEM 13. <u>CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE</u>	96
ITEM 14. <u>PRINCIPAL ACCOUNTING FEES AND SERVICES</u>	97
<b><u>PART IV</u></b>	99
ITEM 15. <u>EXHIBITS AND FINANCIAL STATEMENT SCHEDULES</u>	99
<b><u>SIGNATURES</u></b>	100
<b><u>EXHIBITS</u></b>	123

**Table of Contents**

**PART I**

**ITEM 1. BUSINESS**

**Overview**

We are a clinical stage biotechnology company focused on the discovery and development of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. Glycomimetics are molecules that mimic the structure of carbohydrates involved in important biological processes. Using our expertise in carbohydrate chemistry and knowledge of carbohydrate biology, we are developing a pipeline of proprietary glycomimetics that inhibit disease-related functions of carbohydrates, such as the roles they play in inflammation, cancer and infection. We believe this represents an innovative approach to drug discovery to treat a wide range of diseases.

We are focusing our initial efforts on drug candidates for rare diseases that we believe will qualify for orphan drug designation. We are developing our lead drug candidate, rivipansel, formerly known as GMI-1070, for the treatment of vaso-occlusive crisis, or VOC, a debilitating and painful condition that occurs periodically throughout the life of a person with sickle cell disease. We have entered into a collaboration with Pfizer Inc. for the further development and potential commercialization of rivipansel worldwide. Rivipansel has received fast track designation from the U.S. Food and Drug Administration, or FDA, as well as orphan drug designation from the FDA in the United States and from the European Medicines Agency, or EMA, in the European Union, or EU. We believe the clinical progress of rivipansel provides evidence of the significant potential of our lead program and our proprietary glycomimetics platform. Building on our experience with rivipansel, we are developing our second most advanced drug candidate, GMI-1271, to be used in combination with chemotherapy to treat acute myeloid leukemia, or AML, a life-threatening hematologic cancer, and potentially other hematologic cancers.

Our proprietary glycomimetics platform is based on our expertise in carbohydrate chemistry and our understanding of the role carbohydrates play in key biological processes. Most human proteins are modified by the addition of complex carbohydrates to the surface of the proteins. The addition of these carbohydrate structures affects the functions of these proteins and their interactions with other molecules. Our initial research and development efforts have focused on drug candidates targeting selectins, which are proteins that serve as adhesion molecules and bind to carbohydrates that are involved in the inflammatory component and progression of a wide range of diseases, including hematologic disorders, cancer and cardiovascular disease. For example, we believe that members of the selectin family play a key role in the onset and progression of VOC. Inhibiting specific carbohydrates from binding to selectins has long been viewed as a potentially attractive approach for therapeutic intervention. The ability to successfully develop drug-like compounds that inhibit binding with selectins, known as selectin antagonists, has been limited by the complexities of carbohydrate chemistry. We believe our expertise in carbohydrate chemistry and our understanding of carbohydrate-protein binding interactions enable us to design selectin antagonists and other glycomimetics that inhibit the disease-related functions of certain carbohydrates. We believe this expertise and knowledge enable us to develop novel drug candidates to address unmet medical needs.

We are developing our lead drug candidate, rivipansel, to treat VOC. Rivipansel is a glycomimetic drug candidate that acts as a pan-selectin antagonist, meaning it binds to all three members of the selectin family, E-, P- and L-selectin. We believe that rivipansel, by acting as a pan-selectin antagonist, inhibits the role that selectins play in VOC.

Sickle cell disease is a genetic disease that, according to the U.S. Centers for Disease Control and Prevention, or CDC, affects millions of people throughout the world, including an estimated 90,000 to 100,000 people in the United States.

VOC is one of the most severe complications of sickle cell disease. It can result in acute ischemic tissue injury at one or more sites, with inflammation and pain of varying degrees of severity. The standard of care in the United States for people experiencing VOC is to manage its symptoms, which typically includes hospitalization, narcotic pain management and hydration. There are no approved therapies that interrupt VOC once it has started or that treat the underlying cause of the pain. Hydroxyurea is a generic drug that is



## **Table of Contents**

approved for the prevention of VOC, but it is not effective in the acute setting to relieve symptoms or resolve an ongoing VOC episode. In addition, hydroxyurea is not suitable for all patients and can have significant toxicities and side effects. According to the CDC, there were approximately 73,000 hospitalizations related to VOC in the United States in 2010. We believe that rivipansel, if approved, would be the first drug to interrupt the underlying cause of VOC, thereby potentially reducing the use of narcotics for pain management and enabling patients to leave the hospital more quickly.

We have completed four clinical trials of rivipansel involving a total of 163 subjects. In April 2013, we completed a Phase 2 clinical trial in which 76 patients hospitalized for VOC, ranging from 12 to 60 years old, were treated with the standard of care plus either rivipansel or placebo. In this trial, patients treated with rivipansel experienced reductions in the time to reach resolution of VOC, length of hospital stay and use of opioid analgesics for pain management, in each case as compared to patients receiving placebo. This improvement was seen in both adult and pediatric patients. Adverse event rates and severity were comparable between those treated with rivipansel and those receiving placebo.

We entered into a license agreement in October 2011 with Pfizer, under which Pfizer has rights to develop and commercialize rivipansel for all indications worldwide. Following the completion of our Phase 2 clinical trial, Pfizer is now responsible for the further clinical development, regulatory approval and potential commercialization of rivipansel. Under the Pfizer agreement, we received an upfront payment of \$22.5 million from Pfizer. We are also eligible to receive payments of up to \$115.0 million upon the achievement of specified development milestones, including the dosing of the first patients in Phase 3 clinical trials for up to two indications and the first commercial sale of a licensed product in the United States and selected European countries for up to two indications, up to \$70.0 million upon the achievement of specified regulatory milestones, including the acceptance of our filings for review by regulatory authorities in the United States and Europe for up to two indications, and up to \$135.0 million upon the achievement of specified levels of annual net sales of licensed products. We are also eligible to receive tiered royalties, with percentages ranging from the low double digits to the low teens, based on net sales of rivipansel worldwide, subject to reductions in specified circumstances. The first potential milestone payment under the Pfizer agreement was \$35.0 million upon the initiation of dosing of the first patient in a Phase 3 trial of rivipansel by Pfizer. Under the collaboration, Pfizer made a \$15.0 million non-refundable milestone payment to us in May 2014, and the dosing of the first patient in the Phase 3 clinical trial will trigger the remaining \$20.0 million milestone payment.

In September 2014, we were informed by Pfizer that initiation of the Phase 3 clinical trial with rivipansel will be significantly delayed due to a manufacturing development issue impacting formulated drug supply. Pfizer advised us that the issue is under review and noted that upon identifying the specific cause and planned remedy of the manufacturing issue, they will inform us regarding a more specific timeframe for commencing the Phase 3 trial. Although Pfizer has taken and is taking a number of steps to prepare for Phase 3 initiation, including written agreement with the FDA under a special protocol assessment, or SPA, on the design of the planned Phase 3 trial, there can be no assurance that the conditions to Pfizer's obligation to make the remaining \$20.0 million milestone payment to us under the agreement will be satisfied.

Under a separate research agreement with the University of Basel, we have agreed to pay 10% of any future milestone payments and royalties we may receive from Pfizer with respect to rivipansel. As of December 31, 2014, we accrued \$1.5 million that is payable to the University, which is equal to 10% of the \$15.0 million non-refundable milestone payment we received from Pfizer in May 2014.

We are developing a pipeline of other drug candidates based on our expertise in carbohydrate chemistry, including compounds that are designed to be specific to particular selectins. We are developing GMI-1271, a specific E-selectin inhibitor, to be used in combination with chemotherapy to treat patients with AML and potentially other hematologic cancers. E-selectin plays a critical role in binding cancer cells within vascular niches in the bone marrow, which

prevents the cells from entering circulation where they can be more readily killed by chemotherapy. In animal studies, GMI-1271 mobilized AML cancer cells out of the bone marrow, making them more sensitive to chemotherapy. In these studies, tumor burden was significantly reduced in the

## **Table of Contents**

animals treated with a combination of chemotherapy and GMI-1271 as compared to animals treated with chemotherapy alone. In addition, the combination of GMI-1271 with chemotherapy resulted in improved survival rates for the treated animals, compared to chemotherapy alone. In other animal studies, GMI-1271 appeared to also protect normal cells from some of the side effects of chemotherapy. Common side effects of chemotherapy include bone marrow toxicity resulting in neutropenia, which is an abnormally low number of neutrophils, the white blood cells that serve as the primary defense against infection, and mucositis, which is the inflammation and sloughing of the mucous membranes lining the digestive tract. Animals treated with GMI-1271 and chemotherapy had less severe neutropenia and mucositis and lower bone marrow toxicity as compared to animals treated with chemotherapy alone. We believe that treatment with GMI-1271 results in lower bone marrow toxicity due to its inhibition of E-selectin, which makes stem cells in the bone marrow divide less frequently, thereby protecting them from chemotherapy agents that target rapidly dividing cells. In December 2014, we presented preclinical data on GMI-1271 at the annual meeting of the American Society of Hematology. Based on our preclinical studies, we believe GMI-1271 may improve chemotherapy response rates, duration of remission and, ultimately, survival in patients with hematologic cancers like AML.

We held a pre-IND meeting with the FDA in November 2013 and filed an IND for GMI-1271 in February 2014. Following acceptance of the IND, we completed a Phase 1 single dose-escalation clinical trial in 28 healthy volunteers in August 2014. We have initiated preparations for a Phase 1/2 multiple dose-escalation clinical trial in defined populations of patients with AML, and we expect the patient recruitment for this trial to begin in the first quarter of 2015.

We have an additional drug candidate, GMI-1359, that simultaneously targets both E-selectin and a chemokine receptor known as CXCR4. GMI-1359 is currently undergoing testing in preclinical models from which we intend to select a target clinical indication, mostly likely in oncology.

In addition to our programs described above, we are also advancing other preclinical-stage programs. These programs include a small-molecule glycomimetic compound, GMI-1051, that inhibits virulence factors and which we believe may be used for the treatment of *Pseudomonas aeruginosa*; a small-molecule glycomimetic compound that inhibits the protein galectin-3 that we believe may be used for the treatment of fibrosis, cancer and cardiovascular disease; and a small-molecule glycomimetic compound that inhibits the proteins galectin-1, -3 and -9 that we believe may be used for the treatment of cancer.

We have retained the worldwide development and commercialization rights to all of our drug candidates other than rivipansel.

Our intellectual property portfolio includes ownership of, or exclusive rights to, issued patents and pending patent applications claiming fundamental features of glycomimetic therapeutics, as well as those claiming methods of use for and chemical modifications of our drug candidates. Given the importance of our intellectual property portfolio to our business operations, we intend to vigorously enforce our rights and defend against challenges that have arisen or may arise in this area. Our issued patents directed to rivipansel and methods of use are expected to expire between 2023 and 2030, and our patent applications directed to GMI-1271, if issued, are expected to expire between 2032 and 2033.

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## **Our Strategy**

Our goal is to be the leader in the discovery, development and commercialization of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. Leveraging the potentially broad applicability of our proprietary glycomimetics platform, our initial focus is to

## **Table of Contents**

internally develop and advance orphan drug candidates targeted at hematologic cancers and other diseases, and to out-license any drug candidates we may develop that are targeted at larger market opportunities. The key elements of our strategy are to:

***Rapidly advance GMI-1271 for the treatment of AML.*** We intend to build on our experience developing rivipansel to rapidly advance GMI-1271 for the treatment of AML in combination with chemotherapy. We completed a Phase 1 dose-escalation clinical trial in 28 healthy volunteers in August 2014, and we have initiated preparations for a Phase 1/2 dose-escalation clinical trial in defined populations of patients with AML, for which we anticipate recruitment of patients to begin in the first quarter of 2015. We have retained worldwide development and commercialization rights to GMI-1271.

***Support Pfizer's further development of rivipansel.*** We will continue to support Pfizer, if requested, as Pfizer proceeds with further clinical development of rivipansel, including the Phase 3 clinical trial, and pursues regulatory approval of rivipansel. We expect to use any milestone and royalty payments that we may receive from Pfizer to accelerate the development of our other drug candidates.

***Identify and develop additional novel selectin antagonists to address unmet medical needs with significant market potential.*** We believe our glycomimetics platform will enable us to develop a broad pipeline of potential drug candidates that may be orphan drugs or may address larger market opportunities. We have selected and intend to develop a drug candidate, GMI-1359, that simultaneously inhibits both E-selectin and CXCR4 for use in the treatment of cancers with significant bone marrow involvement, such as myeloma. We are also working to design an orally available E-selectin antagonist, which we believe could be of significant interest to potential collaborators for major market opportunities, such as the treatment of cardiovascular disease.

***Apply our insights and our glycomimetics platform to other carbohydrate targets beyond selectins.*** We have identified additional opportunities where carbohydrates play critical roles in disease processes and where we believe we can apply our platform to create targeted glycomimetic drugs. One potential target is pseudomonas, a pathogenic form of bacteria that results in serious infections and is frequently resistant to treatment with antibiotics. We have observed results in animal models that suggest glycomimetic drugs can be used to improve treatment of pseudomonas infections. We have also begun to design and synthesize antagonists of a protein family known as galectins. We believe that compounds targeting galectins might potentially be used to treat certain forms of cancer and fibrosis.

## **Our Platform**

Our proprietary glycomimetics platform is based on our expertise in carbohydrate chemistry and our understanding of the role carbohydrates play in key biological processes. Carbohydrate structures on cell surfaces are responsible for complex carbohydrate-protein binding interactions. Inhibiting these binding interactions affects the functions of these proteins and their interactions with other molecules. We believe our expertise enables us to design specific glycomimetic molecules that can mimic carbohydrate structures and thereby inhibit their disease-related functions.

Our initial focus is on selectin antagonists, which we believe have the potential to address unmet medical needs in a number of orphan and large market opportunities. Selectins have been shown to play a key role in a wide range of

diseases, including hematologic disorders, cancer and cardiovascular disease.

Our initial drug design efforts are focused on a naturally occurring, three-dimensional complex carbohydrate core structure known as the Lewis structure. This core structure is naturally modified in a variety of ways to form many different functional carbohydrates. These variations determine the biological functions of the carbohydrates, including functions related to conditions such as inflammatory diseases, cancer and infection. Accordingly, we believe that this structure provides the foundation for the design of glycomimetic drug candidates that could be used to address a variety of diseases.

## **Table of Contents**

Once we identify a carbohydrate structure involved in a disease pathway, we design molecules that mimic that carbohydrate structure and inhibit its disease-related functions by binding to the carbohydrate's target receptor, thereby blocking the binding by the native carbohydrate itself. For example, one of the naturally modified Lewis structures binds to selectins, which play a key role in VOC. Rivipansel mimics that carbohydrate structure and accordingly binds to selectins, which we believe thereby inhibits the progression of VOC. In addition, our glycomimetic molecules are designed to have greater affinity to the carbohydrate's target receptor than does the native carbohydrate. This means that the glycomimetic molecules possess stronger intermolecular forces between themselves and the target receptors, and thus outcompete the native carbohydrates in binding to the relevant target receptors, thereby inhibiting their disease-related functions. Using our glycomimetics platform, we have designed and synthesized a proprietary library of these structures targeting different biological processes.

Our glycomimetics platform includes intellectual property, know-how, expertise, proprietary biological information and biochemical assays, all of which support the rational design of potent glycomimetic compounds. These include:

Know-how to successfully mimic the Lewis structure, which is common to a number of functional carbohydrates.

Use of empirical methods to determine critical interactions between variations of a particular functional carbohydrate and its target molecule.

Application of the empirically determined bioactive structure of the functional carbohydrate for docking into the binding area of the crystal structure of the target molecule.

Expertise in stabilizing the bioactive core of glycomimetic compounds and increasing the number of interaction contact points to improve affinity.

Experience and technology in synthetic organic chemistry required for the specialized synthesis of carbohydrates and their modifications.

Proprietary assays to determine the binding characteristics, inhibitory activity and biological activity of glycomimetic compounds.

**Table of Contents**

**Our Pipeline**

We have discovered our drug candidates internally through a rational drug design approach that couples our expertise in carbohydrate chemistry with our knowledge of carbohydrate biology. We are actively developing glycomimetic drug candidates based on this expertise.

***Rivipansel Targeting Selectins to Treat VOC***

We are developing rivipansel to treat VOC with the goal of reducing duration of VOC episodes, length of hospital stay and use of opioid analgesics for pain management. In our Phase 2 clinical trial, patients treated with rivipansel plus the standard of care demonstrated improvement in these endpoints, in each case as compared to patients receiving placebo plus the standard of care.

***Sickle Cell Disease and VOC***

Sickle cell disease is a genetic disease that, according to the CDC, affects millions of people throughout the world, including an estimated 90,000 to 100,000 people in the United States. One of the most severe complications of sickle cell disease is VOC. VOC episodes are typically characterized by excruciating musculoskeletal pain, visceral pain and pain in other locations, and occur periodically throughout the life of a person with sickle cell disease. The CDC estimates that VOC resulted in approximately 73,000 hospitalizations in the United States in 2010. According to the National Hospital Discharge Survey conducted by the National Center for Health Statistics, these hospitalizations have an average duration of approximately six days. The standard of care in the United States for people experiencing VOC is to manage its symptoms, which typically includes hospitalization, narcotic pain management and hydration. There are no approved therapies that interrupt VOC once it has started or that treat the underlying cause of the pain.

Among both adults and children with sickle cell disease, VOC is the most common reason for seeking medical attention resulting in hospitalization. VOC affects multiple organ systems, and may result in significant clinical complications. Most sickle cell disease-related deaths occur during acute VOC, and are due to infection, acute chest syndrome, stroke or multi-organ failure.



## **Table of Contents**

### *Market Opportunity for Treatment of VOC*

We believe that effective treatment of VOC could provide significant clinical and pharmacoeconomic benefit. According to the U.S. Agency for Healthcare Research and Quality, the average hospital charges in the United States for a patient treated for VOC were approximately \$20,000 in 2006. In some states, these charges may be substantially higher. For example, according to the California Office of Statewide Health Planning and Development, the average hospital charges for a patient treated for VOC in California were over \$40,000 in 2006. A reduction in the length of a hospital stay could reduce these costs. If rivipansel is shown to be safe and effective in reducing the duration of VOC in hospitalized patients, it could also be tested to determine if hospitalization could be prevented with use of rivipansel in the emergency department, or if VOC could be managed safely and effectively in the home or in an outpatient setting through a self-administered dosage form, thereby avoiding costly emergency department visits. We believe that uses in each of these settings represent potentially significant market opportunities.

### *The Role of Selectins in VOC*

The cause of vascular occlusion involves both an inflammatory component and a mechanical component. In the inflammatory component, white blood cells begin to roll along and then adhere to the endothelium, the thin layer of cells that lines the interior surface of blood vessels. These white blood cells then become activated and express adhesion receptors known as integrins, which bind and form aggregates with platelets, red blood cells and other white blood cells. These cell aggregates are responsible for the mechanical component of vascular occlusion, in which rigid sickled red blood cells are more easily caught in the post-capillary venules, which are very small blood vessels connecting the capillaries and the veins. The resulting vascular occlusion causes slowing of blood flow in the post-capillary venules, contributing to inadequate oxygen supply in the local tissue, known as ischemia, which in turn causes further tissue inflammation and pain.

The development of VOC is illustrated in the following diagram:

Selectins are important in this process because they act as adhesion molecules and play a key role in the initial recognition and binding of white blood cells to the endothelial cells, and their formation of aggregates with platelets, red blood cells and other white blood cells. White blood cells express carbohydrates on their surfaces that bind to E-selectin that is present on inflamed vascular endothelium. White blood cells bound to E-selectin on the endothelial cells then become activated and act as adhesion sites for platelets, red blood cells and other white blood cells, thereby leading to the formation of an occlusion. Rivipansel is a glycomimetic drug candidate designed to inhibit binding of all three types of selectins and inhibit the selectin-mediated recognition and binding of white blood cells to the endothelium. The rationale for the development of rivipansel to treat VOC is that, by blocking these steps in the vaso-occlusive process, it has the potential to decrease the duration and intensity of VOC.

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**Table of Contents***Limitations of the Current Standard of Care for VOC*

The current standard of care for VOC is focused on managing its symptoms. Narcotics are typically used for the management of acute pain associated with VOC. Pain management often starts with oral medications taken at home at the onset of pain. However, if the pain is not relieved, or if it progresses, patients may seek medical attention in a clinic setting or emergency department. Pain that is not controlled in these settings may require hospitalization for more potent pain medications, typically administered intravenously. The patient must stay in the hospital to receive these intravenous, or IV, pain medications until the VOC resolves and the pain subsides. Other supportive measures during hospitalization include hydration, supplemental oxygen and treatment of any concurrent infections or other conditions. While pain medications can be effective in managing pain during VOC, they do not affect or resolve the underlying vascular occlusion, tissue ischemia or potential organ damage.

The only approved drug targeting VOC is hydroxyurea, which is available in both generic and branded formulations. Hydroxyurea has been approved as a once-daily oral treatment for reducing the frequency of VOC and the need for blood transfusions in adult patients with recurrent moderate-to-severe VOC. While hydroxyurea has been shown to reduce the frequency of VOC in some patient groups, it is not effective in relieving symptoms or accelerating the resolution of an ongoing VOC episode. Moreover, hydroxyurea is not suitable for all patients and can have significant toxicities and side effects. In particular, hydroxyurea is labeled to inform patients that it can cause a severe decrease in the number of blood cells in a patient's bone marrow, which may increase risks that the patient will develop a serious infection or bleeding, and that it may increase the risk that the patient will develop certain cancers. Additionally, since hydroxyurea is prescribed to be taken on a daily basis, lack of patient compliance can be a barrier to its optimal use.

Since available therapies do not interrupt the VOC episode, opioid narcotics are generally prescribed to treat the pain until the VOC runs its natural course. Use of narcotics can lead to tissue or organ damage and resulting complications and morbidities, prolonged hospital stays and associated continuation of pain and suffering. Treatment of pain with IV narcotics and management of VOC-related complications typically require hospital stays ranging from a few days to a few weeks, with an average length of stay of approximately six days.

*Rivipansel Clinical Results*

We held a pre-IND meeting with the FDA in June 2007 and submitted an IND for rivipansel in July 2008. Upon approval of the IND, we initiated a single dose Phase 1a trial of rivipansel in August 2008. In December 2008, we completed the Phase 1a trial, in which 40 healthy volunteers were enrolled. Of these subjects, 30 were dosed once with one of five dose levels of rivipansel, ranging from 2 to 40 mg/kg, and 10 received placebo. In addition, we completed a multiple dose Phase 1b trial in February 2009, in which 32 healthy volunteers were enrolled. Of these subjects, 24 were dosed with four dose levels of rivipansel, and eight received placebo. Three groups of six subjects each were dosed at 5, 10 or 20 mg/kg every eight hours for 13 doses. An additional group of six subjects received a loading dose of 40 mg/kg, followed by 20 mg/kg every eight hours for six doses. The results of these trials demonstrated a half-life of rivipansel of approximately seven hours, with the drug excreted largely intact. Rivipansel was well tolerated in these subjects and no safety concerns were identified. Adverse events occurred at similar rates across the treatment groups in both of these trials.

In 2010, we completed a Phase 1 pilot trial in 15 adults with sickle cell disease not experiencing VOC. In this trial, patients received a loading dose of 20 mg/kg of rivipansel, followed by a dose of 10 mg/kg ten hours later. The trial focused on the evaluation of safety, pharmacokinetic, or PK, profiles and certain biomarkers. In individuals with sickle cell disease and at the dose levels intended for further evaluation, no safety concerns associated with the use of rivipansel were identified and the PK profile was also similar to that seen in healthy volunteers. When administered to patients with sickle cell disease, rivipansel was shown to affect biomarkers of inflammation and coagulation. The

results of this trial were selected for oral presentations at the annual meetings of the American Society of Hematology, or ASH, in December 2011 and 2012.

Results from these three Phase 1 clinical trials demonstrated evidence of linear PK for rivipansel when administered as single or multiple doses to the 72 healthy volunteers and the 15 patients with sickle cell disease.

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**Table of Contents**

Rivipansel was well tolerated in these subjects and no safety concerns were identified. Adverse events occurred at similar rates across the treatment groups in these trials.

We also completed a Phase 2 clinical trial of rivipansel in sickle cell patients hospitalized for VOC. We announced top-line results from this trial in April 2013, and the results of this trial were selected for two oral presentations and one poster session at the annual meeting of ASH in December 2013. This trial was a randomized, double-blind, placebo-controlled trial at 22 sites in the United States and Canada evaluating the safety, efficacy and PK of multiple IV doses of rivipansel or placebo in 76 patients hospitalized for VOC, ranging from 12 to 60 years old. Of these patients, 43 received rivipansel and 33 received placebo, in both cases in addition to the standard of care. Patients receiving rivipansel in the trial received one of two dose levels. Patients in the low dose group received a loading dose of 20 mg/kg, followed by a 10 mg/kg dose every 12 hours. Patients in the high dose group received a loading dose of 40 mg/kg, followed by a 20 mg/kg dose every 12 hours.

In patients receiving rivipansel in this trial, there were reductions in multiple measures related to a VOC episode as compared to patients receiving placebo. Two widely used statistical methods, known as ANCOVA and Kaplan-Meier, were used to analyze the results of this trial. The time to reach resolution of VOC, the primary endpoint of the trial, was reduced in the patients receiving rivipansel by a mean of 41.0 hours, as measured by ANCOVA, with a p-value of 0.192, and reduced by a median of 63.3 hours, as measured by Kaplan-Meier, with a p-value of 0.187. P-value is a conventional statistical method for measuring the statistical significance of clinical results. A p-value of 0.05 or less represents statistical significance, meaning that there is a less than 1-in-20 likelihood that the observed results occurred by chance. In addition, in the patients receiving rivipansel, the time to hospital discharge was reduced by a mean of 54.7 hours, as measured by ANCOVA, with a p-value of 0.096, and a median of 83.9 hours, as measured by Kaplan-Meier, with a p-value of 0.092. The time to transition off IV analgesics was reduced by a mean of 47.0 hours, as measured by ANCOVA, with a p-value of 0.137, and a median of 75.7 hours, with a p-value of 0.089, as measured by Kaplan-Meier. The cumulative amount of opioid analgesic administered during hospitalization was reduced by 83%, as measured by ANCOVA, with a p-value of 0.01. Although the Phase 2 clinical trial was not large enough to detect statistically significant differences in these endpoints, other than with respect to the reduction in cumulative amount of opioid analgesic administered, we believe the observed reductions in these measures in patients treated with rivipansel, and the consistency of a positive response across multiple measures, demonstrate the potential benefit of rivipansel.

The types and frequency of adverse events and serious adverse events were comparable across the treatment groups in the Phase 2 clinical trial. The most common serious adverse event was rehospitalization for VOC. Measures of organ function, respiratory and cardiac function and routine tests of medical status while in the hospital were similar between the groups. One serious rash occurred in the high dose group, which resolved with minimal medical treatment. Acute chest syndrome, a complication of sickle cell disease affecting the lungs, occurred in six subjects receiving rivipansel and in three subjects receiving placebo. Rehospitalization rates for VOC were similar between the groups and lower than the rehospitalization rate that is typical for VOC.

We believe the favorable effects we observed in our Phase 2 clinical trial are the result of mechanism-based resolution of VOC. Specifically, we believe that by inhibiting selectin-mediated adhesion of white blood cells to the endothelium, rivipansel prevents propagation of VOC and promotes early resolution. Results from the Phase 2 clinical trial provide the first clinical evidence of a positive effect of rivipansel in adult and pediatric patients experiencing VOC. No currently available therapies provide similar benefits to patients in VOC. Based on the data from our Phase 2 clinical trial for rivipansel, we believe rivipansel has the potential to become the first drug approved to treat VOC in both adult and pediatric patient populations. Although Mast Therapeutics, Inc. is currently conducting a Phase 3 clinical trial of a drug candidate that may be used to treat an ongoing VOC episode, we believe that it is only being tested in pediatric patients ages 8 to 17 years old, unlike rivipansel which is being tested to treat both adult and

pediatric patients experiencing VOC.

If rivipansel is demonstrated to be safe and effective for the treatment of VOC, we believe it may show substantial clinical and pharmacoeconomic benefit. If patients treated with rivipansel are discharged more quickly from the hospital, there is potential to reduce the costs of hospitalization, in addition to showing clinical

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**Table of Contents**

benefit by reduced duration of VOC episodes and reduced use of opioid analgesics for pain management. In addition, if rivipansel is shown to be safe and effective for treating VOC in hospitalized patients, it is possible that it could be tested in patients experiencing VOC who are not hospitalized to determine if hospitalization could be prevented or if pain from VOC could be managed safely and effectively in the home or in an outpatient setting. We believe that uses in each of these settings could represent significant market opportunities for rivipansel. Following the completion of the Phase 2 clinical trial, Pfizer is now responsible for the further clinical development, regulatory approval and commercialization of rivipansel.

Following transfer of the IND, Pfizer has undertaken significant efforts to prepare for a Phase 3 trial, including manufacturing of the active pharmaceutical ingredient, or API, completion of longer-term toxicology studies to support a New Drug Application, or NDA, completion of a Thorough QT, or TQTc, clinical trial to evaluate cardiac safety, and contracting with a CRO to provide services in the conduct of a Phase 3 trial. Additionally, Pfizer and the FDA have agreed on an SPA for the design, endpoints and statistical analysis approach of the planned Phase 3 clinical trial.

In September 2014, Pfizer informed us that initiation of the Phase 3 clinical trial with rivipansel would be significantly delayed due to a manufacturing development issue impacting the formulated drug supply, not the API. Pfizer informed us that upon identifying the specific cause and planned remedy of the drug product manufacturing issue, Pfizer will inform us regarding a more specific timeframe for commencing the Phase 3 trial. Although Pfizer has taken and continues to take steps toward initiation of the pivotal Phase 3 trial, there can be no assurance that the conditions to Pfizer's obligation to further develop and commercialize rivipansel under the agreement will be satisfied.

***GMI-1271 Targeting the Bone Marrow Microenvironment to Treat Hematologic Cancers***

We are developing GMI-1271, a specific E-selectin antagonist, to be used in combination with chemotherapy to treat AML and other hematologic cancers. We believe that GMI-1271 may be used as first-line treatment for elderly AML patients, as well as for patients with relapsed or refractory AML. GMI-1271 targets interactions between cancer cells and the bone marrow microenvironment. In preclinical studies, combining GMI-1271 with chemotherapy made cancer cells more sensitive to chemotherapy. In other preclinical studies, GMI-1271 also reduced some of the toxic effects of chemotherapy, including neutropenia and mucositis, on normal cells.

***Acute Myeloid Leukemia***

AML, a hematologic cancer that is characterized by the rapid growth of abnormal white blood cells that accumulate in the bone marrow and interfere with the production of normal blood cells, is a relatively rare disease, but one that accounts for the largest number of annual deaths from leukemia in the United States. The American Cancer Society estimates that in 2013, approximately 15,000 people in the United States will be diagnosed with AML and over 10,000 people in the United States will die of the disease. AML is more commonly present in elderly patients, with a median age at diagnosis of 67 years according to the National Cancer Institute. In a review published in the *Journal of Clinical Oncology*, the median overall survival of patients 60 years old or older was 8.7 months. The overall five-year relative survival rate for all AML patients is 24%, and only 5% for patients over 65 years old at diagnosis. Relative survival is a statistical measure of net survival that is calculated by comparing observed survival with expected survival from a comparable set of people who do not have AML, in order to measure the excess mortality that is associated with the AML diagnosis.

A number of published studies indicate that only some AML patients who receive chemotherapy achieve a complete response, which is defined as the disappearance of all signs of AML, and that most of those with a complete response will eventually relapse. Patients who do not enter remission are referred to as refractory, meaning that they are

resistant to the chemotherapy treatment.

## **Table of Contents**

We believe there is a need for new treatment options for elderly AML patients, as well as those AML patients who relapse or develop refractory disease. Most AML patients with relapsed or refractory disease have no established treatment options and, accordingly, may be referred for participation in clinical studies of potential new therapies. For patients who elect not to participate or are unable to participate, treatment options typically include chemotherapy regimens, hypomethylators and supportive care. Further, many elderly AML patients are too frail to undergo chemotherapy as a result of other medical conditions, and may only be able to tolerate pain comfort or control measures. Without treatment, however, AML is uniformly fatal.

### *Role of E-selectin in AML*

E-selectin has been shown to play important roles in the progression of AML. This has been observed in several studies, which have shown that levels of E-selectin correlate with tumor infiltration and relapse and survival rates. We therefore believe that our E-selectin antagonist, GMI-1271, has the potential to improve the current treatment of AML patients.

### *GMI-1271 Preclinical Development*

Some leukemia cells, known as blast cells, bind to E-selectin in the bone marrow where they are relatively protected from the effects of chemotherapy. This phenomenon is known as cell adhesion-mediated drug resistance, or CAMDR. We believe that E-selectin inhibition disrupts the adhesion involved in CAMDR and mobilizes blast cells out of the bone marrow and into the bloodstream, making them more susceptible to chemotherapy. We believe that this mechanism of action may allow GMI-1271 to improve chemotherapy response rates, duration of remission and, ultimately, survival in patients with hematologic cancers such as AML.

In one *in vivo* study in a mouse model of AML, combining GMI-1271 with chemotherapy mobilized AML blast cells and significantly reduced tumor burden as compared to treatment with chemotherapy alone. In an *in vitro* study, AML cells bound to E-selectin were more resistant to chemotherapy. In a related study, when treated with GMI-1271, the resistance of such cells to chemotherapy was reduced. Tumor cells of patients who have relapsed AML, when tested in the laboratory, bound significantly higher levels of E-selectin than tumor cells of patients at initial diagnosis. In another *in vitro* study, GMI-1271 inhibited the E-selectin-mediated activation of the Wnt and Hedgehog signaling pathways, which are known to play important roles in the development and progression of AML. These pathways are activated in tumors when they are bound to E-selectin, and activation of these pathways may enhance the survival of these tumor cells. We believe that all of this data supports our strategy for targeting E-selectin in these patients. GMI-1271 represents a novel agent that we believe could potentially be combined with many chemotherapeutic agents.

As GMI-1271 disrupts the interactions between cancer cells and bone marrow microenvironment, its mechanism of action is not limited to a single cancer type. In addition to our studies of GMI-1271 in AML, we have also tested the drug candidate in other cancer models. In *in vivo* studies involving animal models of multiple myeloma, chronic myelogenous leukemia and acute lymphoblastic leukemia, GMI-1271, as an adjunct to standard-of-care chemotherapy, decreased tumor burden and improved survival over standard-of-care chemotherapy alone.

In addition to its anti-tumor effects, GMI-1271, in animal models, has shown protection against some of the toxicities of chemotherapy. In particular, animals treated with GMI-1271 in combination with chemotherapy had less severe neutropenia and mucositis and lower bone marrow toxicity as compared to animals treated with chemotherapy alone. We believe that treatment with GMI-1271 results in lower bone marrow toxicity due to its inhibition of E-selectin, thereby making hematopoietic stem cells divide less frequently and protecting them from chemotherapy agents that target rapidly dividing cells. Hematopoietic stem cells are blood cells that give rise to all other types of blood cells and



are heavily concentrated in the bone marrow. Similar effects have been demonstrated with rivipansel and were published in the journal *Nature Medicine* in December 2012. Based on these reductions in some of the toxicities of chemotherapy, we are evaluating these effects as secondary efficacy endpoints in our clinical trials.

## **Table of Contents**

### *GMI-1271 Clinical Trials*

We filed an IND for GMI-1271 in February 2014. Following the FDA's acceptance of the IND, we initiated a single dose Phase 1 trial to evaluate the safety, tolerability and pharmacokinetics of GMI-1271 in normal, healthy volunteers in June 2014. The single-site Phase 1 trial was a randomized, double-blind, placebo-controlled, single ascending intravenous dose study of GMI-1271. Twenty-eight healthy adult subjects were enrolled in cohorts that received study drug at three dose levels. In the trial, GMI-1271 was well tolerated and the results suggest that its pharmacokinetics were suitable for our continued development of the drug candidate.

We have initiated preparations for a multinational, Phase 1/2, open-label trial of GMI-1271 as an adjunct to standard chemotherapy in patients with AML. This study in males and females with AML will be conducted at a number of academic institutions in the United States, Ireland and Australia. We expect the start-up sites to begin recruiting patients in the first quarter of 2015. The trial will consist of two parts. In the Phase 1 portion, escalation testing will be performed to determine a recommended GMI-1271 dose in combination with standard chemotherapy. In the Phase 2 portion, dose-expansion testing will be conducted to obtain additional safety and efficacy data in defined sub-populations of AML. This will be followed by an expansion in specific patient populations.

### *Other Indications*

In December 2013, researchers at the University of Michigan received a grant from the National Heart Lung and Blood Institute to evaluate GMI-1271 as a potential treatment for venous thromboembolic disease, or VTE, a serious blood clotting disorder. VTE, which can occur after a major operation or severe illness, such as a heart attack, stroke or some cancers, refers to both pulmonary embolism and deep vein thrombosis, or DVT, which is the formation of blood clots in large veins, primarily in the legs. The clots become dangerous when they break loose and can affect blood flow to the heart and lungs. Because GMI-1271, as an E-selectin antagonist, also inhibits the activation of processes leading to thrombosis, we believe that it has therapeutic potential to decrease thrombosis and its inflammatory effects.

The University of Michigan study of GMI-1271 began dosing healthy volunteers in a Phase 1 clinical trial in December 2014. The trial, a randomized, partially blinded, active placebo-controlled trial, is expected to last approximately 10 months. The primary objective of the study is to evaluate the safety and pharmacokinetic profile of GMI-1271 in a single ascending dose in healthy volunteers. The secondary objectives include evaluation of the incidence of bleeding and other adverse events and evaluation of the effects of GMI-1271 on biomarkers of coagulation, cell adhesion and leukocyte and platelet activation.

### ***Drug Candidates Targeting E-selectin and CXCR4***

The chemokine CXCR4 has emerged as an important pro-inflammatory cytokine that is involved in cell migration throughout the body. Like E-selectin, tumor cells may also target the CXCR4 cellular pathway, contributing to chemoresistance, metastatic disease and ultimately decreased survival. E-selectin and CXCR4 expression on AML blasts is thought to be an indicator of poor AML prognosis.

We have designed a family of small molecule drug candidates that simultaneously inhibit both E-selectin and CXCR4. We have selected one of these compounds, GMI-1359, to be developed further as part of an IND-enabling nonclinical program. Due to the complementary cellular functions of E-selectin and CXCR4 as adhesion molecules, we believe that targeting both E-selectin and CXCR4 with a single compound could enhance the efficacy of traditional chemotherapy in cancers where both E-selectin and CXCR4 are implicated. We are currently exploring GMI-1359 in preclinical models.

***GMI-1051 and Other Drug Candidates Targeting Pseudomonas Virulence Factors***

Pseudomonas is a pathogenic form of bacteria that is responsible for an increasing number of infections and is frequently resistant to treatment with antibiotics. These bacteria express and secrete molecules known as virulence factors, which are involved in key functions of bacterial survival and propagation. These virulence

## **Table of Contents**

factors bind to specific carbohydrate structures, which we believe can be targeted with glycomimetic drugs. We have developed one drug candidate, GMI-1051, which is an antagonist of two important pseudomonas virulence factors, PA-IL and PA-IIL.

We have conducted a number of *in vitro* and *in vivo* preclinical studies of GMI-1051. In each study, GMI-1051 inhibited the functions of both PA-IL and PA-IIL and had greater affinity for these targets than did the native carbohydrates. We also studied GMI-1051 *in vivo* in three animal models of pseudomonas infection. In one study, GMI-1051 improved survival of mice in a chronic lung infection model when dosed in combination with tobramycin, an antibacterial often used to treat pseudomonas infections, as compared to treatment with tobramycin alone. In two other studies, GMI-1051 reduced bacterial load in an acute lung infection model and improved survival in a model of surgical infection. We are actively testing and optimizing GMI-1051 and other similar compounds to identify the most suitable drug candidates for further development. Results from our preclinical studies of GMI-1051 were selected for presentation at the North American Cystic Fibrosis Conference in October 2014.

### ***Galectin Inhibitors***

Galectin-3 is a protein that is known to play a critical role in many pathological processes, including chemotherapy resistance, fibrosis and cardiovascular disease. Using our glycomimetics platform, we have designed highly potent galectin-3 inhibitors that specifically block the binding of galectin-3 to carbohydrate structures. We plan to conduct preclinical experiments in 2015 to further characterize the effects of galectin-3 inhibitors on immune processes and pro-fibrotic activity.

### **Our Collaboration with Pfizer**

#### ***Overview***

In October 2011, we entered into a license agreement with Pfizer, under which we granted Pfizer an exclusive worldwide license to develop and commercialize rivipansel, for all fields and uses. The products licensed under the agreement also include certain backup compounds, along with modifications of and improvements to rivipansel that meet defined chemical properties.

Under the terms of the agreement, we received a \$22.5 million upfront payment and are eligible to earn up to \$115.0 million upon the achievement of specified development milestones, including the dosing of the first patients in Phase 3 clinical trials for up to two indications and the first commercial sale of a licensed product in the United States and selected European countries for up to two indications, up to \$70.0 million upon the achievement of specified regulatory milestones, including the acceptance of our filings for regulatory approval by regulatory authorities in the United States and Europe for up to two indications, and up to \$135.0 million upon the achievement of specified levels of annual net sales of licensed products. We are also eligible to receive tiered royalties for each licensed product, with percentages ranging from the low double digits to the low teens, based on net sales of rivipansel worldwide, subject to reductions in specified circumstances. The first potential milestone payment under the Pfizer agreement was \$35.0 million upon the initiation of dosing of the first patient in a Phase 3 trial of rivipansel by Pfizer. Under the collaboration, Pfizer made a \$15.0 million non-refundable payment to us in May 2014, and the dosing of the first patient in the Phase 3 clinical trial will trigger the remaining \$20.0 million milestone payment.

#### ***Development and Commercialization Obligations***

Pfizer will initially develop and seek approval for rivipansel in the field of sickle cell disease under the agreement. We were responsible for completion of the Phase 2 clinical trial relating to VOC associated with sickle cell disease.

Following the completion of the Phase 2 clinical trial, we now have no further development or commercialization obligations, and Pfizer is required to use commercially reasonable efforts, at its expense, to develop, obtain regulatory approval for and commercialize rivipansel for sickle cell disease in the United States. Pfizer generally must notify us in writing promptly of any decision to cease development activities, efforts to obtain regulatory approval or commercialization of rivipansel for the first approved indication.

## **Table of Contents**

### ***Governance***

The agreement establishes a non-voting, joint steering committee to facilitate the exchange of information regarding the development of licensed products and the initial commercialization plans for such products.

### ***Exclusivity Restrictions***

During the term of the agreement, we may not directly or indirectly commercialize any pharmaceutical compound or product that is labeled for the treatment, prevention or prophylaxis of a vaso-occlusive or painful crisis associated with sickle cell disease anywhere in the world, subject to specified exceptions if we or our affiliates were to undergo a change of control.

### ***Term and Termination***

The agreement will expire on a licensed product-by-licensed product and country-by-country basis on the date of termination of the applicable royalty term with respect to each licensed product in each country and in its entirety upon the expiration of all applicable royalty terms for all licensed products in all countries. The royalty term for each licensed product in each country is the period commencing with the first commercial sale in the applicable country and ending on the expiration of specified patent coverage or 10 years following the first commercial sale in the applicable country, whichever is later. Pfizer has the right to terminate the agreement, subject to certain notice requirements. The agreement may also be terminated in its entirety either by Pfizer or by us in the event of an uncured material breach by the other party or in the event the other party becomes subject to specified bankruptcy, insolvency or similar circumstances.

### ***Effects of Termination***

Upon termination of the agreement by Pfizer for convenience or by us, all rights and licenses granted to Pfizer under the agreement will terminate and Pfizer is obligated to grant us a non-exclusive worldwide license to specified Pfizer proprietary rights to develop and commercialize licensed products in the form being used or sold by Pfizer at the time of such termination, to transfer to us specified data and regulatory materials and approvals, and to provide for the continued supply of licensed products subject to specified terms. If Pfizer has completed additional clinical trials for the applicable licensed product and we obtain such a license or obtain such data and materials and commercialize a licensed product, then, for a period of 10 years from the first commercial sale of such licensed product, Pfizer is eligible to receive royalties at defined percentages in the low single-digits on net sales of such licensed product worldwide, up to a defined aggregate payment cap. The applicable royalty rate and maximum royalty payment cap depend on the stage of clinical development at the time of such termination.

### **Research Services Agreement with University of Basel**

We have a research services agreement with the University of Basel, or the University, under which University personnel have performed research services for us on an as-requested basis since 2004 pursuant to separately negotiated research plan work orders, each lasting one year. We have no obligation to continue to purchase services from the University under the agreement. Under the current research plan, the University is performing research services related to potential oral selectin antagonists and PK evaluation for new selectin antagonists in development by us. We have agreed to pay the University consideration for the research services performed, as determined in connection with each annual research plan work order. For each of the annual research terms ended in February 2014 and 2015, we paid the University approximately \$200,000.

We do not license any intellectual property from the University under this agreement as the University assigns to us its rights in any intellectual property jointly developed under this agreement. However, as part of the original consideration for entering into the agreement, we granted to the University the right to receive payments from us under specified circumstances. Accordingly, if we receive any future milestone payments or royalties from Pfizer with respect to rivipansel, we have agreed to pay 10% of those amounts to the University, subject to specified exceptions. We do not expect any of our other product candidates to be covered by the

## **Table of Contents**

payment obligations under this agreement. These potential payments to the University are our only affirmative obligation under the agreement other than payment for research services for ongoing research plan work orders. As of December 31, 2014, we accrued \$1.5 million that is payable to the University, which is equal to 10% of the \$15.0 million non-refundable milestone payment we received from Pfizer in May 2014.

The agreement remains in effect until we are no longer obligated to make any potential payments. The agreement contemplates individual one year research terms, which have been implemented by annual amendments to the agreement effective as of February of each year. The agreement may be terminated by us if the investigator performing the services under the agreement becomes incapacitated to properly carry out his duties under the agreement. The agreement may also be terminated by either party upon material breach by the other party unless the breaching party cures the breach within 90 days.

## **Intellectual Property**

We strive to protect the intellectual property that we believe is important to our business, including seeking and maintaining patent protection intended to cover the composition of matter of our drug candidates and their methods of use. We have issued patents directed to rivipansel and methods of use that are expected to expire between 2023 and 2030. We have patent applications directed to GMI-1271 that, if issued, are expected to expire between 2032 and 2033. We also rely on trade secrets and careful monitoring of our proprietary information to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection.

Our success will depend significantly on our ability to obtain and maintain patent and other proprietary protection for commercially important inventions and know-how related to our business, defend and enforce our patents, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and other proprietary rights of third parties. We also rely on know-how and continuing technological innovation to develop, strengthen and maintain our proprietary position in the field of glycomimetics.

A third party may hold intellectual property, including patent rights that are important or necessary to the development of our drug candidates. It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our drug candidates, in which case we would be required to obtain a license from these third parties. If we are not able to obtain such a license, or are not able to obtain such a license on commercially reasonable terms, our business could be materially harmed.

We plan to continue to expand our intellectual property estate by filing patent applications directed to additional glycomimetic compounds and their derivatives, compositions and formulations containing them and methods of using them. Additionally, we will seek patent protection in the United States and internationally for novel compositions of matter covering the compounds and their use in a variety of therapies.

The patent positions of biotechnology companies like us are generally uncertain and involve complex legal, scientific and factual questions. In addition, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance, including where a reissue application is filed in relation to an issued patent to correct issues or errors arising during prosecution that may render claims of the issued patent either wholly or partially invalid or unenforceable. Consequently, we do not know whether any of our drug candidates will be protectable or remain protected by enforceable patents. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient proprietary protection from competitors. Any patents that we hold may be challenged, circumvented or invalidated by third parties.



Because patent applications in the United States and certain other jurisdictions are maintained in secrecy for 18 months, and since publication of discoveries in the scientific or patent literature often lags behind actual discoveries, we cannot be certain of the priority of inventions covered by pending patent applications. Moreover,

## **Table of Contents**

we may have to participate in interference proceedings declared by the U.S. Patent and Trademark Office, or USPTO, or a foreign patent office to determine priority of invention or in post-grant challenge proceedings, such as oppositions, that challenge priority of invention or other features of patentability. Such proceedings could result in substantial cost, even if the eventual outcome is favorable to us.

## **Manufacturing**

We do not have any manufacturing facilities or personnel. We currently rely, and expect to continue to rely, on third parties for the manufacturing of our drug candidates for preclinical and clinical testing, as well as for commercial manufacturing if our drug candidates receive marketing approval.

In the case of rivipansel, the initial process development, manufacturing and scale-up was managed by us and performed under contract by third parties. Under our license agreement with Pfizer, responsibility for manufacturing rivipansel has now transferred to Pfizer. With respect to our other drug candidates, we anticipate continuing to manage process development, scale-up and manufacturing under contracts with third parties.

All of our drug candidates are small molecules and are manufactured in reliable and reproducible synthetic processes from readily available starting materials. The chemistry does not require unusual equipment in the manufacturing process. We expect to continue to develop drug candidates that can be produced cost-effectively at contract manufacturing facilities.

## **Commercialization**

We have not yet established a sales, marketing or drug distribution infrastructure. With the exception of rivipansel, to which we have granted Pfizer exclusive commercialization rights, we generally expect to retain commercial rights in the United States for our current drug candidates, all of which are still in preclinical or early clinical development. We believe that it will be possible for us to access the U.S. market for those drug candidates through a focused, specialized sales force.

Subject to receiving marketing approvals, we expect to commence commercialization activities by building a focused sales and marketing organization in the United States to sell our drugs. We believe that such an organization will be able to target the community of physicians who are the key specialists in treating the patient populations for which our drug candidates are being developed. Outside the United States, we expect to enter into distribution and other marketing arrangements with third parties for any of our drug candidates that obtain marketing approval.

We also plan to build a marketing and sales management organization to create and implement marketing strategies for any drugs that we market through our own sales organization and to oversee and support our sales force. The responsibilities of the marketing organization would include developing educational initiatives with respect to approved drugs and establishing relationships with thought leaders in relevant fields of medicine.

## **Competition**

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary drugs. While we believe that our knowledge, experience and scientific resources provide us with competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies and public and private research institutions. Any drug candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become

available in the future.

The key competitive factors affecting the success of all of our drug candidates, if approved, are likely to be their safety, efficacy, convenience, price, the level of generic competition and the availability of coverage and reimbursement from government and other third-party payors.

## **Table of Contents**

With respect to rivipansel, we are not aware of any therapies that have been approved for the treatment of patients experiencing an ongoing VOC episode. The only approved drug for the prevention of VOC is hydroxyurea. While hydroxyurea has been shown to reduce the frequency of VOC in some patient groups and is approved for chronic use for this indication, it is not effective in relieving symptoms or accelerating the resolution of an ongoing VOC episode. Moreover, hydroxyurea is not suitable for all patients and can have significant toxicities and side effects. We are also aware of a company, Mast Therapeutics, Inc., that is developing a drug to treat VOC once the crisis is underway. Mast is currently conducting a Phase 3 clinical trial in patients 4 to 65 years old experiencing VOC.

In addition to efforts to treat VOC once it is underway, there are a number of companies developing therapies to prevent VOC from occurring. We are aware of another company, Selexys Pharmaceuticals Corporation, that is developing a therapy that targets selectins. We believe that the Selexys approach is focused on P-selectin. Selexys has announced that it has commenced enrollment in a Phase 2 clinical trial and that it has granted Novartis an option to acquire the company. Other companies are using different approaches to target a variety of biological mechanisms, including up-regulating fetal hemoglobin, inhibiting a platelet ADP receptor and increasing the affinity of sickle hemoglobin's binding to oxygen.

We are also aware of efforts to develop cures for sickle cell disease through approaches such as bone marrow transplant and gene therapy. Although bone marrow transplant is currently available, its use is limited by the lack of availability of matched donors and by the risk of serious complications, including graft versus host disease and infection. Attempts to develop a cure through gene therapy remain at an early stage, but if these approaches were to be successful and received regulatory approval, this could limit the market for a drug such as rivipansel being developed for treatment of VOC. Other efforts are also underway to prevent the occurrence of VOC by various means. If any of these are successful, it could limit the market for a drug, such as rivipansel, designed to treat VOC.

With respect to GMI-1271 and its development for the treatment of AML and other hematologic cancers, there is substantial potential competition from other therapies currently in development. While some chemotherapies in development for AML could potentially be complementary to GMI-1271, there are also therapies in development that could be directly competitive with GMI-1271. For example, Mozobil, which is currently marketed by Sanofi, is being studied in combination with chemotherapy for the treatment of AML. As the treatment landscape for AML changes, there is substantial risk that GMI-1271 might not provide additional benefit over other therapies.

Many of the companies against which we are competing, or against which we may compete in the future, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved drugs than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

## **Government Regulation and Product Approval**

Government authorities in the United States, at the federal, state and local levels, and in other countries, extensively regulate, among other things, the research, development, testing, manufacture, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, import and export of pharmaceutical products, such as those we are developing. The processes for obtaining regulatory approvals in the United States and in foreign countries, along with subsequent compliance with applicable statutes and regulations, require the expenditure of substantial time

and financial resources.

**Table of Contents**

***United States Government Regulation***

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and its implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable United States requirements at any time during the drug development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending new drug applications, or NDAs, withdrawal of an approval, imposition of a clinical hold, issuance of warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties.

The process required by the FDA before a drug may be marketed in the United States generally involves:

completion of preclinical laboratory tests, animal studies and formulation studies in compliance with the FDA's good laboratory practice, or GLP, regulations;

submission to the FDA of an IND, which must become effective before human clinical trials may begin;

approval by an independent institutional review board, or IRB, at each clinical site before each trial may be initiated;

performance of human clinical trials, including adequate and well-controlled clinical trials, in accordance with good clinical practices, or GCP, to establish the safety and efficacy of the proposed drug for each indication;

submission to the FDA of an NDA;

satisfactory completion of an FDA advisory committee review, if applicable;

satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with current good manufacturing practices, or cGMP, and to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity, as well as satisfactory completion of an FDA inspection of selected clinical sites to determine GCP compliance; and

FDA review and approval of the NDA.

*Preclinical Studies*

Preclinical studies include laboratory evaluation of product chemistry, toxicity and formulation, as well as animal studies to assess potential safety and efficacy. An IND sponsor must submit the results of the preclinical studies, together with manufacturing information, analytical data and any available clinical data or literature, among other things, to the FDA as part of an IND. Some preclinical testing may continue even after the IND is submitted. An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

#### *Clinical Trials*

Clinical trials involve the administration of the investigational new drug to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include the requirement that all research subjects provide their informed consent in writing for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any

## Table of Contents

subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, an IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must continue to oversee the clinical trial while it is being conducted. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on their ClinicalTrials.gov website.

Human clinical trials are typically conducted in three sequential phases, which may overlap or be combined. In Phase 1, the drug is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an initial indication of its effectiveness. In Phase 2, the drug typically is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage. In Phase 3, the drug is administered to an expanded patient population, generally at geographically dispersed clinical trial sites, in well-controlled clinical trials to generate enough data to statistically evaluate the safety and efficacy of the product for approval, to establish the overall risk-benefit profile of the product and to provide adequate information for the labeling of the product.

Progress reports detailing the results of the clinical trials must be submitted, at least annually, to the FDA, and more frequently if serious adverse events occur. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements, or if the drug has been associated with unexpected serious harm to patients.

A sponsor may request a Special Protocol Assessment, or SPA, the purpose of which is to reach agreement with the FDA on the Phase 3 clinical trial protocol design and analysis that will form the primary basis of an efficacy claim. According to FDA's published guidance on the SPA process, a sponsor that meets the prerequisites may make a specific request for an SPA and provide information regarding the design and size of the proposed clinical trial. The FDA is supposed to evaluate the protocol within 45 days of the request to assess whether the protocol design and planned analysis of the trial are acceptable to support regulatory approval of the product candidate with respect to effectiveness of the indication studied, and that evaluation may result in discussions and a request for additional information. An SPA request must be made before the proposed trial begins, and all open issues must be resolved before the trial begins for an SPA to be approved. If a written agreement is reached, it will be documented in an SPA letter or the minutes of a meeting between the sponsor and the FDA and made part of the administrative record.

Even if the FDA agrees to the design, execution and analyses proposed in protocols reviewed under the SPA process, the FDA may revoke or alter its agreement under the following circumstances:

public health concerns emerge that were unrecognized at the time of the protocol assessment, or the director of the review division determines that a substantial scientific issue essential to determining safety or efficacy has been identified after testing has begun;

a sponsor fails to follow a protocol that was agreed upon with the FDA; or



the relevant data, assumptions, or information provided by the sponsor in a request for SPA change, are found to be false statements or misstatements, or are found to omit relevant facts.

A documented SPA may be modified, and such modification will be deemed binding on the FDA review division, except under the circumstances described above, if the FDA and the sponsor agree in writing to modify the protocol and such modification is intended to improve the study. An SPA, however, does not guarantee that a trial will be successful.

## **Table of Contents**

### *Marketing Approval*

Assuming successful completion of the required clinical testing, the results of the preclinical and clinical studies, together with detailed information relating to the product's chemistry, manufacture, controls and proposed labeling, among other things, are submitted to the FDA as part of an NDA requesting approval to market the product for one or more indications. In most cases, the submission of an NDA is subject to a substantial application user fee. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has agreed to certain performance goals regarding the timing of its review of an application.

In addition, under the Pediatric Research Equity Act, an NDA or supplement to an NDA must contain data that are adequate to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

The FDA also may require submission of a risk evaluation and mitigation strategy, or REMS, plan to mitigate any identified or suspected serious risks. The REMS plan could include medication guides, physician communication plans, assessment plans and elements to assure safe use, such as restricted distribution methods, patient registries or other risk minimization tools.

The FDA conducts a preliminary review of all NDAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA reviews an NDA to determine, among other things, whether the drug is safe and effective and whether the facility in which it is manufactured, processed, packaged or held meets standards designed to assure the product's continued safety, quality and purity.

The FDA typically refers questions regarding novel drugs to an external advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical trial sites to assure compliance with GCP.

The testing and approval process for an NDA requires substantial time, effort and financial resources, and takes several years to complete. Data obtained from preclinical and clinical testing are not always conclusive and may be susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The FDA may not grant approval of an NDA on a timely basis, or at all.

After evaluating the NDA and all related information, including the advisory committee recommendation, if any, and inspection reports regarding the manufacturing facilities and clinical trial sites, the FDA may issue an approval letter, or, in some cases, a complete response letter. A complete response letter generally contains a statement of specific conditions that must be met in order to secure final approval of the NDA and may require

## **Table of Contents**

additional clinical or preclinical testing in order for FDA to reconsider the application. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval. If and when those conditions have been met to the FDA's satisfaction, the FDA will typically issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

### *Special FDA Expedited Review and Approval Programs*

The FDA has various programs, including fast track designation and priority review, that are intended to expedite or simplify the process for the development and FDA review of drugs that are intended for the treatment of serious or life-threatening diseases or conditions and demonstrate the potential to address unmet medical needs. The purpose of these programs is to provide important new drugs to patients earlier than under standard FDA review procedures. To be eligible for a fast track designation, the FDA must determine, based on the request of a sponsor, that a product is intended to treat a serious or life-threatening disease or condition and demonstrates the potential to address an unmet medical need. The FDA will determine that a product will fill an unmet medical need if it will provide a therapy where none exists or provide a therapy that may be potentially superior to existing therapy based on efficacy or safety factors. Rivipansel has received fast track designation from the FDA.

The FDA may give a priority review designation to drugs that offer major advances in treatment, or provide a treatment where no adequate therapy exists. A priority review means that the goal for the FDA to review an application is six months from filing of an NDA, rather than the standard review of ten months from filing under current PDUFA guidelines. Most products that are eligible for fast track designation are also likely to be considered appropriate to receive a priority review.

### *Post-Approval Requirements*

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications, manufacturing changes or other labeling claims, are subject to further testing requirements and prior FDA review and approval. There also are continuing annual user fee requirements for any marketed products and the establishments at which such products are manufactured, as well as new application fees for supplemental applications with clinical data.

Even if the FDA approves a product, it may limit the approved indications for use of the product, require that contraindications, warnings or precautions be included in the product labeling, including a boxed warning, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms under a REMS, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs.

In addition, drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state agencies, and are subject to periodic unannounced inspections by the FDA and these state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use.

Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain cGMP compliance.

## Table of Contents

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market.

Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in mandatory revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;

finest, warning letters or holds on post-approval clinical trials;

refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;

product seizure or detention, or refusal to permit the import or export of products; or

injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Although physicians, in the practice of medicine, may prescribe approved drugs for unapproved indications, pharmaceutical companies generally are required to promote their drug products only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of drugs and drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

### *Federal and State Fraud and Abuse and Data Privacy and Security Laws and Regulations*

In addition to FDA restrictions on marketing of pharmaceutical products, federal and state fraud and abuse laws restrict business practices in the biopharmaceutical industry. These laws include anti-kickback and false claims laws and regulations, as well as data privacy and security laws and regulations.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce or in return for purchasing, leasing, ordering or arranging for or recommending the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare

programs. The term remuneration has been broadly interpreted to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers and formulary managers on the other. Although there are a number of statutory exemptions and regulatory safe harbors protecting some common activities from prosecution, the exemptions and safe harbors are drawn narrowly. Practices that involve remuneration that may be alleged to be intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the statute has been violated.

The reach of the Anti-Kickback Statute was also broadened by the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively PPACA, which, among other things, amended the intent requirement of the federal Anti-Kickback Statute such that a

## Table of Contents

person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, PPACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act or the civil monetary penalties statute, which imposes penalties against any person who is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent. PPACA also created new federal requirements for reporting, by applicable manufacturers of covered drugs, payments and other transfers of value to physicians and teaching hospitals.

The federal False Claims Act prohibits any person from knowingly presenting, or causing to be presented, a false claim for payment to the federal government or knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. A claim includes any request or demand for money or property presented to the U.S. government. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of products for unapproved, and thus non-reimbursable, uses. The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created new federal criminal statutes that prohibit knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

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 their respective implementing regulations, including the final omnibus rule published on January 25, 2013, imposes specified 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, defined as independent contractors or agents of covered entities that create, receive, maintain or transmit protected health information in connection with providing a service for or 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 attorney's 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.

Because of the breadth of these laws and the narrowness of available statutory and regulatory exemptions, it is possible that some of our business activities could be subject to challenge under one or more of such laws. 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 from participation in government healthcare 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. To the extent that any of our products are sold in a foreign country, we may be subject to similar foreign laws and regulations, which may include, for instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws and implementation of corporate compliance programs and reporting of payments or transfers of value to healthcare professionals.





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**Table of Contents***Coverage and Reimbursement*

The commercial success of our drug candidates and our ability to commercialize any approved drug candidates successfully will depend in part on the extent to which governmental payor programs at the federal and state levels, including Medicare and Medicaid, private health insurers and other third-party payors provide coverage for and establish adequate reimbursement levels for our drug candidates. 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 EU and other potentially significant markets for our drug 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 often has resulted in average selling prices lower than they would otherwise be. Further, the increased emphasis on managed healthcare in the United States and on country and regional pricing and reimbursement controls in the EU 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 coverage and reimbursement policies and pricing in general.

Third-party payors are increasingly imposing additional requirements and restrictions on coverage and limiting reimbursement levels for medical products. For example, federal and state governments reimburse covered prescription drugs at varying rates generally below average wholesale price. These restrictions and limitations influence the purchase of healthcare services and products. Third-party payors may limit coverage to specific drug products on an approved list, or formulary, which might not include all of the FDA-approved drug products for a particular indication. Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Our drug candidates may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in drug development. Legislative proposals to reform healthcare or reduce costs under government insurance programs may result in lower reimbursement for our drugs and drug candidates or exclusion of our drugs and drug candidates from coverage. The cost containment measures that healthcare payors and providers are instituting and any healthcare reform could significantly reduce our revenues from the sale of any approved drug candidates. We cannot provide any assurances that we will be able to obtain and maintain third party coverage or adequate reimbursement for our drug candidates in whole or in part.

*Impact of Healthcare Reform on Coverage, Reimbursement and Pricing*

The United States and some foreign jurisdictions are considering enacting or have enacted 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 United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and 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.

There have been several U.S. government initiatives over the past few years to fund and incentivize certain comparative effectiveness research. Although the results of the comparative effectiveness studies are not intended to mandate coverage policies for public or private payors, it is not clear what effect, if any, the research will have on the sales of any product, if any such product or the condition that it is intended to treat is the subject of a study. It is also possible that comparative effectiveness research demonstrating benefits in a competitor's

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**Table of Contents**

product could adversely affect the sales of our product candidates. If third-party payors do not consider our drug candidates to be cost-effective compared to other available therapies, they may not cover our drug candidates, once approved, as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our drugs on a profitable basis.

PPACA became law in March 2010 and 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 specified 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. healthcare system, some of which could further limit the prices we are able to charge for our drug candidates, once approved, or the amounts of reimbursement available for our drug candidates once they are approved.

As a result of PPACA, Medicare payments are increasingly tied to quality of care and value measures, and reporting of related data by providers such as physicians and hospitals. So called value based reimbursement measures may present challenges as well as potential opportunities for biopharmaceutical manufacturers. Medicare incentives for providers meeting certain quality measures may ultimately prove beneficial for manufacturers that are able to establish that their products may help providers to meet such measures. However, manufacturers' ability to market their drug products based on quality or value is highly regulated and not always permissible. In addition, the potentially decreased Medicare reimbursement to those providers that fail to adequately comply with quality reporting requirements could translate to decreased resources available to purchase products and may negatively impact marketing or utilization of our drug candidates if they are approved for marketing. We cannot predict at this time what impact, if any, the longer-term shift towards value based reimbursement will have on any of our drug candidates in either the Medicare program, or in any other third party payor programs that may similarly tie payment to provider quality.

In addition, other legislative changes have been proposed and adopted since PPACA was enacted. In August 2011, the President signed into law the Budget Control Act of 2011, as amended, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee on Deficit Reduction did not achieve its targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions include aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013. Under the Budget Control Act of 2011, as amended, federal budget sequestration Medicare payment reductions became effective on April 1, 2013 and automatically reduced payments under various government programs, including, for example, certain Medicare provider and supplier reimbursement payments. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These and other healthcare reform initiatives may result in additional reductions in Medicare and other healthcare funding.

*Exclusivity and Approval of Competing Products**Hatch-Waxman Patent Listing*

In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent with claims that cover the applicant's product or a method of using the product. Upon approval of a drug, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential

competitors in support of approval of an abbreviated new drug application, or ANDA, or 505(b)(2) NDA. Generally, an ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths, dosage form and route of administration as the listed drug and has been shown to be bioequivalent through *in vitro* or *in vivo* testing or otherwise to the listed drug. ANDA applicants are

## Table of Contents

not required to conduct or submit results of preclinical or clinical tests to prove the safety or efficacy of their drug product, other than the requirement for bioequivalence testing. Drugs approved in this way are commonly referred to as generic equivalents to the listed drug, and can often be substituted by pharmacists under prescriptions written for the original listed drug. 505(b)(2) NDAs generally are submitted for changes to a previously approved drug product, such as a new dosage form or indication.

The ANDA or 505(b)(2) NDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book, except for patents covering methods of use for which the ANDA applicant is not seeking approval. Specifically, the applicant must certify with respect to each patent that:

the required patent information has not been filed;

the listed patent has expired;

the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or

the listed patent is invalid, unenforceable or will not be infringed by the new product.

Generally, the ANDA or 505(b)(2) NDA cannot be approved until all listed patents have expired, except when the ANDA or 505(b)(2) NDA applicant challenges a listed drug. A certification that the proposed product will not infringe the already approved product's listed patents or that such patents are invalid or unenforceable is called a Paragraph IV certification. If the applicant does not challenge the listed patents or indicate that it is not seeking approval of a patented method of use, the ANDA or 505(b)(2) NDA application will not be approved until all the listed patents claiming the referenced product have expired.

If the ANDA or 505(b)(2) NDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the application has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days after the receipt of notice of the Paragraph IV certification automatically prevents the FDA from approving the ANDA or 505(b)(2) NDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA applicant.

### *Hatch-Waxman Non-Patent Exclusivity*

Market and data exclusivity provisions under the FDCA also can delay the submission or the approval of certain applications for competing products. The FDCA provides a five-year period of non-patent data exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the activity of the drug substance. During the exclusivity period, the FDA may not accept for review an ANDA or a 505(b)(2) NDA submitted by another company that contains the previously approved active moiety. However, an ANDA or 505(b)(2) NDA may be submitted after four years if it contains a certification of patent invalidity or noninfringement.

The FDCA also provides three years of marketing exclusivity for an NDA, 505(b)(2) NDA or supplement to an existing NDA or 505(b)(2) NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant, are deemed by the FDA to be essential to the approval of the application or supplement. Three-year exclusivity may be awarded for changes to a previously approved drug product, such as new indications, dosages, strengths or dosage forms of an existing drug. This three-year exclusivity covers only the conditions of use associated with the new clinical investigations and, as a general matter, does not prohibit the FDA from approving ANDAs or 505(b)(2) NDAs for generic versions of the original, unmodified drug product. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA; however, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

## **Table of Contents**

### *Orphan Drug Exclusivity*

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biological product intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making a drug or biological product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA or biologics license application. Orphan designation does not convey any advantage in or shorten the duration of the regulatory review and approval process. We have received orphan drug designation for rivipansel, and we intend to seek orphan drug designation and exclusivity for our other drug candidates whenever it is available.

If a product that has orphan designation subsequently receives the first FDA approval for such drug for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug or biological product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity. Competitors, however, may receive approval of different products for the indication for which the orphan product has exclusivity or obtain approval for the same product but for a different indication for which the orphan product has exclusivity. If a drug or biological product designated as an orphan product receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan product exclusivity. Orphan drug status in the EU has similar, but not identical, benefits.

### *Pediatric Exclusivity*

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity, including the non-patent and orphan drug exclusivity periods described above. This six-month exclusivity may be granted if an NDA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or Orange Book listed patent protection cover the drug are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot approve an ANDA or 505(b)(2) application owing to regulatory exclusivity or listed patents. If any of our drug candidates is approved, we anticipate seeking pediatric exclusivity when it is appropriate.

### *Foreign Regulation*

In order to market any product outside of the United States, we would need to comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our drug candidates. For example, in the EU, we must obtain authorization of a clinical trial application, or CTA, in each member state in which we intend to conduct a clinical trial. Whether or not we obtain FDA approval for a drug, we would need to obtain the necessary approvals by the comparable regulatory authorities of foreign countries before we can commence clinical trials or marketing of the drug in those countries. The approval process varies from country to country and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may negatively impact the regulatory process in others.





## **Table of Contents**

### **Employees**

As of December 31, 2014, we had 34 full-time employees, all of whom are located in the United States. None of our employees is represented by a labor union or covered by a collective bargaining agreement. We consider our relationship with our employees to be good.

### **Legal Proceedings**

We are not currently a party to any material legal proceedings, and we are not aware of any pending or threatened legal proceeding against us that we believe could have a material adverse effect on our business, operating results or financial condition.

### **Information about Segments**

We operate only in one business segment. See Note 2 Summary of Significant Accounting Policies Segment Information to our financial statements contained in Part II, Item 8 of this Annual Report.

### **Customer Concentration and Geographic Information**

Substantially all of our revenue for the years ended December 31, 2014, 2013 and 2012 was derived from Pfizer and was earned in the United States. All of our long-lived assets are located in the United States.

### **Corporate Information**

We were incorporated under the laws of the State of Delaware in April 2003 and commenced operations in May 2003. Our principal executive offices are located at 401 Professional Drive, Suite 250, Gaithersburg, Maryland 20879. Our telephone number is (240) 243-1201.

### **Available Information**

Our internet website address is [www.glycomimetics.com](http://www.glycomimetics.com). In addition to the information contained in this Annual Report, information about us can be found on our website. Our website and information included in or linked to our website are not part of this Annual Report.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge through our website as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission, or SEC. The public may read and copy the materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Additionally the SEC maintains an internet site that contains reports, proxy and information statements and other information. The address of the SEC's website is [www.sec.gov](http://www.sec.gov).

**Table of Contents**

**ITEM 1A. RISK FACTORS**

*Our business is subject to numerous risks. You should carefully consider the following risks, as well as general economic and business risks, and all of the other information contained in this Annual Report, together with any other documents we file with the SEC. Any of the following risks could have a material adverse effect on our business, operating results and financial condition and cause the trading price of our common stock to decline.*

**Risks Related to Our Financial Position and Capital Needs**

*We have incurred significant losses since our inception. We expect to continue to incur losses over the next several years and may never achieve or maintain profitability.*

Since inception, we have incurred significant operating losses. As of December 31, 2014, we had an accumulated deficit of \$74.4 million. We have financed our operations to date with \$64.1 million raised in private placements of convertible debt and convertible preferred stock, an aggregate of \$37.5 million received from upfront and milestone payments under our license agreement with Pfizer and \$57.2 million from our initial public offering, or IPO, in January 2014. We have not generated any meaningful revenue since our inception other than from the upfront and milestone payments from Pfizer.

We have devoted substantially all of our financial resources and efforts to research and development, including preclinical studies and clinical trials. We are still in the early stages of development of our drug candidates, and we have not completed development of any drugs. We expect to continue to incur significant expenses and operating losses over the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year. Although responsibility for further development, regulatory approval and potential commercialization of our lead drug candidate, rivipansel, has transferred to Pfizer under our collaboration with them following the completion of our Phase 2 clinical trial, we anticipate that our expenses will increase substantially as we:

commence and conduct clinical trials of GMI-1271;

continue the research and development of our other drug candidates;

seek to discover and develop additional drug candidates;

seek regulatory approvals for any drug candidates that successfully complete clinical trials;

ultimately establish a sales, marketing and distribution infrastructure and scale up external manufacturing capabilities to commercialize any drugs other than rivipansel for which we may obtain regulatory approval;

maintain, expand and protect our intellectual property portfolio;

hire additional clinical, quality control and scientific personnel;

add operational, financial and management information systems and personnel, including personnel to support our drug development and planned future commercialization efforts; and

incur additional legal, accounting and other expenses in operating as a public company.

To become and remain profitable, we must succeed in developing and eventually commercializing drugs that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical testing and clinical trials of our drug candidates other than rivipansel, obtaining regulatory approval for these drug candidates and manufacturing and commercializing any drugs for which we may obtain regulatory approval, as well as discovering additional drug candidates. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenue that is significant enough to achieve profitability.

## Table of Contents

In the case of rivipansel, our ability to generate revenue is dependent upon the achievement of development, regulatory and commercial milestones and sales sufficient to generate royalties under our license agreement with Pfizer, and the achievement of such milestones is largely out of our control. If Pfizer fails, or chooses not to continue, to further develop, seek regulatory approval for or commercialize rivipansel, our ability to generate revenue with respect to rivipansel will be significantly reduced or eliminated. For example, in September 2014, we were informed by Pfizer that initiation of the planned Phase 3 clinical trial with rivipansel will be significantly delayed due to a manufacturing development issue impacting formulated drug supply. Although Pfizer has taken a number of steps to prepare for initiation of the Phase 3 trial, there can be no assurance that the trial will be initiated on a timely basis or at all, which would negate our right to receive an additional milestone payment under our agreement with Pfizer. Because all of our drug candidates other than rivipansel are still in preclinical or early clinical development, if we are unable to generate revenue from our license agreement with Pfizer, we may never become profitable, and we may not be able to invest in the further development of our other drug candidates.

Because of the numerous risks and uncertainties associated with drug development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. If we are required by regulatory authorities to perform studies in addition to those currently expected, or if there are any delays in completing our clinical trials or the development of any of our drug candidates, our expenses could increase.

Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

***We will need substantial additional funding to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our drug development programs or potential commercialization efforts.***

We believe that our cash and cash equivalents as of December 31, 2014 will enable us to fund our operating expenses and capital expenditure requirements into the second half of 2016, without giving effect to any potential milestone payments we may receive under our agreement with Pfizer. However, we will need to obtain substantial additional funding in connection with our continuing operations. Our future capital requirements will depend on many factors, including:

- our agreement with Pfizer remaining in effect and our ability to achieve milestones under this and any other license or collaboration agreement that we may enter into in the future, including the remaining \$20.0 million milestone payment upon dosing the first patient in a Phase 3 clinical trial, the timing of which may be delayed significantly beyond our original expectations;

- the ability of Pfizer to identify the specific cause of and implement a remedy for the manufacturing development issue impacting formulated drug supply for rivipansel that has delayed the planned commencement of the Phase 3 clinical trial;

- the progress and results of the Phase 3 clinical trial of rivipansel, if and when commenced;

the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for our other drug candidates, including our planned Phase 1/2 clinical trials of GMI-1271;

the number and development requirements of other drug candidates that we may pursue;

the costs, timing and outcome of regulatory review of our drug candidates;

the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our drug candidates other than rivipansel for which we receive marketing approval;

**Table of Contents**

any royalties we receive from Pfizer with respect to sales of rivipansel, if it receives marketing approval;

the revenue, if any, received from commercial sales of our drug candidates other than rivipansel for which we receive marketing approval;

the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims; and

the extent to which we acquire or in-license other drug candidates and technologies.

Identifying potential drug candidates and conducting preclinical testing and clinical trials is a time consuming, expensive and uncertain process that takes years to complete, and we and Pfizer or any future collaborators may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. In addition, our drug candidates, if approved, may not achieve commercial success. Our commercial revenue, if any, will be derived from the sale of drugs that we do not expect to be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts.

***Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our drug candidates.***

Until such time, if ever, as we can generate substantial revenue from the sale of our drugs, we expect to finance our cash needs through a combination of equity offerings, debt financings and license and development agreements. We do not currently have any committed external source of funds other than possible milestone payments and possible royalties under our license agreement with Pfizer. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may be required to relinquish valuable rights to our research programs or drug candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or other arrangements with third parties when needed, we may be required to delay, limit, reduce or terminate our drug development or future commercialization efforts or grant rights to third parties to develop and market drug candidates that we would otherwise prefer to develop and market ourselves.

***Our operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.***

We commenced operations in 2003, and our operations to date have been largely focused on raising capital, developing our expertise in carbohydrate chemistry and knowledge of carbohydrate biology, identifying potential drug candidates, undertaking preclinical studies and, with respect to rivipansel and GMI-1271, conducting clinical trials. All but two of our drug candidates are still in preclinical development. We have not yet demonstrated our ability to

successfully complete later stage clinical trials, obtain regulatory approvals, manufacture a commercial scale drug, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history.



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## **Table of Contents**

We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives. With respect to our drug candidates other than rivipansel, we will need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, you should not rely upon the results of any quarterly or annual periods as indications of future operating performance.

### ***Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.***

Under Section 382 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an ownership change, generally defined as a greater than 50% change by value in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss, or NOL, carryforwards and other pre-change tax attributes to offset its post-change income may be limited. We may experience ownership changes in the future as a result of shifts in our stock ownership. As of December 31, 2014, we had federal and state NOL carryforwards of \$55.0 million, research and development tax credit carryforwards of \$5.8 million and orphan drug credit carryovers of \$1.0 million, each of which could be limited if we experience an ownership change.

### **Risks Related to the Discovery and Development of Our Drug Candidates**

#### ***Our research and development is focused on discovering and developing novel glycomimetic drugs, and we are taking an innovative approach to discovering and developing drugs, which may never lead to marketable drugs.***

A key element of our strategy is to use and expand our platform to build a pipeline of novel glycomimetic drug candidates and progress these drug candidates through clinical development for the treatment of a variety of diseases. The discovery of therapeutic drugs based on molecules that mimic the structure of carbohydrates is an emerging field, and the scientific discoveries that form the basis for our efforts to discover and develop drug candidates are relatively new. The scientific evidence to support the feasibility of developing drug candidates based on these discoveries is both preliminary and limited. Although our research and development efforts to date have resulted in a pipeline of glycomimetic drug candidates, we may not be able to develop drug candidates that are safe and effective. Even if we are successful in continuing to build our pipeline, the potential drug candidates that we identify may not be suitable for clinical development, including as a result of being shown to have harmful side effects or other characteristics that indicate that they are unlikely to be drugs that will receive marketing approval and achieve market acceptance. If we do not successfully develop and commercialize drug candidates based upon our glycomimetics platform, we will not be able to obtain product revenue in future periods, which likely would result in significant harm to our financial position and adversely affect our stock price.

#### ***We are very early in our development efforts and have only one drug candidate that has completed a Phase 2 clinical trial. All of our other drug candidates are still in preclinical or Phase 1 clinical development. If we or our collaborators are unable to commercialize our drug candidates or experience significant delays in doing so, our business will be materially harmed.***

We are very early in our development efforts, and rivipansel is our only drug candidate that has completed a Phase 2 clinical trial. All of our other drug candidates are still in preclinical or Phase 1 clinical development. We have not completed the development of any drug candidates, we currently generate no revenue from the sale of any drugs and we may never be able to develop a marketable drug. We have invested substantially all of our efforts and financial resources in the development of our glycomimetics platform, the identification of potential drug candidates using that

platform and the development of our drug candidates. Other than with respect to rivipansel, for which our collaborator Pfizer now has the responsibility for further development and

**Table of Contents**

commercialization, our ability to generate revenue from our other drug candidates, which we do not expect will occur for many years, if ever, will depend heavily on their successful development and eventual commercialization. The success of those drug candidates will depend on several factors, including:

successful completion of preclinical studies and clinical trials;

receipt of marketing approvals from applicable regulatory authorities;

obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our drug candidates;

making arrangements with third-party manufacturers for, or establishing, commercial manufacturing capabilities;

launching commercial sales of the drugs, if and when approved, whether alone or in collaboration with others;

acceptance of the drugs, if and when approved, by patients, the medical community and third-party payors;

effectively competing with other therapies;

obtaining and maintaining healthcare coverage and adequate reimbursement;

protecting our rights in our intellectual property portfolio; and

maintaining a continued acceptable safety profile of the drugs following approval.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our drug candidates, which would materially harm our business.

***Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our drug candidates.***

All but two of our drug candidates are in preclinical development, and their risk of failure is high. It is impossible to predict when or if any of our drug candidates will prove safe or effective in humans or will receive regulatory approval. Before obtaining marketing approval from regulatory authorities for the sale of any drug candidate, we or a collaborator must complete preclinical development and then conduct extensive clinical trials to demonstrate the

safety and efficacy of the drug candidate in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of development. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their drug candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their drugs.

We or our current or future collaborators may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our or their ability to receive marketing approval or commercialize our drug candidates, including:

regulators or institutional review boards may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;

we may experience delays in reaching, or fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;

**Table of Contents**

clinical trials of our drug candidates may produce negative or inconclusive results, including failure to demonstrate statistical significance, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon drug development programs;

the number of patients required for clinical trials of our drug candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;

our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;

regulators or institutional review boards may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;

the cost of clinical trials of our drug candidates may be greater than we anticipate;

the supply or quality of our drug candidates or other materials necessary to conduct clinical trials of our drug candidates may be insufficient or inadequate; and

our drug candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or institutional review boards to suspend or terminate the trials.

If we are required to conduct additional clinical trials or other testing of our drug candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our drug candidates or other testing, if the results of these clinical trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

be delayed in obtaining marketing approval for our drug candidates;

not obtain marketing approval at all;

obtain approval for indications or patient populations that are not as broad as intended or desired;

obtain approval with labeling that includes significant use or distribution restrictions or safety warnings;

be subject to additional post-marketing testing requirements; or

have the drug removed from the market after obtaining marketing approval.

Our drug development costs will also increase if we experience delays in testing or marketing approvals. We do not know whether any of our preclinical studies or clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Significant preclinical study or clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our drug candidates or allow our competitors to bring drugs to market before we do, and thereby impair our ability to successfully commercialize our drug candidates.

***If we or our collaborators experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.***

We or our collaborators may not be able to initiate or continue clinical trials for our drug candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. In particular, because rivipansel and GMI-1271 are intended to treat patients with sickle cell disease and AML, respectively, both of which represent a relatively low percentage of the population as compared to other diseases, our or our collaborators' ability to enroll eligible patients may be limited or may result in slower enrollment than we anticipate. In addition, some of

**Table of Contents**

our competitors have ongoing clinical trials for drug candidates that treat the same or similar indications as our drug candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' drug candidates. Patient enrollment is also affected by other factors, including:

the severity of the disease or condition under investigation;

the eligibility criteria for the trial;

the perceived risks and benefits of the drug candidate;

the availability of drugs approved to treat the disease or condition under investigation;

the efforts to facilitate timely enrollment in clinical trials;

the patient referral practices of physicians;

the ability to monitor patients adequately during and after treatment; and

the proximity and availability of clinical trial sites for prospective patients.

Our or our collaborators' inability to enroll a sufficient number of patients for clinical trials would result in significant delays and could require us or them to abandon one or more clinical trials altogether. Enrollment delays in these clinical trials may result in increased development costs for our drug candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing.

***If serious adverse or unacceptable side effects are identified during the development of our drug candidates, we may need to abandon or limit the development of some of our drug candidates.***

If our drug candidates are associated with undesirable side effects in clinical trials or have characteristics that are unexpected, we may need to abandon their development or limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Many drug candidates that initially showed promise in early stage testing have later been found to cause side effects that prevented their further development.

***We may expend our limited resources to pursue a particular drug candidate or indication and fail to capitalize on drug candidates or indications that may be more profitable or for which there is a greater likelihood of success.***

Because we have limited financial and management resources, we focus on a limited number of research programs and drug candidates. As a result, we may forego or delay pursuit of opportunities with other drug candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us

to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spending on current and future research and development programs and drug candidates for specific indications may not yield any commercially viable drugs. If we do not accurately evaluate the commercial potential or target market for a particular drug candidate, we may relinquish valuable rights to that drug candidate through collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights.

**Risks Related to Our Dependence on Third Parties**

*Our success is highly dependent on our existing collaboration with Pfizer, and future collaborations may also be important to us. If we are unable to maintain any of these collaborations, or if these collaborations are not successful, our business could be adversely affected.*

We have limited capabilities for drug development and do not yet have any capabilities for sales, marketing or distribution. Under our license agreement with Pfizer, Pfizer is responsible for all further development, regulatory approval and potential commercialization efforts with respect to rivipansel. All of our drug candidates



**Table of Contents**

other than rivipansel are still in preclinical or Phase 1 clinical development, and therefore our success is highly dependent on our collaboration with Pfizer. We cannot assure you that Pfizer will continue to develop rivipansel in a timely manner, or at all, or, if it achieves regulatory approval, that Pfizer will successfully commercialize rivipansel.

Our Pfizer collaboration, and any future collaborations we might enter into, may pose a number of risks, including:

collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;

collaborators may not perform their obligations as expected;

collaborators may not pursue the commercialization of any drug candidates that achieve regulatory approval or may elect not to pursue, continue or renew development or commercialization of drug candidates based on clinical trial results, changes in such collaborators' strategic focus or available funding or external factors, such as an acquisition, that divert resources or create competing priorities;

collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a drug candidate, repeat or conduct new clinical trials or require a new formulation of a drug candidate for clinical testing;

collaborators could experience delays in initiating or conducting clinical trials for any number of reasons, as has occurred with respect to the Phase 3 clinical trial of rivipansel to be conducted by Pfizer;

collaborators could independently develop, or develop with third parties, drugs that compete directly or indirectly with our drugs or drug candidates if such collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;

drug candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own drug candidates or drugs, which may cause such collaborators to cease to devote resources to the commercialization of our drug candidates;

a collaborator with marketing and distribution rights to one or more of our drug candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such drug or drugs;

disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or termination of the research, development or

commercialization of drug candidates, might lead to additional responsibilities for us with respect to drug candidates or might result in litigation or arbitration, any of which would be time consuming and expensive;

collaborators may not properly maintain or defend our or their intellectual property rights or may use our or their proprietary information in such a way as to invite litigation that could jeopardize or invalidate such intellectual property or proprietary information or expose us to potential litigation;

collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and

collaborations may be terminated for the convenience of the collaborator and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable drug candidates.

If our collaboration with Pfizer or any other collaborations we might enter into in the future do not result in the successful development and commercialization of drugs, or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the

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**Table of Contents**

collaboration, including the remaining \$20.0 million payment for the next milestone under the Pfizer agreement. In addition, even if we are eligible to receive these payments, they could be substantially delayed. For example, under our license agreement, Pfizer has the option to commence another Phase 2 clinical trial of rivipansel, and such commencement would delay or inhibit our ability to receive some of the milestone payments we might otherwise have received under the agreement. If we do not receive the funding we expect under these agreements, the development of our drug candidates could be delayed and we may need additional resources to develop our drug candidates. All of the risks relating to drug development, regulatory approval and commercialization described in this report also apply to the activities of our collaborators.

If Pfizer or a future collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate development or commercialization of any drug candidate licensed to it by us. If one of our collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our reputation in the business and financial communities could be adversely affected. For our drug candidates other than rivipansel, we may in the future determine to collaborate with pharmaceutical and biotechnology companies for their development and potential commercialization. We face significant competition in seeking appropriate collaborators. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of a collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms, or at all, we may have to curtail the development of a drug candidate, reduce or delay its development or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to fund and undertake development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we fail to enter into collaborations and do not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to further develop our drug candidates or bring them to market, which would impair our business prospects.

***We expect to rely on third parties to conduct our future clinical trials for drug candidates other than rivipansel, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials.***

We currently expect to engage a third-party contract research organization, or CRO, to conduct our recently initiated and planned clinical trials for GMI-1271 and any of our other drug candidates that may progress to clinical development. We expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators, to conduct those clinical trials. Agreements with such third parties might terminate for a variety of reasons, including a failure to perform by the third parties. If we need to enter into alternative arrangements, that would delay our drug development activities.

Our reliance on these third parties for research and development activities will reduce our control over these activities, but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as good clinical practices, or GCPs, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be

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**Table of Contents**

able to obtain, or may be delayed in obtaining, marketing approvals for our drug candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our drug candidates.

We also expect to rely on other third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our drug candidates or commercialization of our drugs, producing additional losses and depriving us of potential revenue.

***We contract with third parties for the manufacturing of some of our drug candidates for preclinical and clinical testing and expect to continue to do so for commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of our drug candidates or drugs, or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.***

We do not have any manufacturing facilities or personnel. For our drug candidates other than rivipansel, for which manufacturing responsibility has shifted to Pfizer, we rely, and expect to continue to rely, on third parties for the manufacturing of our drug candidates for preclinical and clinical testing, as well as for commercial manufacture if any of our drug candidates receive marketing approval. This reliance on third parties increases the risk that we will not have sufficient quantities of our drug candidates or drugs, or such quantities at an acceptable cost or quality, which could delay, prevent or impair our ability to timely conduct our clinical trials or our other development or commercialization efforts.

We also expect to rely on third-party manufacturers or third-party collaborators for the manufacturing of commercial supply of any other drug candidates for which we or our collaborators obtain marketing approval. We may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

reliance on the third party for regulatory compliance and quality assurance;

the possible breach of the manufacturing agreement by the third party;

the possible misappropriation of our proprietary information, including our trade secrets and know-how; and

the possible termination or non-renewal of the agreement by the third party at a time that is costly or inconvenient for us.

Third-party manufacturers may not be able to comply with current good manufacturing practices, or cGMP, regulations or similar regulatory requirements outside the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of drug candidates or drugs, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our drugs.

Our drug candidates and any drugs that we may develop may compete with other drug candidates and drugs for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that

might be capable of manufacturing for us. Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval. We do not currently have arrangements in place for redundant supply or a second source for bulk drug substance. We are currently manufacturing GMI-1271 through a third party, but the formulated drug product to be used to treat all of the patients in our planned Phase 1/2 clinical trials is not yet available, and there is no guarantee that it will become available in time for the anticipated start of those trials. If our current contract manufacturers cannot perform as agreed, we may be required to replace such manufacturers and we may incur added costs and delays in identifying and qualifying any such replacement.

## **Table of Contents**

Our current and anticipated future dependence upon others for the manufacturing of our drug candidates or drugs may adversely affect our future profit margins and our ability to commercialize any drugs that receive marketing approval on a timely and competitive basis.

### **Risks Related to the Commercialization of Our Drug Candidates**

*Even if any of our drug candidates receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success.*

If any of our drug candidates receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If our drug candidates do not achieve an adequate level of acceptance, we may not generate significant revenue from drug sales and we may not become profitable. The degree of market acceptance of our drug candidates, if approved for commercial sale, will depend on a number of factors, including:

the efficacy and potential advantages compared to alternative treatments;

our ability to offer our drugs for sale at competitive prices;

the convenience and ease of administration compared to alternative treatments;

the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;

the strength of marketing and distribution support;

the availability of third-party coverage and adequate reimbursement;

the prevalence and severity of any side effects; and

any restrictions on the use of our drugs together with other medications.

*If we are unable to establish sales, marketing and distribution capabilities for drug candidates other than rivipansel, we may not be successful in commercializing those drug candidates if and when they are approved.*

We do not have a sales or marketing infrastructure and have no experience in the sale, marketing or distribution of pharmaceutical drugs. Under our collaboration with Pfizer, Pfizer is responsible for the commercialization of rivipansel, our lead drug candidate, if it receives regulatory approval. To achieve commercial success for any other drug candidate for which we may obtain marketing approval, we will need to establish a sales and marketing

organization to market or co-promote such drugs. There are risks involved with establishing our own sales, marketing and distribution capabilities. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a drug candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our drugs on our own include:

our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;

the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future drugs;

the lack of complementary drugs to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more products; and

unforeseen costs and expenses associated with creating an independent sales and marketing organization.



## **Table of Contents**

If we are unable to establish our own sales, marketing and distribution capabilities and enter into arrangements with third parties to perform these services, our revenue and our profitability, if any, are likely to be lower than if we were to sell, market and distribute any drugs that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell, market and distribute our drug candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our drugs effectively. If we do not establish sales, marketing and distribution capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our drug candidates.

***We face substantial competition, which may result in others discovering, developing or commercializing drugs before or more successfully than we do.***

The development and commercialization of new drugs is highly competitive. We face competition with respect to our current drug candidates, and we will face competition with respect to any drug candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies, biotechnology companies, academic institutions, governmental agencies and public and private research institutions. Should any competitors' drug candidates receive regulatory or marketing approval prior to ours, they may establish a strong market position and be difficult to displace or diminish the need for our drug candidates.

With respect to rivipansel, we are not aware of any therapies that have been approved for treatment of patients experiencing VOC. The only drug approved for the prevention of VOC, but not for the resolution of an ongoing VOC episode, is hydroxyurea, which is available in both generic and branded formulations. We are also aware of a company, Mast Therapeutics, Inc., that is developing a drug to treat an ongoing VOC episode. Mast is currently conducting a Phase 3 clinical trial in patients 4 to 65 years old experiencing VOC. If Mast's drug achieves regulatory approval before rivipansel, it could adversely affect commercialization of rivipansel if it is approved.

In addition to efforts to treat ongoing VOC episodes, we are aware of a number of companies developing therapies intended to prevent VOC from occurring in the first place. One company, Selexys Pharmaceuticals Corporation, is developing a therapy that, like our drug candidates, targets selectins. Selexys has announced that it has commenced enrollment in a Phase 2 clinical trial for its selectin antagonist drug candidate. Other companies are using different approaches to target a variety of biological mechanisms. We are also aware of efforts to develop cures for sickle cell disease through approaches such as bone marrow transplant and gene therapy. If any these approaches are successful and receive regulatory approval, it could limit the market for a drug such as rivipansel.

In addition, numerous non-profit and non-commercial foundations and interest groups also are committed to improving outcomes for patients with sickle cell disease. Advances in the understanding of the signaling pathways associated with sickle cell disease may lead to further interest and development of treatment options. There is also increasing interest among for-profit companies in developing drugs for rare diseases, which may have the effect of increasing the development of drug candidates to treat sickle cell disease generally or VOC in particular. Legislative action, such as the potential to expand the priority review voucher system to rare pediatric diseases, may generate further interest in developing drug candidates to treat sickle cell disease or VOC and increase competition. If an alternative effective treatment or cure for VOC or sickle cell disease receives regulatory approval, the potential commercial success of rivipansel could be jeopardized.

In addition, a competitor's drug candidate with an orphan drug designation may receive marketing approval prior to rivipansel. For example, Mast recently announced that it received orphan drug designation in Europe for its drug candidate intended to treat an ongoing VOC episode. If Mast receives orphan drug designation in the United States and marketing approval for its drug candidate prior to rivipansel receiving marketing approval, the commercial

success of rivipansel could be significantly limited.

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**Table of Contents**

With respect to GMI-1271 and its development for treatment of AML and other hematologic cancers, there is substantial potential competition from other therapies currently in development. While some chemotherapies in development for AML could potentially be complementary to GMI-1271, there are also therapies in development that could be directly competitive with GMI-1271. For example, Mozobil, which is currently marketed by Sanofi, is being studied in combination with chemotherapy for the treatment of AML and myeloma. As the treatment landscape for AML changes, there is substantial risk that GMI-1271 might not provide additional benefit over other therapies.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize drugs that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any drugs that we may develop. Our competitors also may obtain FDA or other regulatory approval for their drugs more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market.

In addition, because we have no patents with respect to our glycomimetics platform, our competitors may use our methods, or acquire similar expertise, in order to develop glycomimetic drug candidates and progress these drug candidates through clinical development and commercialization, which could impair our ability to successfully commercialize our drug candidates or otherwise limit our commercial opportunities.

Many of the companies against which we are competing or against which we may compete in the future have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved drugs than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These companies compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

***Even if we or our collaborators are able to commercialize any of our drug candidates, the drugs may become subject to unfavorable pricing regulations, third-party coverage and reimbursement policies or healthcare reform initiatives.***

Our and our collaborators' ability to commercialize any of our drug candidates successfully will depend, in part, on the extent to which coverage and adequate reimbursement for these drugs and related treatments will be available from government payor programs at the federal and state levels authorities, including Medicare and Medicaid, private health insurers, managed care plans and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for drugs. Coverage and reimbursement may not be available for any drug that we or our collaborators commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Inadequate reimbursement levels may adversely affect the demand for, or the price of, any drug candidate for which we or our collaborators obtain marketing approval. Obtaining and maintaining adequate reimbursement for our drugs may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we or our collaborators may not be able to successfully commercialize any drug candidates for which

marketing approval is obtained.

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**Table of Contents**

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the indications for which the drug is approved by the FDA or similar regulatory authorities outside the United States. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our or our collaborators' inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved drugs that we develop could adversely affect our operating results, our ability to raise capital needed to commercialize drugs and our overall financial condition.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drugs vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we or our collaborators might obtain marketing approval for a drug in a particular country, but then be subject to price regulations that delay commercial launch of the drug, possibly for lengthy time periods, and negatively impact our ability to generate revenue from the sale of the drug in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more drug candidates, even if our drug candidates obtain marketing approval.

There can be no assurance that our drug candidates, if they are approved for sale in the United States or in other countries, will be considered medically reasonable and necessary for a specific indication, that they will be considered cost-effective by third-party payors, that coverage or an adequate level of reimbursement will be available or that third-party payors' reimbursement policies will not adversely affect our ability to sell our drug candidates profitably if they are approved for sale.

***Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any drugs that we may develop.***

We face an inherent risk of product liability exposure related to the testing of our drug candidates in human clinical trials, and will face an even greater risk if we commercially sell any drugs that we may develop. If we cannot successfully defend ourselves against claims that our drug candidates or drugs caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

decreased demand for any drug candidates or drugs that we may develop;

injury to our reputation and significant negative media attention;

withdrawal of clinical trial participants;

significant costs to defend the related litigation;

substantial monetary awards paid to trial participants or patients;

loss of revenue;

reduced resources of our management to pursue our business strategy; and

the inability to commercialize any drugs that we may develop.

## **Table of Contents**

We currently hold \$5.0 million of clinical trial insurance coverage in the aggregate for our clinical trials being conducted in the United States, with a per incident limit of \$5.0 million, which may not be adequate to cover all liabilities that we may incur. In addition, we have increased our clinical coverage above this amount in foreign countries where we plan to have sites as part of our clinical trials for GMI-1271, including Ireland and Australia. We may need to further increase our insurance coverage as we expand our clinical trials or if we commence commercialization of our drug candidates. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

## **Risks Related to Our Intellectual Property**

***If we are unable to obtain and maintain patent protection for our drug candidates, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize drug candidates similar or identical to ours, and our ability to successfully commercialize our drug candidates may be impaired.***

Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our drug candidates. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our drug candidates.

The patent prosecution process is expensive and time consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. We may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents licensed to third parties. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States, or vice versa. For example, European patent law restricts the patentability of methods of treatment of the human body more than U.S. law does. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or, in some cases, not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued that protect our drug candidates, in whole or in part, or which effectively prevent others from commercializing competitive drug candidates. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. 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 U.S. patent law. These include provisions that affect the way patent applications are prosecuted and may also affect patent litigation. The U.S. Patent and Trademark Office recently developed new regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, only became effective on March 16, 2013. 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.



## **Table of Contents**

Moreover, we may be subject to a third-party preissuance submission of prior art to the U.S. Patent and Trademark Office, or become involved in opposition, derivation, reexamination, *inter partes* review, post-grant review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our drug candidates and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize drugs without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future drug candidates.

Even if our patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our patents by developing similar or alternative drug candidates in a non-infringing manner.

In addition, the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical drug candidates, or limit the duration of the patent protection of our drug candidates. Given the amount of time required for the development, testing and regulatory review of new drug candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing drugs similar or identical to ours.

***We may become involved in lawsuits to protect or enforce our patents or other intellectual property, which could be expensive, time consuming and unsuccessful.***

Competitors may infringe our issued patents or other intellectual property. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents. In addition, in a patent infringement proceeding, a court may decide that a patent of ours is invalid or unenforceable, in whole or in part, construe the patent's claims narrowly or refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated or interpreted narrowly.

***We may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.***

A third party may hold intellectual property, including patent, rights that are important or necessary to the development of our drug candidates. It may be necessary for us to use patented or proprietary technology of third parties to commercialize our drug candidates, in which case we would be required to obtain a license from these third parties on commercially reasonable terms, or our business could be harmed, possibly materially.

***Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.***

Our commercial success depends upon our ability, and the ability of our collaborators, to develop, manufacture, market and sell our drug candidates without infringing the proprietary rights of third parties. There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries. We may



## **Table of Contents**

become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our drug candidates, including interference or derivation proceedings before the U.S. Patent and Trademark Office. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future.

If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our drug candidates. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing drug. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our drug candidates or force us to cease some of our business operations. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

***We may be subject to claims by third parties asserting that we or our employees have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.***

Many of our employees were previously employed at universities or other biotechnology or pharmaceutical companies. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these employees or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's former employer. Litigation may be necessary to defend against these claims.

In addition, while it is our policy to require our employees and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our and their assignment agreements may not be self-executing or may be breached, and we may be forced to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property.

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to management.

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

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



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**Table of Contents**

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

In addition to seeking patents for our drug candidates, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. For example, our platform is based on trade secrets that consist largely of expertise in carbohydrate chemistry and knowledge of carbohydrate biology. We do not believe that we can obtain patent protection for our platform. Thus, our competitors may use our methods, or acquire similar expertise, in order to develop glycomimetic drug candidates and progress these drug candidates through clinical development and commercialization, which could impair our ability to successfully commercialize our drug candidates.

We seek to protect our trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

**Risks Related to Regulatory Approval of Our Drug Candidates and Other Legal Compliance Matters**

***If we or our collaborators are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we or they will not be able to commercialize our drug candidates and our ability to generate revenue will be materially impaired.***

Our drug candidates and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale and distribution, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by the European Medicines Agency, or EMA, and similar regulatory authorities outside the United States. Failure to obtain marketing approval for a drug candidate will prevent us or our collaborators from commercializing the drug candidate. We have not received approval to market any of our drug candidates from regulatory authorities in any jurisdiction. We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party CROs to assist us in this process for drug candidates other than rivipansel. Securing marketing approval requires the submission of extensive preclinical and clinical data and supporting information to regulatory authorities for each therapeutic indication to establish the drug candidate's safety and efficacy. Securing marketing approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, applicable regulatory authorities. Our drug candidates may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our ability to obtain marketing approval or prevent or limit commercial use. If any of our drug candidates receives marketing approval, the accompanying label may limit the approved use of our drug, which could limit sales of the drug.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive and may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the drug candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations or changes in regulatory review for each submitted drug application may cause delays in

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**Table of Contents**

the approval or rejection of an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application, or may decide that our data is insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent marketing approval of a drug candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved drug not commercially viable.

For marketing exclusivity in the treatment of an ongoing VOC episode in sickle cell disease, we expect to rely primarily on the orphan drug designation that the FDA has granted us for rivipansel, which includes the treatment of the complications of sickle cell disease. However, in order to obtain marketing exclusivity, we must receive the first marketing approval for such indication. In addition, the orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If we experience delays in obtaining approval or if we fail to obtain approval of our drug candidates, the commercial prospects for our drug candidates may be harmed and our ability to generate revenue will be materially impaired.

***Even though we have obtained orphan drug designation for our most advanced drug candidate, rivipansel, we may not be able to obtain orphan drug marketing exclusivity for this drug candidate or any of our other drug candidates.***

Regulatory authorities in some jurisdictions, including the United States and the European Union, or EU, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a drug as an orphan drug if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the United States. We have obtained orphan drug designation from the FDA and the EMA for rivipansel for the treatment of VOC, and we may seek orphan drug designation for our other drug candidates. Generally, if a drug with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug is entitled to a period of marketing exclusivity, which precludes the FDA or the EMA from approving another marketing application for the same drug for that time period. The applicable period is seven years in the United States and 10 years in the EU. The EU exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we obtain orphan drug exclusivity for a drug candidate, that exclusivity may not effectively protect the candidate from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA can subsequently approve another drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

***The FDA fast track designation for rivipansel may not actually lead to a faster development or regulatory review or approval process.***

If a drug is intended for the treatment of a serious or life-threatening disease or condition and the drug demonstrates the potential to address unmet medical needs for this disease or condition, the drug sponsor may apply for FDA fast track designation. If fast track designation is obtained, the FDA may initiate review of sections of a new drug application, or NDA, before the application is complete. This rolling review is available if the applicant provides, and the FDA approves, a schedule for submission of the individual sections of the application.





## **Table of Contents**

Although we have obtained a fast track designation from the FDA for rivipansel to treat VOC, we may not experience a faster development process, review or approval compared to conventional FDA procedures. Our fast track designation may be withdrawn by the FDA if it believes that the designation is no longer supported by data from our clinical development program. Our fast track designation does not guarantee that we will qualify for or be able to take advantage of the expedited review procedures or that we will ultimately obtain regulatory approval of rivipansel.

### ***Failure to obtain marketing approval in international jurisdictions would prevent our drug candidates from being marketed abroad.***

In order to market and sell our drugs in the EU and any other jurisdictions, we or our collaborators must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the drug be approved for reimbursement before it can be approved for sale in that country. We or our collaborators may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. However, failure to obtain approval in one jurisdiction may impact our ability to obtain approval elsewhere. We or our collaborators may not be able to file for marketing approvals and may not receive necessary approvals to commercialize our drugs in any market.

### ***A variety of risks associated with marketing our drug candidates internationally could hurt our business.***

We or our collaborators may seek regulatory approval for rivipansel and our other drug candidates outside of the United States and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

differing regulatory requirements in foreign countries;

the potential for so-called parallel importing, which is what happens when a local seller, faced with high or higher local prices, opts to import goods from a foreign market with low or lower prices rather than buying them locally;

unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;

economic weakness, including inflation or political instability in particular foreign economies and markets;

compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;

foreign taxes, including withholding of payroll taxes;

foreign currency fluctuations, which could result in increased operating expenses and reduced revenues, and other obligations related to doing business in another country;

difficulties staffing and managing foreign operations;

workforce uncertainty in countries where labor unrest is more common than in the United States;

potential liability under the Foreign Corrupt Practices Act or comparable foreign regulations;

challenges enforcing our contractual and intellectual property rights, especially in foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;

**Table of Contents**

production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and

business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with our potential international operations may compromise our ability to achieve or maintain profitability.

***Any drug candidate for which we obtain marketing approval could be subject to post-marketing restrictions or recall or withdrawal from the market, and we may therefore be subject to penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our drug candidates, when and if any of them are approved.***

Any drug candidate for which we obtain marketing approval, along with manufacturing processes, post-approval clinical data, labeling, advertising and promotional activities for such drug candidate, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, cGMP requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a drug candidate is granted, the approval may be subject to limitations on the indicated uses for which the drug may be marketed or to the conditions of approval, including the requirement to implement a risk evaluation and mitigation strategy. If any of our drug candidates receives marketing approval, the accompanying label may limit the approved use of our drug, which could limit its sales.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of the drug. The FDA closely regulates the post-approval marketing and promotion of drugs to ensure drugs are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use, and if we do not market our drugs for their approved indications, we may be subject to enforcement action for off-label marketing. Violations of the Federal Food, Drug, and Cosmetic Act relating to the promotion of prescription drugs may lead to investigations alleging violations of federal and state healthcare fraud and abuse laws, as well as state consumer protection laws.

In addition, later discovery of previously unknown adverse events or other problems with our drugs, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may have negative consequences, including:

restrictions on such drugs, manufacturers or manufacturing processes;

restrictions on the labeling or marketing of a drug;

restrictions on product distribution or use;

requirements to conduct post-marketing studies or clinical trials;

warning letters;

recall or withdrawal of the drugs from the market;

refusal to approve pending applications or supplements to approved applications that we submit;

clinical holds;

fines, restitution or disgorgement of revenue or profit;

suspension or withdrawal of marketing approvals;

refusal to permit the import or export of our drugs;

**Table of Contents**

product seizure; or

injunctions or the imposition of civil or criminal penalties.

Non-compliance with EU requirements regarding safety monitoring or pharmacovigilance, and with requirements related to the development of drugs for the pediatric population, can also result in significant financial penalties. Similarly, failure to comply with the EU's requirements regarding the protection of personal information can also lead to significant penalties and sanctions.

***Our current and future relationships with customers and third-party payors in the United States and elsewhere may be subject, directly or indirectly, to applicable anti-kickback, fraud and abuse, false claims, transparency, health information privacy and security and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens and diminished profits and future earnings.***

Healthcare providers, physicians and third-party payors in the United States and elsewhere will play a primary role in the recommendation and prescription of any drug candidates for which we obtain marketing approval. Our future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations, including, without limitation, the federal Anti-Kickback Statute and the federal False Claims Act, which may constrain the business or financial arrangements and relationships through which we sell, market and distribute any drugs for which we obtain marketing approval. In addition, we may be subject to transparency laws and patient privacy regulation by the U.S. federal and state governments and by governments in foreign jurisdictions in which we conduct our business. The applicable federal, state and foreign healthcare laws and regulations that may affect our ability to operate include:

the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federal and state healthcare programs, such as Medicare and Medicaid;

federal civil and criminal false claims laws and civil monetary penalty laws, including the federal False Claims Act, which impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;

the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for 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 their respective implementing regulations, which impose obligations on covered healthcare providers, health plans, and healthcare clearinghouses, as well as their business associates that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

the federal Open Payments program, which requires manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or other transfers of value made to physicians, which is defined to include doctors, dentists, optometrists, podiatrists and chiropractors, and teaching hospitals and applicable manufacturers and applicable group purchasing organizations to

**Table of Contents**

report annually to CMS ownership and investment interests held by the physicians and their immediate family members, with disclosure of such information to be made by CMS on a publicly available website; and

analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; state and foreign laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers; state and foreign laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; 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.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations may involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, including, without limitation, damages, fines, imprisonment, exclusion from participation in government healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations, which could have a material adverse effect on our business. If any of the physicians or other healthcare providers or entities with whom we expect to do business, including our collaborators, is found not to be in compliance with applicable laws, it may be subject to criminal, civil or administrative sanctions, including exclusions from participation in government healthcare programs, which could also materially affect our business.

***Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our drug candidates and affect the prices we may obtain.***

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of our drug candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any drug candidates for which we obtain marketing approval.

Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and 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. In March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively PPACA, a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Among the provisions of PPACA of importance to our potential drug candidates are:

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



**Table of Contents**

an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for 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 non-compliance;

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 a manufacturer's outpatient drugs to be covered under Medicare Part D;

extension of a manufacturer's 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 and by adding new mandatory eligibility categories for certain individuals with income at or below 133% of the federal poverty level beginning in 2014, thereby potentially increasing a manufacturer's Medicaid rebate liability;

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

the new requirements under the federal Open Payments program and its implementing regulations;

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. These changes include aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013. On March 1, 2013, the President signed an executive order implementing the 2% Medicare payment reductions, and on April 1, 2013, these reductions went into effect. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers 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 customers for our drugs, if approved, 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

drug. Any reduction in reimbursement from Medicare or other government-funded 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 drugs.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for drugs. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our drug candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

## **Table of Contents**

***Governments outside the United States tend to impose strict price controls, which may adversely affect our revenue, if any.***

In some countries, particularly in the EU, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a drug. To obtain coverage and reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our drug candidate to other available therapies. If reimbursement of our drugs is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

***If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could harm our business.***

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

## **Risks Related to Employee Matters and Managing Our Growth**

***Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.***

We are highly dependent on the management, research and development, clinical, financial and business development expertise of Rachel King, our President and Chief Executive Officer; John Magnani, our Vice President of Research and Chief Scientific Officer; Helen Thackray, our Vice President of Clinical Development and Chief Medical Officer; and Brian Hahn, our Chief Financial Officer, as well as the other members of our scientific and clinical teams. In particular, we are dependent upon Dr. Magnani for key expertise in carbohydrate chemistry and knowledge of carbohydrate biology with respect to our glycomimetics platform, and the loss of his services would materially impair our future drug discovery efforts. Although we have entered into employment agreements with our executive officers, each of them may currently terminate their employment with us at any time. We do not maintain key person insurance for any of our executives or employees other than Ms. King.

Recruiting and retaining qualified scientific and clinical personnel and, if we progress the development of our drug pipeline other than rivipansel toward scaling up for commercialization, sales and marketing personnel, will also be critical to our success. The loss of the services of our executive officers or other key employees

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**Table of Contents**

could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval for and commercialize our drug candidates. Competition to hire qualified personnel in our industry is intense, and we may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

***We expect to expand our development and regulatory capabilities and potentially implement sales, marketing and distribution capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.***

As our development progresses, we expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of research, drug development, regulatory affairs and, if any of our drug candidates receives marketing approval, sales, marketing and distribution. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

***Our employees may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements.***

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with FDA regulations, to provide accurate information to the FDA, to comply with manufacturing standards we have established, to comply with federal and state healthcare fraud and abuse laws and regulations, to report financial information or data accurately or to disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of individually identifiable information, including, without limitation, information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent improper activities may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.



**Table of Contents**

**Risks Related to Ownership of Our Common Stock**

***An active trading market for our common stock may not continue to develop or be sustained.***

Prior to our IPO in January 2014, there was no public market for our common stock. Although our common stock is listed on The NASDAQ Global Market, we cannot assure you that an active trading market for our shares will continue to develop or be sustained. If an active market for our common stock does not continue to develop or is not sustained, it may be difficult for investors in our common stock to sell shares without depressing the market price for the shares or to sell the shares at all.

***The trading price of the shares of our common stock has been and is likely to continue to be volatile.***

Since our IPO, our stock price has been volatile. The stock market in general and the market for biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the price paid for the shares. The market price for our common stock may be influenced by many factors, including:

announcements relating to development, regulatory approvals or commercialization of our drug candidates;

actual or anticipated variations in our operating results;

changes in financial estimates by us or by any securities analysts who might cover our stock;

conditions or trends in our industry;

changes in laws or other regulatory actions affecting us or our industry;

stock market price and volume fluctuations of comparable companies and, in particular, those that operate in the biopharmaceutical industry;

announcements by us or our competitors of significant acquisitions, strategic partnerships or divestitures;

announcements of investigations or regulatory scrutiny of our operations or lawsuits filed against us;

capital commitments;

investors' general perception of our company and our business;

disputes concerning our intellectual property or other proprietary rights;

recruitment or departure of key personnel; and

sales of our common stock, including sales by our directors and officers or specific stockholders.

In addition, in the past, stockholders have initiated class action lawsuits against pharmaceutical and biotechnology companies following periods of volatility in the market prices of these companies' stock. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources from our business.

***If equity research analysts do not publish research or reports, or publish unfavorable research or reports, about us, our business or our market, our stock price and trading volume could decline.***

The trading market for our common stock is influenced by the research and reports that equity research analysts publish about us and our business. As a newly public company, we have only limited research coverage by equity research analysts. Equity research analysts may elect not to initiate or continue to provide research coverage of our common stock, and such lack of research coverage may adversely affect the market price of our common stock. Even if we have equity research analyst coverage, we will not have any control over the analysts



## **Table of Contents**

or the content and opinions included in their reports. The price of our stock could decline if one or more equity research analysts downgrade our stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which in turn could cause our stock price or trading volume to decline.

***The issuance of additional stock in connection with financings, acquisitions, investments, our stock incentive plan, our employee stock purchase plan or otherwise will dilute all other stockholders.***

Our certificate of incorporation authorizes us to issue up to 100,000,000 shares of common stock and up to 5,000,000 shares of preferred stock with such rights and preferences as may be determined by our board of directors. Subject to compliance with applicable rules and regulations, we may issue our shares of common stock or securities convertible into our common stock from time to time in connection with a financing, acquisition, investment, our stock incentive plan, our employee stock purchase plan or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the trading price of our common stock to decline.

***If a substantial number of our total outstanding shares are sold into the market, or if the market perceives that such sales may occur, it could cause the market price of our common stock to drop significantly, even if our business is doing well.***

Sales of a substantial number of shares of our common stock in the public market could occur at any time. If our stockholders sell, or if the market perceives that our stockholders intend to sell, substantial amounts of our common stock in the public market, the market price of our common stock could decline significantly. All of our outstanding shares of common stock are available for sale in the public market, subject only to the restrictions of Rule 144 under the Securities Act in the case of our affiliates.

In addition, we have filed a registration statement on Form S-8 registering the issuance of approximately 2.1 million shares of common stock subject to options or other equity awards issued or reserved for future issuance under our equity incentive plans. Shares registered under this registration statement on Form S-8 are available for sale in the public market subject to vesting arrangements and exercise of options, as well as Rule 144 in the case of our affiliates.

Additionally, some of the holders of our common stock who acquired their shares of our stock prior to the IPO, as well as some of the holders of outstanding warrants to purchase our common stock, or their transferees, have rights, subject to some conditions, to require us to file one or more registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. If we were to register the resale of these shares, they could be freely sold in the public market. If these additional shares are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

***Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management and hinder efforts to acquire a controlling interest in us, and the market price of our common stock may be lower as a result.***

There are provisions in our certificate of incorporation and bylaws that may make it difficult for a third party to acquire, or attempt to acquire, control of our company, even if a change in control was considered favorable by some or all of our stockholders. For example, our board of directors has the authority to issue up to 5,000,000 shares of preferred stock. The board of directors can fix the price, rights, preferences, privileges and restrictions of the preferred stock without any further vote or action by our stockholders. The issuance of shares of preferred stock may delay or prevent a change in control transaction. As a result, the market price of our common stock and the voting and other rights of our stockholders may be adversely affected. An issuance of shares of preferred stock may result in the loss of

voting control to other stockholders.

**Table of Contents**

Our charter documents also contain other provisions that could have an anti-takeover effect, including:

only one of our three classes of directors is elected each year;

stockholders are not entitled to remove directors other than by a 66 2/3% vote and only for cause;

stockholders are not permitted to take actions by written consent;

stockholders cannot call a special meeting of stockholders; and

stockholders must give advance notice to nominate directors or submit proposals for consideration at stockholder meetings.

In addition, we are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law, which regulates corporate acquisitions by prohibiting Delaware corporations from engaging in specified business combinations with particular stockholders of those companies. These provisions could discourage potential acquisition proposals and could delay or prevent a change in control transaction. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

Our certificate of incorporation also provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders.

***Concentration of ownership of our common stock among our existing executive officers, directors and principal stockholders may prevent new investors from influencing significant corporate decisions.***

Our executive officers, directors and current beneficial owners of 5% or more of our common stock and their respective affiliates beneficially own approximately 60% of our common stock. Further, funds controlled by one investor, New Enterprise Associates, or NEA, beneficially own nearly 50% of our common stock. As a result, NEA is able to control, and these other persons, acting together, are able to significantly influence, all matters requiring stockholder approval, including the election and removal of directors, any merger, consolidation, sale of all or substantially all of our assets or other significant corporate transactions. The interests of this group of stockholders may not coincide with our interests or the interests of other stockholders.

***We are an emerging growth company, and as a result of the reduced disclosure and governance requirements applicable to emerging growth companies, our common stock may be less attractive to investors.***

We are an emerging growth company as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced Management's Discussion and Analysis of Financial Condition and Results of Operations disclosure;

not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;

not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;

reduced disclosure obligations regarding executive compensation; and

not being required to hold a non-binding advisory vote on executive compensation or obtain stockholder approval of any golden parachute payments not previously approved.

## **Table of Contents**

We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) December 31, 2019, (2) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.0 billion, (3) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th and (4) any date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

Under Section 107(b) of the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

***If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired.***

We are subject to the reporting requirements of the Securities Exchange Act of 1934, the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 and the rules and regulations of The NASDAQ Global Market. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting and perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting. This requires that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts.

We may in the future discover areas of our internal financial and accounting controls and procedures that need improvement. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are unable to maintain proper and effective internal controls in the future, we may not be able to produce timely and accurate financial statements, and we may conclude that our internal controls over financial reporting are not effective. If that were to happen, the market price of our stock could decline and we could be subject to sanctions or investigations by NASDAQ, the SEC or other regulatory authorities.

***We do not anticipate paying any cash dividends on our common stock in the foreseeable future and our stock may not appreciate in value.***

We have not declared or paid cash dividends on our common stock to date. We currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. There is no guarantee that shares of our common stock will appreciate in value or that the price at which our stockholders have purchased their shares will be able to be maintained.

***We will incur increased costs and demands upon management as a result of being a public company.***

As a newly public company listed in the United States, we have begun, and will continue, particularly after we cease to be an emerging growth company, to incur significant additional legal, accounting and other costs.

## **Table of Contents**

These additional costs could negatively affect our financial results. In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by the SEC and NASDAQ, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies.

We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If we do not comply with new laws, regulations and standards, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

Failure to comply with these rules might also make it more difficult for us to obtain some types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on committees of our board of directors or as members of senior management.

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

None.

### **ITEM 2. PROPERTIES**

Our principal offices occupy approximately 20,000 square feet of leased office space in Gaithersburg, Maryland, pursuant to a lease agreement that expires in October 2015. In July 2014, we entered into a lease agreement for approximately 34,000 square feet of space to be used for our future corporate headquarters in Rockville, Maryland. The term of the new lease will commence on the later of November 1, 2015 or approximately 30 days after the date on which the landlord tenders possession of the premises to us after the substantial completion of the specified tenant improvements. The term of the new lease will continue through October 31, 2023, although we will have a one-time option to terminate the lease effective as of October 31, 2020 by providing at least nine months' prior written notice and paying a termination fee set forth in the lease. We believe that the new facilities will be able to accommodate our future growth and any additional expansion of our operations.

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

From time to time, we are subject to litigation and claims arising in the ordinary course of business. We are not currently a party to any material legal proceedings and we are not aware of any pending or threatened legal proceeding against us that we believe could have a material adverse effect on our business, operating results, cash flows or financial condition.

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

Not applicable.





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

Our common stock commenced trading on The NASDAQ Global Market under the symbol GLYC on January 10, 2014. Prior to our IPO, there was no public market for our common stock. The following table sets forth, for the periods indicated, the high and low reported sales price of our common stock as reported on the NASDAQ Global Market:

<b>Year Ended December 31, 2014</b>	<b>High</b>	<b>Low</b>
January 10, 2014-March 31, 2014	\$ 18.99	\$ 8.40
Second quarter	17.46	6.02
Third quarter	10.10	6.47
Fourth quarter	9.68	6.18

**Dividend Policy**

We have never declared or paid any dividends on our common stock. We anticipate that we will retain all of our future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying cash dividends in the foreseeable future.

**Stockholders**

As of March 10, 2015, we had 18,994,838 shares of common stock outstanding held by approximately 36 holders of record. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

**Performance Graph**

The following graph compares the performance of our common stock since January 10, 2014, the date of our IPO, with the performance of the NASDAQ Composite Index (U.S.) and the NASDAQ Biotechnology Index. The comparison assumes a \$100 investment on January 10, 2014 in our common stock, the stocks comprising the NASDAQ Composite Index, and the stocks comprising the NASDAQ Biotechnology Index, and assumes reinvestment of the full amount of all dividends, if any. Historical stockholder return is not necessarily indicative of the performance to be expected for any future periods.

**Table of Contents**

**Comparison of Cumulative Total Return**

**Among GlycoMimetics, Inc., the NASDAQ Composite Index and the NASDAQ Biotechnology Index**

The performance graph shall not be deemed to be incorporated by reference by means of any general statement incorporating by reference this Form 10-K into any filing under the Securities Act of 1933, as amended or the Exchange Act, except to the extent that we specifically incorporate such information by reference, and shall not otherwise be deemed filed under such acts.

**Use of Proceeds from Initial Public Offering of Common Stock**

On January 9, 2014, our Registration Statement on Form S-1, as amended (File No. 333-191567) was declared effective in connection with our IPO, pursuant to which we sold 8,050,000 shares of our common stock, including the full exercise of the underwriters' option to purchase additional shares, at a price to the public of \$8.00 per share. The offering closed on January 15, 2014, and, as a result, we received net proceeds of approximately \$57.2 million (after underwriters' discounts and commissions of approximately \$4.5 million and additional offering related costs of approximately \$2.7 million). The joint managing underwriters of the offering were Jefferies LLC and Barclays Capital Inc.

No expenses incurred by us in connection with our IPO were paid directly or indirectly to (i) any of our officers or directors or their associates, (ii) any persons owning 10% or more of any class of our equity securities, or (iii) any of our affiliates, other than payments in the ordinary course of business to officers for salaries and to non-employee directors as compensation for board or board committee service.

There has been no material change in the planned use of proceeds from our IPO from that described in the final prospectus filed by us with the Securities and Exchange Commission on January 10, 2014.

**Table of Contents****Recent Sales of Unregistered Securities**

In December 2014, we issued 42,024 shares of common stock upon the net exercise of warrants at an exercise price of \$0.33 per share. The issuance of these securities was exempt from registration under Section 3(a)(9) of the Securities Act.

**Purchases of Equity Securities by the Issuer and Affiliated Parties**

None.

**ITEM 6. SELECTED FINANCIAL DATA**

The following selected financial data as of and for the years ended December 31, 2014, 2013, 2012 and 2011 is derived from our audited financial statements, which have been audited by Ernst & Young LLP, independent registered public accounting firm. The statement of operations data for the year ended December 31, 2011, and the balance sheet data as of December 31, 2012 and 2011, have been derived from our audited financial statements which are not included herein. Our historical results are not necessarily indicative of the results to be expected in the future. The selected financial data should be read together with Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations and in conjunction with the financial statements, related notes, and other financial information included elsewhere in this Annual Report.

(in thousands, except share and per share data)	YEAR ENDED DECEMBER 31,			
	2014	2013	2012	2011
<b>Statement of Operations Data:</b>				
Revenue	\$ 15,027	\$ 3,993	\$ 15,257	\$ 3,814
Costs and expenses:				
Research and development	19,571	11,701	9,438	7,799
General and administrative	6,596	2,899	2,184	2,133
Total costs and expenses	26,167	14,600	11,622	9,932
(Loss) income from operations	(11,140)	(10,607)	3,635	(6,118)
Other income (expense):				
Interest income (expense), net	18	1	21	5
Total other income (expense)	18	1	21	5
Net (loss) income	\$ (11,122)	\$ (10,606)	\$ 3,656	\$ (6,113)
Net (loss) income per share of common stock basic	\$ (0.60)	\$ (8.87)	\$ 3.93	\$ (6.58)
Net (loss) income per share of common stock diluted	\$ (0.60)	\$ (8.87)	\$ 0.33	\$ (6.58)
Weighted average shares outstanding, basic	18,452,252	1,196,162	929,619	928,604

Weighted average shares outstanding, diluted	18,452,252	1,196,162	11,016,532	928,604
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(in thousands)	AS OF DECEMBER 31,			
	2014	2013	2012	2011
<b>Balance Sheet Data:</b>				
Cash and cash equivalents	\$ 55,199	\$ 2,311	\$ 17,373	\$ 28,172
Total assets	57,264	5,283	18,420	28,909
Total liabilities	6,461	2,376	5,891	20,452
Total stockholders' equity	50,803	2,907	12,528	8,457

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**Table of Contents****ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

*You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the related notes and other financial information included elsewhere in this Annual Report. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. You should review Item 1A, Risk Factors and Special Note Regarding Forward-Looking Statements in this Annual Report for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.*

**Overview**

We are a clinical stage biotechnology company focused on the discovery and development of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. Glycomimetics are molecules that mimic the structure of carbohydrates involved in important biological processes. Using our expertise in carbohydrate chemistry and knowledge of carbohydrate biology, we are developing a pipeline of proprietary glycomimetics that inhibit disease-related functions of carbohydrates, such as the roles they play in inflammation, cancer and infection. We believe this represents an innovative approach to drug discovery to treat a wide range of diseases.

We are focusing our initial efforts on drug candidates for rare diseases that we believe will qualify for orphan drug designation. We are developing our lead drug candidate, rivipansel, previously known as GMI-1070, for the treatment of vaso-occlusive crisis, or VOC, one of the most severe complications of sickle cell disease. Rivipansel has received both orphan drug designation and fast track designation from the U.S. Food and Drug Administration, or FDA, for the treatment of VOC. In October 2011, we entered into a license agreement with Pfizer under which we were responsible for the clinical development of rivipansel through the completion of a Phase 2 clinical trial. Following our completion of the Phase 2 clinical trial in April 2013, Pfizer is now responsible for all further clinical development, regulatory approval and potential commercialization of rivipansel for all indications and Pfizer has commercial rights to rivipansel worldwide. In July 2014, Pfizer reached an agreement with the FDA under a special protocol assessment, or SPA, for the Phase 3 trial. However, in September 2014, we were informed by Pfizer that initiation of the Phase 3 clinical trial with rivipansel will be significantly delayed due to a manufacturing development issue impacting formulated drug supply. Pfizer advised us that the issue is under review and noted that upon identifying the specific cause of and planned remedy for the manufacturing issue, we will be informed of a more specific timeframe for commencing the Phase 3 trial.

Building on our experience with rivipansel, we are developing a pipeline of other glycomimetic drug candidates. Our second most advanced drug candidate, GMI-1271, is a specific E-selectin inhibitor, which we are developing to be used in combination with chemotherapy to treat patients with acute myeloid leukemia, or AML, and potentially other hematologic cancers. In June 2014, we commenced a Phase 1 clinical trial to evaluate the safety, tolerability and pharmacokinetics of GMI-1271 for the treatment of AML. We have initiated preparations for a multinational, Phase 1/2, open-label trial of GMI-1271 as an adjunct to standard chemotherapy in patients with AML, and we expect patient recruitment for this trial to begin in the first quarter of 2015.

We are also collaborating with the University of Michigan to evaluate GMI-1271 as a potential new class of anticoagulant to treat persons at risk for venous thromboembolic disease, or VTE, a serious blood-clotting disorder. The University of Michigan of GMI-1271 began dosing healthy volunteers in a Phase 1 clinical study starting in December 2014. The Phase 1 clinical study is a randomized, partially blinded, active placebo-controlled trial expected

to last approximately 10 months.

**Table of Contents**

We are also developing a pipeline of other preclinical drug candidates based on our expertise in carbohydrate chemistry. We have retained the worldwide development and commercialization rights to all of our drug candidates other than rivipansel.

We commenced operations in 2003, and our operations to date have been limited to organizing and staffing our company, business planning, raising capital, developing our glycomimetics platform, identifying potential drug candidates, undertaking preclinical studies and, beginning in 2008, conducting clinical trials of rivipansel and GMI-1271. To date, we have financed our operations primarily through private placements of our securities, upfront and milestone payments under our collaboration with Pfizer and the net proceeds from our IPO in January 2014. We have no products currently available for sale, and substantially all of our revenue to date has been revenue from the upfront and milestone payments from Pfizer, although we have received nominal amounts of revenue under research grants. Prior to our IPO, we raised an aggregate of \$86.6 million to fund our operations, of which \$22.5 million was an upfront payment under our collaboration with Pfizer and \$64.1 million was from the sale of our convertible promissory notes and convertible preferred stock. The IPO provided us with net proceeds of \$57.2 million, and we received a non-refundable milestone payment from Pfizer in May 2014 of \$15.0 million.

Since inception, we have incurred significant operating losses. Although we have generated cumulative revenue of \$38.6 million since our inception through December 31, 2014, primarily consisting of the \$22.5 million upfront payment from Pfizer in 2011 and the \$15.0 million non-refundable milestone payment in May 2014, we had an accumulated deficit of \$74.4 million as of December 31, 2014 and we expect to continue to incur significant expenses and operating losses over at least the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year, depending on the timing of our clinical trials, the receipt of milestone payments, if any, under our collaboration with Pfizer, and our expenditures on other research and development activities. We anticipate that our expenses will increase substantially as we:

initiate and conduct our planned clinical trials of GMI-1271 in 2015;

continue the research and development of our other drug candidates;

seek to discover and develop additional drug candidates;

seek regulatory approvals for any drug candidates other than rivipansel that successfully complete clinical trials;

ultimately establish a sales, marketing and distribution infrastructure and scale up external manufacturing capabilities to commercialize any drug candidates other than rivipansel for which we may obtain regulatory approval;

maintain, expand and protect our intellectual property portfolio;

hire additional clinical, quality control and scientific personnel; and

add operational, financial and management information systems and personnel, including personnel to support our drug development and potential future commercialization efforts.

To fund further operations, we will need to raise capital in addition to the net proceeds we received from our IPO and additional milestone payments we may receive under our collaboration with Pfizer. We may obtain additional financing in the future through the issuance of our common stock, through other equity or debt financings or through collaborations or partnerships with other companies. We may not be able to raise additional capital on terms acceptable to us, or at all, and any failure to raise capital as and when needed could compromise our ability to execute on our business plan. Although it is difficult to predict future liquidity requirements, we believe that our existing cash and cash equivalents, together with interest thereon, will be sufficient to fund our operations for at least the next 12 months. However, our ability to successfully transition to profitability will be dependent upon achieving a level of revenues adequate to support our cost structure. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities.



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**Table of Contents****Our Collaboration with Pfizer**

In October 2011, we entered into the license agreement with Pfizer under which we granted Pfizer an exclusive worldwide license to develop and commercialize products containing rivipansel for all fields and uses. The license also covers specified back-up compounds along with modifications of and improvements to rivipansel that meet defined chemical properties. Pfizer is required to use commercially reasonable efforts, at its expense, to develop, obtain regulatory approval for and commercialize rivipansel for sickle cell disease in the United States. Under the terms of the agreement, we received a \$22.5 million upfront payment. We are also eligible to earn potential milestone payments of up to \$115.0 million upon the achievement of specified development milestones, including the dosing of the first patients in Phase 3 clinical trials for up to two indications and the first commercial sale of a licensed product in the United States and selected European countries for up to two indications, up to \$70.0 million upon the achievement of specified regulatory milestones, including the acceptance of our filings for regulatory approval by regulatory authorities in the United States and Europe for up to two indications, and up to \$135.0 million upon the achievement of specified levels of annual net sales of licensed products. We are also eligible to receive tiered royalties for each licensed product, with percentages ranging from the low double digits to the low teens, based on net sales worldwide, subject to reductions in specified circumstances.

The first potential milestone payment under the Pfizer agreement was \$35.0 million upon the initiation of dosing of the first patient in a Phase 3 trial of rivipansel by Pfizer. Under the collaboration, Pfizer made a \$15.0 million non-refundable milestone payment to us in May 2014, and the dosing of the first patient in the Phase 3 clinical trial will trigger the remaining \$20.0 million milestone payment to us.

In September 2014, we were informed by Pfizer that initiation of the Phase 3 clinical trial with rivipansel will be significantly delayed due to a manufacturing development issue impacting formulated drug supply. Pfizer advised us that the issue is under review and noted that upon identifying the specific cause of and planned remedy for the manufacturing issue, we will be informed of a more specific timeframe for commencing the Phase 3 trial. Although Pfizer has taken and is taking a number of steps to prepare for Phase 3 initiation, there can be no assurance that the conditions to its obligation to make the remaining \$20.0 million milestone payment to us under the agreement will be satisfied.

We have a research services agreement with the University of Basel, or the University, under which University personnel have performed research services for us on an as-requested basis since 2004. The agreement includes one-year research terms, and we have no affirmative obligation to purchase any minimum amount of services in any year beyond what we commit to at the beginning of each term, if any. For each of the research terms ended in February 2014 and 2015, we paid the University approximately \$200,000. As part of the original consideration for entering into this agreement, we granted to the University the right to receive payments from us under specified circumstances. If we receive any future milestone payments or royalties from Pfizer with respect to rivipansel, we have agreed to pay 10% of those amounts to the University. As of December 31, 2014, we have recorded an accrued expense of \$1.5 million payable to the University, which is equal to 10% of the \$15.0 million non-refundable milestone payment we received from Pfizer in May 2014. Amounts paid to the University are recorded as research and development expense on our statements of operations.

**Critical Accounting Policies and Significant Judgments and Estimates**

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of these financial statements requires us to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities as

of the dates of the balance sheets and the reported amounts of revenue and expenses during the reporting periods. In accordance with GAAP, we base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances at the time such estimates are made. Actual results may differ materially from our estimates and judgments under different assumptions or

## **Table of Contents**

conditions. We periodically review our estimates in light of changes in circumstances, facts and experience. The effects of material revisions in estimates are reflected in our financial statements prospectively from the date of the change in estimate.

We define our critical accounting policies as those accounting principles generally accepted in the United States that require us to make subjective estimates and judgments about matters that are uncertain and are likely to have a material impact on our financial condition and results of operations, as well as the specific manner in which we apply those principles. While our significant accounting policies are more fully described in Note 2 to our financial statements appearing elsewhere in this Annual Report, we believe the following are the critical accounting policies used in the preparation of our financial statements that require significant estimates and judgments.

### **Revenue Recognition**

#### *License and Collaboration Agreements*

We have entered into a license agreement with Pfizer. Under the agreement, Pfizer made a nonrefundable \$22.5 million upfront payment to us in 2011 and may become obligated to make potential milestone payments to us upon the achievement of significant clinical development milestones, regulatory approvals and sales-based events.

The agreement also contemplates royalty payments to us on any future net sales of rivipansel worldwide.

Collaborative research and development agreements can provide for one or more of upfront license fees, research payments and milestone payments. Agreements with multiple components, such as deliverables or similar items, are referred to as multi-element revenue arrangements and are evaluated according to the provisions of Accounting Standards Codification, or ASC, Topic 605-25, *Revenue Recognition Multiple-Element Arrangements*, to determine whether the deliverables can be separated into more than one unit of accounting. An item can generally be considered to be a separate unit of accounting if both of the following criteria are met:

the delivered item(s) has value to our customer on a standalone basis; and

the arrangement includes a general right of return relative to the delivered item(s), and delivery or performance of the undelivered item(s) is considered probable and substantially in our control.

Items that cannot be divided into separate units are combined with other units of accounting, as appropriate.

Consideration received is then allocated among the separate units based on a selling price hierarchy. The selling price hierarchy for each deliverable is based on vendor-specific objective evidence, or VSOE, if it is available; third-party evidence of selling price, or TPE, if VSOE is not available; or an estimated selling price, if neither VSOE nor TPE is available.

Our license agreement with Pfizer represents a multiple-element revenue arrangement. To account for this transaction, we determined the elements, or deliverables, included in the arrangement and allocated arrangement consideration to the various elements based on each element's relative selling price. The identification of individual elements in a multiple-element arrangement and the estimation of the selling price of each element involve significant judgment, including consideration as to whether each delivered element has standalone value to our collaborator.

The primary deliverable under our license arrangement with Pfizer is an exclusive worldwide license to rivipansel, which is currently being developed to treat people experiencing VOC. The arrangement also includes

**Table of Contents**

deliverables related to research and preclinical development activities to be performed by us on Pfizer's behalf and our participation on a joint steering committee. We concluded that these deliverables should be accounted for as a single unit of accounting, and we therefore determined to recognize the upfront payment of \$22.5 million as revenue over the expected development period of 1.5 years, which was the period over which we expected to provide our research and development services and participate on the joint steering committee under the arrangement. Our determination of the appropriate length of the period over which to recognize revenue was consistent with the research plan agreed to with Pfizer and the actual development timeline.

In reaching this conclusion, we evaluated whether the license to rivipansel has standalone value to Pfizer. Factors we considered in determining whether the license has standalone value included whether or not Pfizer can use the license for its intended purpose without the receipt of the remaining deliverables, the value of the license without the undelivered items, Pfizer's or other vendors' ability to provide the undelivered items, the proprietary nature of the license and know-how, and the availability of our glycomimetics expertise in the general marketplace. Based on all relevant facts and circumstances and, most significantly, on the proprietary nature of our platform and the related proprietary nature of our research services, we concluded that standalone value does not exist for the license and, therefore, the license is not a separate unit of accounting under the collaboration and should be combined with the research and development services we are obligated to provide, including our participation on the joint steering committee.

We also evaluated whether our participation on the joint steering committee is a substantive obligation and therefore a separate unit of accounting. The joint steering committee is responsible for overseeing the general working relationships, determining the protocols to be followed in the research and development performed and evaluating the results from the continued development of the drug candidate. The factors we considered in determining if our participation on the joint steering committee is a substantive obligation included:

which party negotiated or requested the steering committee;

how frequently the steering committee meets;

whether or not there are any penalties or other recourse if we do not attend the steering committee meetings;

which party has decision-making authority on the steering committee; and

whether or not Pfizer has the requisite experience and expertise associated with the research and development of rivipansel.

We considered that we may terminate our participation on the joint steering committee at any point during the agreement. Further, the estimated selling price of our obligation was not material to the overall license agreement. Based on all relevant facts and circumstances, we concluded that our participation on the joint steering committee is not a substantive obligation and, therefore, is not a separate unit of accounting under the collaboration.

We were not able to establish VSOE or TPE for the separate unit deliverables under the arrangement with Pfizer, as we do not have a history of entering into such arrangements or selling the individual deliverables within such

arrangements separately. Accordingly, we determined that the selling price for the deliverables under the Pfizer license agreement should be determined using the best estimate of selling price. The process of determining the best estimate of selling price involved significant judgment on our part and included consideration of multiple factors, including market conditions and company-specific factors, such as those factors contemplated in negotiating the agreement and internally developed models that included assumptions related to market opportunity, discounted cash flows, estimated development costs, probability of success and the time needed to commercialize a drug candidate pursuant to the license. In validating the best estimate of selling

**Table of Contents**

price, we considered whether changes in key assumptions used to determine the best estimate of selling price would have a significant effect on the allocation of the arrangement consideration between the multiple deliverables.

Our license agreement with Pfizer also includes contingent milestone payments related to specified development, regulatory and commercial milestones. Pursuant to ASC-605-28, *Revenue Recognition-Milestone Method*, we may recognize revenue contingent upon the achievement of a substantive milestone in its entirety in the period the milestone is achieved. Milestones are considered substantive if all of the following conditions are met:

the milestone is nonrefundable;

achievement of the milestone was not reasonably assured at the inception of the arrangement;

substantive effort is involved to achieve the milestone;

the amount of the milestone appears reasonable in relation to the effort expended or the risk associated with achievement of the milestone; and

a reasonable amount of time passes between the upfront license payment and the first milestone payment, as well as between each subsequent milestone payment.

Our determination as to whether a payment meets these five conditions involves management's judgment. If any of these conditions are not met, the resulting payment would not be considered a substantive milestone and would instead be considered part of the consideration for the single unit of accounting. In addition, if we determine that one milestone is not substantive, it could prevent us from concluding that subsequent milestones are substantive and, as a result, any additional milestone payments could also be considered part of the consideration for the single unit of accounting and would be recognized as revenue as those performance obligations are performed under either the proportional performance method or the straight-line method.

We have evaluated whether each milestone under the Pfizer arrangement is substantive and at risk to both parties on the basis of the contingent nature of that milestone. This evaluation included an assessment of whether:

the consideration is commensurate with either our performance to achieve the milestone or the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from our performance to achieve the milestone;

the consideration relates solely to past performance; and

the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement.

Based on this evaluation, we concluded that the milestones under the Pfizer collaboration are substantive, due to the uncertainty of future clinical development success and the additional effort and time that is expected before the milestones could be achieved. Accordingly, each milestone will be recognized as revenue upon its achievement, assuming all other revenue recognition criteria are met.

***Stock-Based Compensation***

We issue stock-based compensation awards to our employees and non-employee directors, including stock options. We measure stock-based compensation expense related to these awards based on the fair value of the award on the date of grant and recognize stock-based compensation expense, less estimated forfeitures, on a straight-line basis over the requisite service period of the awards, which generally equals the vesting period. We grant stock options with exercise prices equal to the estimated fair value of our common stock on the date of grant. We have selected the Black-Scholes-Merton option pricing model to determine the fair value of stock option awards, which requires the input of various assumptions that require management to apply judgment and make assumptions and estimates, including:



## **Table of Contents**

**Risk-Free Interest Rate** The risk-free interest rate assumption is based on observed interest rates for constant maturity U.S. Treasury securities consistent with the expected life of our employee stock options.

**Expected Term** The expected life represents the period of time the stock options are expected to be outstanding and is based on the simplified method. Under the simplified method, the expected life of an option is presumed to be the midpoint between the vesting date and the end of the contractual term. We used the simplified method due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected life of the stock options

**Expected Volatility** Expected volatility is based on the historical volatilities of a peer group of comparable publicly traded companies with drug candidates in similar stages of development.

**Expected Dividend Yield** We have assumed no dividend yield because we do not expect to pay dividends in the future, which is consistent with our history of not paying dividends.

The amount of stock-based compensation expense recognized during a period is based on the value of the portion of the awards that are ultimately expected to vest. Our estimate of pre-vesting forfeitures, or forfeiture rate, is based on our analysis of historical behavior by stock option holders. The estimated forfeiture rate is applied to the total estimated fair value of the awards, as derived from the Black-Scholes-Merton model, to compute the stock-based compensation expense, net of pre-vesting forfeitures, to be recognized in our statements of operations. We estimate forfeitures for employee grants at the time of grant and revise the estimates, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

## ***Research and Development Expenses***

Research and development costs are charged to expense as incurred and include employee-related expenses, including salaries, benefits and travel, expenses incurred under agreements with CROs and investigative sites that conduct preclinical studies and clinical trials, as well as the cost of acquiring, developing and manufacturing clinical trial materials, facilities, depreciation and other expenses, which include direct and allocated expenses for rent and maintenance of facilities, insurance and other supplies and costs associated with preclinical activities and regulatory operations.

We record costs for some development activities, such as clinical trials, based on our evaluation of the progress to completion of specific tasks using data such as patient enrollment, clinical site activations, or information provided to us by our vendors on their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the financial statements as prepaid or accrued research and development expense, as the case may be.

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**Table of Contents*****Income Taxes***

We recorded deferred tax assets of \$32.7 million as of December 31, 2014, which have been fully offset by a valuation allowance due to uncertainties surrounding our ability to realize these tax benefits. The deferred tax assets are primarily composed of federal and state tax net operating loss, or NOL, carryforwards and research and development tax credit carryforwards. As of December 31, 2014, we had federal and state NOL carryforwards of \$55.0 million, research and development tax credit carryforwards of \$5.8 million, and \$1.0 million of orphan drug tax credit carryforwards available to reduce future taxable income, if any. Our federal and state NOL carryforwards will begin to expire at various dates starting in 2026. In general, if we experience a greater than 50 percentage point aggregate change in ownership of specified significant stockholders over a three-year period, utilization of our pre-change NOL carryforwards will be subject to an annual limitation under Section 382 of the U.S. Internal Revenue Code of 1986, as amended, and similar state laws. Such limitations may result in expiration of a portion of the NOL carryforwards before utilization and may be substantial. If we experience a Section 382 ownership change as a result of changes in our stock ownership, some of which changes may be outside our control, the tax benefits related to the NOL carryforwards may be further limited or lost.

**Components of Operating Results*****Revenue***

To date, we have not generated any revenue from product sales and do not expect to generate any revenue from the sale of drugs in the near future. Substantially all of our revenue recognized to date has consisted of the upfront payment under our agreement with Pfizer. As of December 31, 2014, we have received a developmental milestone payment of \$15.0 million but have not received any regulatory or commercial milestone payments or any royalties under the Pfizer collaboration.

Since our inception, we have also recognized a nominal amount of revenue under research grant contracts, generally to the extent of our costs incurred in connection with specific research or development activities.

***Research and Development***

Research and development expenses consist of expenses incurred in performing research and development activities, including compensation and benefits for full-time research and development employees, facilities expenses, overhead expenses, cost of laboratory supplies, clinical trial and related clinical manufacturing expenses, fees paid to CROs and other consultants and other outside expenses. Other preclinical research and platform programs include activities related to exploratory efforts, target validation, lead optimization for our earlier programs and our proprietary glycomimetics platform.

To date, our research and development expenses have related primarily to the development of rivipansel and our other drug candidates. As of April 2013, when we completed our Phase 2 clinical trial of rivipansel, all further clinical development obligations associated with rivipansel have shifted to Pfizer.

We do not currently utilize a formal time allocation system to capture expenses on a project-by-project basis because we are organized and record expense by functional department and our employees may allocate time to more than one development project. Accordingly, we only allocate a portion of our research and development expenses by functional area and by drug candidate.

Research and development costs are expensed as incurred. Non-refundable advance payments for goods or services to be received in the future for use in research and development activities are deferred and capitalized. The capitalized amounts are expensed as the related goods are delivered or the services are performed.

Research and development activities are central to our business model. Drug candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later stage clinical trials. We expect our research

**Table of Contents**

and development expenses to increase over the next several years as we seek to progress GMI-1271 and our other drug candidates through clinical development. However, it is difficult to determine with certainty the duration and completion costs of our current or future preclinical studies and clinical trials of our drug candidates, or if, when or to what extent we will generate revenues from the commercialization and sale of any of our drug candidates that obtain regulatory approval. We may never succeed in achieving regulatory approval for any of our drug candidates.

The duration, costs and timing of clinical trials and development of our drug candidates will depend on a variety of factors that include, but are not limited to:

per patient trial costs;

the number of patients that participate in the trials;

the number of sites included in the trials;

the countries in which the trial is conducted;

the length of time required to enroll eligible patients;

the number of doses that patients receive;

the drop-out or discontinuation rates of patients;

potential additional safety monitoring or other studies requested by regulatory agencies;

the duration of patient follow-up; and

the safety and efficacy profile of the drug candidate.

In addition, the probability of success for each drug candidate will depend on numerous factors, including competition, manufacturing capability and commercial viability. We will determine which programs to pursue and how much to fund each program in response to the scientific and clinical success of each drug candidate, as well as an assessment of each drug candidate's commercial potential.

***General and Administrative***

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in executive, finance, accounting, business development and human resources functions.

Other significant costs include facility costs not otherwise included in research and development expenses, legal fees relating to patent and corporate matters and fees for accounting and consulting services.

We anticipate that our general and administrative expenses will increase in the future to support our continued research and development activities, potential commercialization of our drug candidates and the increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. Additionally, we have experienced, and expect to continue to experience, increased costs associated with being a public company, including expenses related to services associated with maintaining compliance with NASDAQ listing rules and SEC requirements, insurance and investor relations costs. In addition, if any of our other drug candidates other than rivipansel obtains regulatory approval, we expect to incur expenses associated with building a sales and marketing team. However, we do not expect to receive any such regulatory approval for at least the next several years.

***Other Income***

Other income consists of interest income earned on our cash and cash equivalents.

**Table of Contents****Results of Operations for the Years Ended December 31, 2014 and 2013**

The following table sets forth our results of operations for the years ended December 31, 2014 and 2013.

(in thousands)	YEAR ENDED DECEMBER 31,		PERIOD-TO PERIOD CHANGE
	2014	2013	
Revenue	\$ 15,027	\$ 3,993	\$ 11,034
Costs and expenses:			
Research and development	19,571	11,701	7,870
General and administrative	6,596	2,899	3,697
Total costs and expenses	26,167	14,600	11,567
Loss from operations	(11,140)	(10,607)	(533)
Other income	18	1	17
Net loss	\$ (11,122)	\$ (10,606)	\$ (516)

**Revenue**

Revenue increased by \$11.0 million to \$15.0 million for the year ended December 31, 2014, compared to the year ended December 31, 2013. The increase in revenue for the year ended December 31, 2014 compared to the December 31, 2013 is due to the receipt of a \$15.0 million non-refundable milestone payment from Pfizer in May 2014. The \$4.0 million in revenue for the year ended December 31, 2013 consisted primarily of the remaining deferred revenue related to the upfront payment from Pfizer in 2011. The upfront payment was fully recognized as of March 31, 2013 consistent with the completion of our development obligations under the collaboration.

**Research and Development Expense**

Research and development expense increased by \$7.9 million to \$19.6 million for the year ended December 31, 2014, from \$11.7 million in the year ended December 31, 2013, reflecting an increase of 68%. The increase in research and development expense was primarily attributable to an increase in expenses related to the manufacturing and process development of GMI-1271 in preparation for the upcoming clinical trials. In addition, a \$1.5 million milestone license fee was recorded in the year ended December 31, 2014 for the payment due to the University of Basel representing 10% of the \$15.0 million non-refundable milestone payment that we received from Pfizer in May 2014.

The following table summarizes our research and development expenses by functional area for the years ended December 31, 2014 and 2013:

(in thousands)	YEAR ENDED DECEMBER 31,		PERIOD-TO PERIOD CHANGE
	2014	2013	
Clinical development	\$ 2,119	\$ 1,622	\$ 497

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Personnel related	4,407	3,769	638
Consulting fees	463	316	147
Manufacturing and formulation	7,410	2,955	4,455
Institutional research	71	357	(286)
Preclinical research	1,852	1,252	600
Laboratory costs	1,216	1,200	16
Stock-based compensation	513	230	283
Milestone license fee	1,520		1,520
	\$ 19,571	\$ 11,701	\$ 7,870

**Table of Contents**

The following table summarizes our research and development expenses by drug candidate for the years ended December 31, 2014 and 2013:

(in thousands)	YEAR ENDED DECEMBER 31,		PERIOD-TO PERIOD CHANGE
	2014	2013	
GMI-1271	\$ 9,611	\$ 3,988	\$ 5,623
Rivipansel	1,567	1,205	362
GMI-1051	83	7	76
Other research and development	3,396	2,513	883
Personnel related and stock-based compensation	4,914	3,988	926
	\$ 19,571	\$ 11,701	\$ 7,870

**General and Administrative Expense**

The following table discloses the components of our general and administrative expenses for the year ended December 31, 2014 and 2013:

(in thousands)	YEAR ENDED DECEMBER 31,		PERIOD-TO PERIOD CHANGE
	2014	2013	
Personnel related	\$ 2,048	\$ 1,294	\$ 754
Stock-based compensation	1,123	196	927
Legal, consulting and other professional expenses	2,916	1,095	1,821
Other	509	314	195
	\$ 6,596	\$ 2,899	\$ 3,697

General and administrative expenses increased for the year ended December 31, 2014 by \$3.7 million primarily due to an increase in professional fees, director and officer's insurance expense and other costs associated with supporting our public company operations. In addition, stock-based compensation increased during the year ended December 31, 2014 due to additional awards granted in 2014.

**Results of Operations for the Years Ended December 31, 2013 and 2012**

The following table sets forth our results of operations for the years ended December 31, 2013 and 2012.

(in thousands)	YEAR ENDED DECEMBER 31,		PERIOD-TO PERIOD CHANGE
	2013	2012	
Revenue	\$ 3,993	\$ 15,257	\$ (11,264)



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Costs and expenses:			
Research and development	11,701	9,438	2,263
General and administrative	2,899	2,184	715
<b>Total costs and expenses</b>	<b>14,600</b>	<b>11,622</b>	<b>2,978</b>
Income (loss) from operations	(10,607)	3,635	(14,242)
Other income	1	21	(20)
Net income (loss)	\$ (10,606)	\$ 3,656	\$ (14,262)

**Table of Contents****Revenue**

Revenue decreased by \$11.3 million to \$4.0 million for the year ended December 31, 2013, compared to the year ended December 31, 2012, reflecting a decrease of 74%. We recognized \$15.0 million of the upfront payment from Pfizer during the year ended December 31, 2012, and the upfront payment was fully recognized as of March 31, 2013, consistent with the completion of our development obligations under the collaboration.

**Research and Development Expense**

Research and development expense increased by \$2.3 million to \$11.7 million for the year ended December 31, 2013, from \$9.4 million in the year ended December 31, 2012, reflecting an increase of 24%. The increase in research and development expense was primarily attributable to an increase in expenses related to the manufacturing and process development of GMI-1271 in preparation for the filing of an IND for this drug candidate in the first quarter of 2014.

The following table summarizes our research and development expenses by functional area for the years ended December 31, 2013 and 2012:

<b>(in thousands)</b>	<b>YEAR ENDED DECEMBER 31,</b>		<b>PERIOD-TO PERIOD CHANGE</b>
	<b>2013</b>	<b>2012</b>	
Clinical development	\$ 1,622	\$ 2,162	\$ (540)
Personnel related	3,769	3,145	624
Consulting fees	316	196	120
Manufacturing and formulation	2,955	1,194	1,761
Institutional research	357	392	(35)
Preclinical research	1,252	1,091	161
Laboratory costs	1,200	1,067	133
Stock-based compensation	230	191	39
	<b>\$ 11,701</b>	<b>\$ 9,438</b>	<b>\$ 2,263</b>

The following table summarizes our research and development expenses by drug candidate for the years ended December 31, 2013 and 2012:

<b>(in thousands)</b>	<b>YEAR ENDED DECEMBER 31,</b>		<b>PERIOD-TO PERIOD CHANGE</b>
	<b>2013</b>	<b>2012</b>	
GMI-1271	\$ 3,988	\$ 1,607	\$ 2,381
Rivipansel	1,205	2,260	(1,055)
GMI-1051	7	55	(48)
Other research and development	2,513	2,178	335
Personnel related and stock-based compensation	3,988	3,338	650
	<b>\$ 11,701</b>	<b>\$ 9,438</b>	<b>\$ 2,263</b>



**Table of Contents****General and Administrative Expense**

The following table discloses the components of our general and administrative expenses for the year ended December 31, 2013 and 2012:

<b>(in thousands)</b>	<b>YEAR ENDED DECEMBER 31,</b>		<b>PERIOD-TO PERIOD CHANGE</b>
	<b>2013</b>	<b>2012</b>	
Personnel related	\$ 1,294	\$ 1,174	\$ 120
Stock-based compensation	196	224	(28)
Legal, consulting and other professional expenses	1,095	499	596
Other	314	287	27
	<b>\$ 2,899</b>	<b>\$ 2,184</b>	<b>\$ 715</b>

For the year ended December 31, 2013, our general and administrative expenses increased by \$715,000 or 33%, compared to the year ended December 31, 2012, primarily related to increased professional service costs.

**Liquidity and Capital Resources****Sources of Liquidity**

Prior to our IPO in January 2014, we funded our operations primarily through private placements of our capital stock and upfront payments under our collaborative agreements. Through December 31, 2013, we raised an aggregate of \$86.6 million to fund our operations, of which \$22.5 million was the upfront payment under our license agreement with Pfizer and \$64.1 million was from the sale of convertible promissory notes and our convertible preferred stock. In January 2014, we received net proceeds of \$57.2 million from the IPO, and in May 2014, we received a non-refundable milestone payment from Pfizer of \$15.0 million, of which we will pay \$1.5 million to the University of Basel under the terms of our research agreement with them. As of December 31, 2014, we had \$55.2 million in cash and cash equivalents.

We are potentially eligible to earn a significant amount of milestone payments and royalties under our agreement with Pfizer. Our ability to earn these payments and their timing is dependent upon the outcome of Pfizer's activities and is uncertain at this time.

**Initial Public Offering of Common Stock**

On January 15, 2014, we closed our IPO, in which we sold an aggregate of 8,050,000 shares of common stock, including the full exercise of the underwriters' option to purchase additional shares, for net proceeds of \$57.2 million after deducting underwriting discounts and offering-related expenses. Upon closing of the IPO, all of the convertible preferred stock then outstanding automatically converted into 9,305,359 shares of common stock.

**Funding Requirements**

Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, third-party clinical research and development services, laboratory and related supplies, clinical costs, legal and other regulatory

expenses and general overhead costs.

The successful development of any of our drug candidates is highly uncertain. As such, at this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of GMI-1271 or our other drug candidates. We are also unable to predict when, if ever, material net cash inflows will commence from rivipansel or GMI-1271. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

successful enrollment in, and completion of, clinical trials;

receipt of marketing approvals from applicable regulatory authorities;

**Table of Contents**

establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers;

obtaining and maintaining patent and trade secret protection and regulatory exclusivity for drug candidates;  
and

launching commercial sales of drugs, if and when approved, whether alone or in collaboration with others.

A change in the outcome of any of these variables with respect to the development of any of our drug candidates would significantly change the costs and timing associated with the development of that drug candidate.

Because our drug candidates are in various stages of clinical and preclinical development and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of our drug candidates or whether, or when, we may achieve profitability. Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity or debt financings and collaboration arrangements, including our existing collaboration with Pfizer. Except for Pfizer's obligation to make milestone payments under our agreement with them, we do not have any committed external source of liquidity.

To the extent that we raise additional capital through the future sale of equity or debt, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing common stockholders. If we raise additional funds through the issuance of convertible debt securities, these securities could contain covenants that would restrict our operations.

We may require additional capital beyond our currently anticipated amounts. Additional capital may not be available on reasonable terms, or at all. If we raise additional funds through collaboration arrangements in the future, we may have to relinquish valuable rights to our drug candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our drug development or future commercialization efforts or grant rights to develop and market drug candidates that we would otherwise prefer to develop and market ourselves.

***Outlook***

Based on our research and development plans and our timing expectations related to the progress of our programs, we expect that our cash and cash equivalents as of December 31, 2014 will enable us to fund our operating expenses and capital expenditure requirements into the second half of 2016, without giving effect to any potential milestone payments we may receive under our license agreement with Pfizer. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect. Additionally, the process of testing drug candidates in clinical trials is costly, and the timing of progress in these trials is uncertain.

***Cash Flows***

The following table summarizes our cash flows for the years ended December 31, 2014, 2013 and 2012.

(in thousands)	Year Ended December 31,		
	2014	2013	2012

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Net cash provided by (used in):			
Operating activities	\$ (4,282)	\$ (15,539)	\$ (10,473)
Investing activities	(213)	(82)	(326)
Financing activities	57,383	559	
Net change in cash and cash equivalents	\$ 52,888	\$ (15,062)	\$ (10,799)

## **Table of Contents**

In assessing cash used in operating activities, we consider several principal factors: (i) net loss for the period; (ii) adjustments for non-cash charges including stock-based compensation expense and depreciation and amortization of property and equipment; and (iii) the extent to which receivables, accounts payable and other liabilities, or other working capital components increase or decrease.

### ***Year ended December 31, 2014 compared to year ended December 31, 2013***

#### ***Operating Activities***

Net cash used in operating activities was \$4.3 million during the year ended December 31, 2014 compared to \$15.5 million during the year ended December 31, 2013. The decrease in cash used in operating activities in the year ended December 31, 2014 compared to the year ended December 31, 2013 was driven by the receipt of the \$15.0 million non-refundable milestone payment from Pfizer, offset by the amounts used to conduct our preclinical studies and clinical trials and to support the manufacturing development of GMI-1271. Net cash used in operating activities for the year ended December 31, 2013 reflects the amounts used for the manufacturing and process development of GMI-1271 in preparation for the filing of the IND for this drug candidate that was completed in the first quarter of 2014.

#### ***Investing Activities***

Net cash used in investing activities relates primarily to the purchase of property and equipment. The increase in property and equipment purchases of \$213,000 for the year ended December 31, 2014 compared to \$82,000 for the year ended December 31, 2013 was the result of purchases of additional laboratory equipment due to the expansion of our research and development activities in 2014.

#### ***Financing Activities***

Net cash provided by financing activities of \$57.4 million during the year end December 31, 2014 reflects net proceeds received from our IPO of \$57.2 million with the remaining cash inflows provided from the exercise of employee stock options. Net cash provided by financing activities of \$559,000 during the year ended December 31, 2013 is comprised solely of employee stock option exercises.

### ***Year ended December 31, 2013 compared to year ended December 31, 2012***

#### ***Operating Activities***

Net cash used in operating activities was \$15.5 million during the year ended December 31, 2013 compared to \$10.5 million during the year ended December 31, 2012. The increase in cash used in operating activities in the year ended December 31, 2013 compared to the year ended December 31, 2012 was driven by an increase in operating expenses attributable to the manufacturing and process development of GMI-1271 in preparation for the filing of an IND for this drug candidate in the first quarter of 2014.

#### ***Investing Activities***

Net cash used in investing activities relates primarily to the purchase of property and equipment. The decrease from \$326,000 for the year ended December 31, 2012 to \$82,000 for the year ended December 31, 2013 resulted from fewer purchases of laboratory equipment in 2013.



*Financing Activities*

Net cash provided by financing activities of \$559,000 during the year ended December 31, 2013 reflected cash received from employee stock option exercises, and there were no such activities during the year ended December 31, 2012. We did not have any significant cash flows from financing activities during the year ended December 31, 2012.

**Table of Contents****Contractual Obligations**

As of December 31, 2014, our significant contractual obligations consisted solely of rent obligations under non-cancelable leases for our current office space in Gaithersburg, Maryland, which has a term through October 2015, and our planned future corporate headquarters in Rockville, Maryland, which will have an eight-year term expected to commence on November 1, 2015.

The following table depicts our obligations under these leases as of December 31, 2014.

	Payments Due by Period						After 2019
	Total	2015	2016	2017	2018	2019	
	(In thousands)						
Operating leases	\$ 5,725	\$ 519	\$ 610	\$ 625	\$ 641	\$ 657	\$ 2,673

The foregoing table does not include various agreements that we have entered into for services with third-party vendors, including agreements to conduct clinical trials, to manufacture products, and for consulting and other contracted services due to the cancelable nature of the services. We accrue the costs of these agreements based on estimates of work completed to date.

The foregoing table also does not include a 2014 payment obligation of \$1.5 million due to the University of Basel, representing 10% of the \$15.0 million non-refundable milestone payment that we received from Pfizer in May 2014. The contractual obligations table does not include any potential future payments we may be required to make under our research agreement with the University of Basel, under which we have agreed to pay 10% of any future milestone payments or royalties we may receive from Pfizer with respect to rivipansel. Due to the uncertainty of the achievement and timing of the events requiring payment under that agreement, the amounts to be paid by us cannot be determined as of the date of this report.

**Off-Balance Sheet Arrangements**

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules.

**JOBS Act**

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107(b) of the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period, and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

**ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates. As of December 31, 2014 and 2013, we had cash and cash equivalents of \$55.2 million and \$2.3 million, respectively. We generally hold our cash in interest-bearing money market accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term maturities of our cash equivalents and the low risk profile of our investments, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents.

**Table of Contents**

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

The financial statements and related financial statement schedules required to be filed are listed in the Index to Financial Statements and are incorporated herein.

**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*

Under the supervision of and with the participation of our management, including our chief executive officer, who is our principal executive officer, and our chief financial officer, who is our principal financial officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2014, the end of the period covered by this Annual Report. The term disclosure controls and procedures, as set forth in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to provide reasonable assurance 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 rules and forms promulgated by the SEC. 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 the company's management, including its 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, 2014, our chief executive officer and chief financial officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

*Management's Report on Internal Control over Financial Reporting and Attestation Report of the Registered Public Accounting Firm*

Our management is responsible for establishing and maintaining an adequate system of internal control over financial reporting, as defined in the Exchange Act Rule 13a-15(f). Management conducted an assessment of our internal control over financial reporting based on the original framework established in 1992 by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control - Integrated Framework. Based on the assessment, management concluded that, as of December 31, 2014, our internal control over financial reporting was effective.

This Annual Report does not include an attestation report of our independent registered public accounting firm due to a transition period established by the rules of the SEC for newly public companies.

*Changes in Internal Control over Financial Reporting*

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2014 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

**ITEM 9B. OTHER INFORMATION**

None.

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

The following table sets forth information concerning our directors and executive officers, including their ages as of March 10, 2015. There are no family relationships among any of our directors or executive officers.

We seek to assemble a board that, as a whole, possesses the appropriate balance of professional and industry knowledge, financial expertise and high-level management experience necessary to oversee and direct our business. To that end, our board intends to maintain membership of directors who complement and strengthen the skills of other members and who also exhibit integrity, collegiality, sound business judgment and other qualities that we view as critical to effective functioning of the board. The brief biographies below include information, as of the date of this report, regarding the specific and particular experience, qualifications, attributes or skills of each director that led the board to believe that the director should serve on the board.

<b>NAME</b>	<b>AGE</b>	<b>POSITION</b>
<b>Executive Officers:</b>		
Rachel K. King	55	President, Chief Executive Officer and Director
John L. Magnani, Ph.D.	62	Vice President of Research, Chief Scientific Officer and Director
Helen M. Thackray, M.D.	46	Vice President of Clinical Development and Chief Medical Officer
Brian M. Hahn	40	Chief Financial Officer
<b>Non-management Directors:</b>		
M. James Barrett, Ph.D.	72	Chairman of the Board of Directors
John J. Baldwin, Ph.D.	80	Director
Mark A. Goldberg, M.D.	60	Director
Michael A. Henos	65	Director
Timothy R. Pearson	47	Director
Franklin H. Top, Jr., M.D.	79	Director
<b>Executive Officers</b>		

***Rachel K. King***

Ms. King is a co-founder of our company and has served as our President and Chief Executive Officer and as a member of our board of directors since our inception in 2003. Previously, Ms. King was an Executive in Residence at New Enterprise Associates, a venture capital firm, from 2001 to 2003. From 1999 to 2001, Ms. King served as a Senior Vice President of Novartis Corporation, a pharmaceutical company. Before joining Novartis, Ms. King spent 10 years with Genetic Therapy, Inc., a biotechnology company, where she served in a number of roles as part of the executive team, which included the company's initial public offering and later acquisition by Novartis. After the acquisition by Novartis, she served as Chief Executive Officer of Genetic Therapy, which was then a wholly owned subsidiary of Novartis. Ms. King previously worked at Alza Corporation, a pharmaceutical and medical systems company that was later acquired by Johnson & Johnson, as well as at Bain and Company, a management consulting firm. She received a B.A. from Dartmouth College and an M.B.A. from Harvard Business School. Ms. King currently serves as Chair of the Board of the Biotechnology Industry Organization, and was appointed by Maryland's governor as Chair of the Maryland Life Sciences Advisory Board. The board of directors believes that Ms. King's knowledge of our company as one of our co-founders and her experience with biotechnology companies prior to founding our

company allow her to make valuable contributions to the board.

***John L. Magnani, Ph.D.***

Dr. Magnani is a co-founder of our company and has served as our Vice President of Research and Chief Scientific Officer and as a member of our board of directors since our inception in 2003. Dr. Magnani is also the

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**Table of Contents**

founder, President and owner of GlycoTech Corporation. Prior to founding GlycoTech, Dr. Magnani was the Vice President of Research at BioCarb, Inc., one of the first glycobiology-based companies. Earlier in his career, Dr. Magnani was a tenured Research Chemist at the National Institute of Arthritis, Diabetes and Digestive and Kidney Diseases, part of the National Institutes of Health. Dr. Magnani received an A.B. from Washington University in St. Louis and a Ph.D. in biology from Princeton University. The board of directors believes that Dr. Magnani's knowledge of our company as one of our co-founders and his scientific expertise in glycobiology allow him to make valuable contributions to the board.

***Helen M. Thackray, M.D.***

Dr. Thackray has served as our Vice President of Clinical Development since 2006 and as our Chief Medical Officer since January 2012. Prior to joining our company, Dr. Thackray was Vice President of Clinical Product Development at Biosynexus, Inc., a biopharmaceutical company, from 2001 to 2006. From 1995 to 2011, Dr. Thackray was a practicing physician at the Children's National Medical Center in Washington, D.C., where she also completed her pediatrics residency and served as Pediatric Chief Resident and as an Adjunct Instructor in Pediatrics. From 1999 to 2000, she served as a Medical Genetics Fellow at the National Human Genome Research Institute, part of the National Institutes of Health. Dr. Thackray received a B.S. from Stanford University and an M.D. from The George Washington University School of Medicine. She is a board-certified pediatrician, a Fellow of the American Academy of Pediatrics and Assistant Clinical Professor of Pediatrics at The George Washington University School of Medicine. Dr. Thackray is also a member of the Institutional Review Board of Holy Cross Hospital in Silver Spring, Maryland, and recently served on the BIO PDUFA V Technical Discussions team.

***Brian M. Hahn***

Mr. Hahn has served as our Chief Financial Officer since January 2012 and previously served as our Director of Finance and Administration from February 2010 to January 2012. From 2002 to September 2009, Mr. Hahn served as Executive Director of Finance at MiddleBrook Pharmaceuticals, Inc., formerly Advancis Pharmaceutical, a specialty pharmaceutical company, and from September 2009 to February 2010 he served as Assistant Controller for OpGen, Inc., a biotechnology company. From 1998 to 2001, he was a senior accountant with Bering Truck Corporation. Mr. Hahn received a B.B.A. from Shenandoah University and an M.B.A. from the University of Maryland. Mr. Hahn currently serves as Chair for the Financial Executive Committee of the Technology Council of Maryland.

**Non-management Directors*****M. James Barrett, Ph.D.***

Dr. Barrett has served as a member of our board of directors since 2003. He currently serves as a General Partner of New Enterprise Associates, or NEA, a venture capital firm, where he specializes in biotechnology and works with members of NEA's healthcare investment group on medical devices, healthcare information systems and healthcare services companies. Prior to joining NEA, from 1997 to 2001, Dr. Barrett founded and served as Chairman and Chief Executive Officer at Senseonics, a medical device company. Prior to that, he led three NEA-funded companies, serving from 1987 to 1995 as Chairman and Chief Executive Officer at Genetic Therapy, Inc. and from 1982 to 1987 as President and Chief Executive Officer at Life Technologies, Inc. and its predecessor, Bethesda Research Laboratories, Inc. Previously, Dr. Barrett worked at SmithKline Beecham Corporation, where he held a variety of positions, including President of its In Vitro Diagnostic Division and President of SmithKline Clinical Laboratories. He currently serves on the boards of directors of the publicly held life sciences companies Clovis Oncology, Inc., Loxo Oncology, Inc., Roka Bioscience, Inc., Zosano Pharma Corporation and Supernus Pharmaceuticals, Inc. Within the past five years, he has served on the boards of directors of the publicly traded companies Amicus Therapeutics,



Inc., Inhibitex, Inc. (acquired by Bristol-Myers Squibb Co.), YM Biosciences, Inc. and Targacept, Inc. Dr. Barrett received a Ph.D. in biochemistry from the University of Tennessee, an M.B.A. from the University of Santa Clara and a B.S. from Boston College. The board of directors believes that

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**Table of Contents**

Dr. Barrett's experience overseeing NEA investments in biotechnology, serving as a member of the board of directors of other public companies, prior senior management experience, including as president and chief executive officer of biopharmaceutical companies, and his strong capital markets experience allow him to make valuable contributions to the board.

***John J. Baldwin, Ph.D.***

Dr. Baldwin has served as a member of our board of directors since 2003. Dr. Baldwin co-founded and has served on the boards of directors of Hua Medicine Ltd. and CarysBio Holdings Co., Ltd. since 2008 and 2011, respectively. From 2001 to 2008, Dr. Baldwin served as co-founder, President and Chief Scientific Officer at VITAE Pharmaceuticals, Inc., a pharmaceutical company. Prior to that, he served as co-founder and Chief Scientific and Technology Officer at Pharmacopeia, Inc., a biopharmaceutical company, from 1993 to 2001. In 2000, he also co-founded WuXi PharmaTech, a research and development service company located in China, and served on its board of directors from 2005 to 2007. Prior to Pharmacopeia, Dr. Baldwin spent over 30 years in various scientific and management positions at Merck & Co., a pharmaceutical company, most recently as Distinguished Senior Scientist. Dr. Baldwin received a B.S. from the University of Delaware and a Ph.D. in organic chemistry from the University of Minnesota. The board of directors believes that Dr. Baldwin's extensive scientific and managerial experience allows him to make valuable contributions to the board.

***Mark A. Goldberg, M.D.***

Dr. Goldberg has served as a member of our Board since July 2014. He served as Executive Vice President, Medical and Regulatory Strategy for Synageva BioPharma Corp., a biopharmaceutical company, during a portion of 2014, and, while no longer an officer, remains employed by Synageva contributing to medical and regulatory strategy. He was the Senior Vice President of Medical and Regulatory Affairs of Synageva BioPharma Corp. from September 2011 to January 2014. Prior to joining Synageva he served in various management capacities of increasing responsibility at Genzyme Corporation from 1996 to 2011, most recently as Senior Vice President, Clinical Development and Global Therapeutic Head, Oncology and Personalized Genetic Health, and as Chairman of Genzyme's Early Product Review Board. Prior to working at Genzyme he was a full-time staff physician at Brigham and Women's Hospital and the Dana-Farber Cancer Institute, where he still holds appointments. Dr. Goldberg is an Associate Professor of Medicine, part-time, at Harvard Medical School. He is a board-certified medical oncologist and hematologist. Dr. Goldberg has served on the board of directors of ImmunoGen, Inc., a publicly held biotechnology company, since 2011 and he served on the board of directors of Synageva BioPharma Corp. within the past five years. Since 2014, Dr. Goldberg has also been a director of Idera Pharmaceuticals, Inc., a publicly held biopharmaceutical company. Dr. Goldberg received his A.B. from Harvard College and his M.D. from Harvard Medical School. The board of directors believes that Dr. Goldberg's extensive scientific and managerial experience allows him to make valuable contributions to the board.

***Michael A. Henos***

Mr. Henos has served as a member of our board of directors since 2003. Mr. Henos is the founder of, and since 1993 has served as Managing General Partner at, Alliance Technology Ventures, L.P., a venture capital firm, where he focuses on investments in biotechnology and personalized medicine. From 1991 to 2001, Mr. Henos also served as a General Partner at Aspen Ventures, a venture capital partnership. Mr. Henos previously served as a Vice President at 3i Ventures Corporation, the predecessor of Aspen Ventures, from 1986 to 1991. From 1984 to 1986, Mr. Henos served as a healthcare consultant with Ernst & Young, specializing in venture financing of startup medical technology companies. Before joining Ernst & Young, Mr. Henos served in a variety of operating management positions and co-founded and served as Chief Executive Officer at ProMed Technologies, Inc. Within the past five years, Mr. Henos

has served as Chairman or as a director of the publicly traded companies Inhibitex, Inc., Genoptix, Inc. (acquired by Novartis Corporation) and AtheroGenics, Inc. Mr. Henos received a B.S. and an M.B.A. from the University of California at Los Angeles. The board of directors believes that Mr. Henos' s extensive experience as a past director of several public companies, including biopharmaceutical companies, as well as his financial expertise, allow him to make valuable contributions to the board.

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**Table of Contents*****Timothy R. Pearson***

Timothy Pearson has served as a member of our Board since March 2014. Mr. Pearson has been the Chief Financial Officer for TESARO, Inc., an oncology focused biopharmaceutical company, since May 2014. He has also served as Executive Vice President and Chief Financial Officer of Catalyst Health Solutions, a pharmacy benefit management company, from August 2011 until its acquisition by SXC Health Solutions in July 2012. Prior to joining Catalyst Health Solutions, Mr. Pearson served as Chief Financial Officer and Executive Vice President of MedImmune, the global biologics business for AstraZeneca PLC, from 2007 to 2011 and was a member of MedImmune's Executive Team. Mr. Pearson joined MedImmune in 1998 and prior to his promotion to CFO in 2007 served as its Vice President of Finance and Treasurer. Mr. Pearson was also a founding officer and investment committee member of MedImmune Ventures, MedImmune's venture capital fund that invests in early-stage biotechnology companies. Mr. Pearson, a Certified Public Accountant, holds dual Bachelor of Science degrees in Business Administration from the University of Delaware and Accounting from the University of Maryland, University College, as well as a Master of Science degree in Finance from Loyola University. The board of directors believes that Mr. Pearson's extensive experience as the Chief Financial Officer at several biopharmaceutical companies allows him make valuable contributions to the board.

***Franklin H. Top, Jr., M.D.***

Dr. Top has served as a member of our board of directors since 2003. Dr. Top joined MedImmune, LLC, a pharmaceutical company, as Executive Vice President in 1988 and became Medical Director in 1990, serving in that position until 2003. Dr. Top also served as a member of MedImmune's board of directors from 1988 to 2003. From 2004 until his retirement in 2010, Dr. Top served as Senior Vice President of MedImmune's venture capital affiliate, MedImmune Ventures Inc. From 1987 to 1988, Dr. Top served as Senior Vice President for Clinical and Regulatory Affairs at Praxis Biologics, a biotechnology company. Prior to 1987, Dr. Top served for 22 years in the U.S. Army Medical Research and Development Command where he was appointed Director and Commandant, Walter Reed Army Institute of Research in 1983. Dr. Top received an M.D. and a B.S. from Yale University. The board of directors believes that Dr. Top's extensive scientific and managerial experience, including his experience in working with entrepreneurial companies as a venture capital investor, allows him to make valuable contributions to the board.

**Section 16(a) Beneficial Ownership Reporting Compliance**

Section 16(a) of the Exchange Act requires our directors and executive officers, and persons who own more than ten percent of a registered class of our equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of common stock and other equity securities of our company. Officers, directors and greater than ten percent stockholders are required by SEC regulation to furnish us with copies of all Section 16(a) forms they file.

Based solely upon a review of Forms 3 and 4 and amendments thereto furnished to us and written representations provided to us by all of our directors and executive officers and certain of our greater than 10% stockholders, we believe that during the year ended December 31, 2014, our directors, executive officers, and greater than 10% stockholders complied with all applicable Section 16(a) filing requirements.

**Code of Business Conduct and Ethics for Employees, Executive Officers and Directors**

We have adopted a Code of Business Conduct and Ethics, or the Code of Conduct, which applies to all of our employees, executive officers and directors. The Code of Conduct is available on our corporate website at [www.glycomimetics.com](http://www.glycomimetics.com). If we make any substantive amendments to the Code of Conduct, or grant any waivers from

a provision of the Code of Conduct for executive officers or directors, we will promptly disclose the nature of the amendment or waiver on our website.

**Table of Contents****Audit Committee and Audit Committee Financial Expert**

We have a separately designated standing audit committee established in accordance with Section 3(a)(58)(A) of the Exchange Act. The members of the audit committee are currently Dr. Baldwin, Mr. Henos and Mr. Pearson. Mr. Pearson is the chairman of the audit committee and our board of directors has determined that each of Dr. Baldwin, Mr. Henos and Mr. Pearson are independent directors under NASDAQ listing rules and under Rule 10A-3 under the Exchange Act, as amended, and that each are also audit committee financial experts as defined by SEC rules and regulations.

**ITEM 11. EXECUTIVE COMPENSATION**

Our named executive officers for the year ended December 31, 2014 include our principal executive officer and our three other executive officers:

Rachel King, our President and Chief Executive Officer;

John Magnani, Ph.D., our Vice President of Research and Chief Scientific Officer;

Helen Thackray, M.D., our Vice President of Clinical Development and Chief Medical Officer; and

Brian Hahn, our Chief Financial Officer.

No other individuals served as executive officers of our company at any point during 2014.

**Summary Compensation Table**

The following table presents the compensation awarded to, earned by or paid to each of our named executive officers for the years ended December 31, 2014 and 2013.

NAME AND PRINCIPAL POSITION	YEAR	SALARY (\$)	BONUS \$(1)	NON-EQUITY INCENTIVE		TOTAL (\$)
				OPTION AWARDS \$(2)	PLAN COMPENSATION \$(3)	
Rachel King President and Chief Executive Officer	2014	417,005		2,302,667	156,713	2,876,385
	2013	365,650			89,585	455,235
John Magnani, Ph.D. Chief Scientific Officer	2014	309,836		1,036,203	81,375	1,427,414
	2013	293,550			51,371	344,921
Helen Thackray, M.D. Chief Medical Officer	2014	345,005		690,802	90,694	1,126,501
	2013	314,179	23,587		55,038	392,804
Brian Hahn	2014	285,387		230,267	75,075	590,729

Chief Financial Officer	2013	216,667	43,750	260,417
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- (1) The amounts reflect a discretionary bonus paid for performance during the indicated year.
- (2) The amounts reflect the full grant date fair value for awards granted during the indicated year. The grant date fair value was computed in accordance with ASC Topic 718, *Compensation - Stock Compensation*. Unlike the calculations contained in our financial statements, this calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions we used in valuing options are described in Note 8 to our audited financial statements included in this Annual Report.
- (3) The amounts reflect the portion of each officer's target bonus paid based on the achievement of our corporate goals, which for 2014 are discussed further below under Narrative to Summary Compensation Table Annual Bonus.

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**Table of Contents****Narrative to Summary Compensation Table**

We review compensation annually for all employees, including our executives. In setting executive base salaries and bonuses and granting equity incentive awards, we consider compensation for comparable positions in the market, the historical compensation levels of our executives, individual performance as compared to our expectations and objectives, our desire to motivate our employees to achieve short- and long-term results that are in the best interests of our stockholders and a long-term commitment to our company. We do not target a specific competitive position or a specific mix of compensation among base salary, bonus or long-term incentives.

The compensation committee of our board of directors has historically determined our executives' compensation. Our compensation committee typically reviews and discusses management's proposed compensation with the chief executive officer for all executives other than the chief executive officer. Based on those discussions and its discretion, the compensation committee then recommends the compensation for each executive officer. Our compensation committee, without members of management present, discusses and ultimately approves the compensation of our executive officers. Prior to 2014, our compensation committee had not engaged a compensation consultant or adopted a peer group of companies for purposes of determining executive compensation.

In September 2014, the compensation committee retained Radford, a compensation consulting firm, to evaluate our executive compensation program. Radford's engagement included assisting the compensation committee with the selection of a peer group of companies for benchmarking purposes an analysis of our existing executive compensation, including our equity incentive plan and option granting practices, and an analysis of our director compensation policy. In December 2014, Radford presented the compensation committee with data about the compensation paid by our peer group of companies and other employers, who we believe compete with us for executives, updated the committee on new developments in areas that fall within the committee's jurisdiction and were available to advise the committee regarding all of its responsibilities. The consultant serves at the pleasure of the compensation committee rather than us, and the consultant's fees are approved by the committee.

Upon Radford's recommendations, our compensation committee determined to adjust our executive compensation program from our prior program to target the executive team's base salaries and total target cash compensation to the median of similarly situated executive officers at companies in our peer group and to reduce the executive team's total equity compensation to approximately the median of similarly situated executive officers at our peer group companies. Our compensation committee believes that these targets are better aligned with competitive market practice than under our historical compensation program, thus enabling us to recruit and retain the talent needed within the organization to deliver on our business strategy. In addition, this competitive positioning allows for better alignment with a pay-for-performance philosophy with premium levels of cash compensation only awarded for performance that exceeds target levels for pre-determined business and individual goals and equity awards that remain a key component of the total rewards package. Our 2015 executive compensation program is designed to further advance these goals.

***Peer Group***

As discussed above, in an effort to provide competitive total compensation to our executive officers in connection with our revised compensation philosophy, our compensation committee, in consultation with Radford, will annually modify our executive compensation program, including base salary, total cash compensation and equity awards, in part, based on compensation paid or awarded by a peer group of biopharmaceutical companies recommended by Radford and approved by our compensation committee.





**Table of Contents**

In identifying a peer group for us in December 2014 for purposes of providing data for use in connection with the development of our 2015 executive compensation program, including the equity grants made in January 2015 described below, Radford considered such factors as stage of product development and commercialization, product pipeline, location, market capitalization, revenue, employee headcount and therapeutic focus. The following 17 companies comprised our peer group:

Ambit Biosciences	Neuralstem	Tetraphase Pharmaceuticals
Ardelyx	Ocera Therapeutics	Threshold Pharmaceuticals
BIND Therapeutics	OncoMed Pharmaceuticals	Trevena
Cempra	Stemline Therapeutics	Verastem
ChemoCentryx	Sunesis Pharmaceuticals	ZIOPHARM Oncology
Mirati Therapeutics	Synta Pharmaceuticals	

**Annual Base Salary**

The following table presents the base salaries for each of our named executive officers for the years 2014 and 2015. The 2014 base salaries became effective on January 8, 2014 for all of the named executive officers.

<b>NAME</b>	<b>2015 BASE SALARY (\$)</b>	<b>2014 BASE SALARY (\$)</b>
Rachel King	459,690	417,900
John Magnani, Ph.D.	341,000	310,000
Helen Thackray, M.D.	380,050	345,500
Brian Hahn	314,600	286,000

**Annual Bonus**

We seek to motivate and reward our executives for achievements relative to our corporate goals and expectations for each fiscal year. Each named executive officer has a target bonus opportunity, defined as a percentage of his or her annual salary. For 2014, the target bonus was, and for 2015, the target bonus is, as follows:

<b>NAME</b>	<b>2015 TARGET BONUS (% OF SALARY)</b>	<b>2014 TARGET BONUS (% OF SALARY)</b>
Rachel King	50	50
John Magnani, Ph.D.	35	35
Helen Thackray, M.D.	35	35
Brian Hahn	35	35

To reinforce the importance of integrated and collaborative leadership, our executives' bonuses have historically been solely based on company performance, and we did not include an individual performance component.

For 2014, the corporate objectives approved by our compensation committee were:

to complete the initial public offering of our common stock (30% weighting);

to support Pfizer's planned initiation of a Phase 3 clinical trial of our drug candidate rivipansel during 2014 (15% weighting);

to file an IND for GMI-1271 and complete Phase 1 dosing of healthy volunteers (10% weighting);

to initiate a Phase 1/2 study of GMI-1271 in cancer patients and complete enrollment of first dose level cohort (20% weighting);

**Table of Contents**

to identify a lead candidate for a third clinical development program (5% weighting); and

to demonstrate at least 25% oral availability of an E-selectin antagonist with potency at least equivalent to rivipansel (20% weighting).

Based on our corporate accomplishments during 2014 and that of our named executive officers during the year, our compensation committee determined to award each of the named executive officers an amount equal to 75% of each of officer's target bonus. Such amounts are reflected in the Non-Equity Incentive Plan column of the Summary Compensation Table above for 2014.

***Long-Term Incentives***

Our 2003 stock incentive plan authorizes us to make grants to eligible recipients of non-qualified stock options, incentive stock options and restricted stock awards. All of our awards under this plan have been in the form of stock options. The 2003 stock incentive plan expired in 2013. Our board of directors adopted, and our stockholders approved, the 2013 Equity Incentive Plan, or the 2013 Plan. The 2013 Plan provides for the grant of incentive stock options within the meaning of Section 422 of the Internal Revenue Code, or the Code, to our employees and its parent and subsidiary corporations' employees, and for the grant of nonstatutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance stock awards and other forms of stock compensation to its employees, including officers, consultants and directors. We have issued stock options and restricted stock units from the 2013 Plan. We award stock options on the date the compensation committee approves the grant. We set the option exercise price and grant date fair value based on our per-share valuation on the date of grant.

We typically grant stock options at the start of employment to each executive and our other employees. We have not maintained a practice of granting additional equity on an annual basis, but we have retained discretion to provide additional targeted grants in appropriate circumstances. In conjunction with the pricing of our initial public offering, we granted option awards to our named executive officers on January 9, 2014 at an exercise price of \$8.00 per share.

	<b>Number of Shares Underlying Option Grant</b>
Rachel King	375,639
John Magnani, Ph.D.	169,038
Helen Thackray, M.D.	112,692
Brian Hahn	37,564

In January 2015, in connection with its annual compensation review, our compensation committee reviewed the peer group and market data presented by Radford and granted options to purchase shares of the Company's common stock to our named executive officers. As with the options granted in 2014, the shares of common stock subject to the option grants vest as to one-fourth of the shares one year after the date of grant, with the balance of the shares vesting in 36 successive equal monthly installments thereafter, subject to the officer's service with us as of each such date. Each option had an exercise price of \$7.15 per share, the closing price of our common stock on the grant date. The following equity grants were made on January 8, 2015:

	<b>Number of Shares Underlying Option Grant</b>
Rachel King	141,000
John Magnani, Ph.D.	71,000
Helen Thackray, M.D.	71,000
Brian Hahn	61,000

**Table of Contents*****Employment Arrangements***

Please see Potential Payments upon Termination of Employment or upon Change in Control for information regarding the employment and severance agreements for each of our named executive officers.

**Outstanding Equity Awards at End of 2014**

The following table provides information about outstanding stock options held by each of our named executive officers at December 31, 2014. None of our named executive officers held restricted stock or other stock awards at the end of 2014.

NAME	OPTION PLAN	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#)	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#)	OPTION EXERCISE PRICE (\$)	OPTION EXPIRATION DATE
		EXERCISABLE	UNEXERCISABLE		
Rachel King	2003	347,580		1.12	01/04/2021
	2013		375,639(1)	8.00	01/09/2024
John Magnani, Ph.D.	2003	222,895		1.12	01/04/2021
	2013		169,038(1)	8.00	01/09/2024
Helen Thackray, M.D.	2013		112,692(1)	8.00	01/09/2024
Brian Hahn	2003	15,520		1.12	01/04/2021
	2003	53,856	20,003(2)	1.98	03/20/2022
	2013		37,564(1)	8.00	01/09/2024

(1) 25% of the total shares underlying this option vested on January 9, 2015. The remaining shares vest 1/36<sup>th</sup> monthly through January 9, 2018, subject to the officer's continued service through each applicable vesting date.

(2) 25% of the total shares underlying this option vested on January 1, 2013. The remaining shares vest 1/36<sup>th</sup> monthly through January 1, 2016, subject to Mr. Hahn's continued service through each applicable vesting date.

**Pension Benefits**

Our named executive officers did not participate in, or otherwise receive any benefits under, any pension plan sponsored by us during 2014.

**Nonqualified Deferred Compensation**

Our named executive officers did not participate in, or otherwise receive any benefits under, any nonqualified deferred compensation plan sponsored by us during 2014.

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**Table of Contents**

**Potential Payments upon Termination of Employment or upon Change in Control**

Upon completion of our initial public offering in January 2014, we entered into new employment agreements with Ms. King, Dr. Thackray and Mr. Hahn. Dr. Magnani continues to be subject to an employment agreement in place prior to the completion of our initial public offering.

***Employment Agreements with Ms. King, Dr. Thackray and Mr. Hahn***

Pursuant to our employment agreements with Ms. King, Dr. Thackray and Mr. Hahn, each executive officer is eligible for severance benefits in specified circumstances. Under the terms of the agreements, upon execution and effectiveness of a severance agreement and release of claims, each executive officer will be entitled to severance payments if we terminate his or her employment without cause, or he or she terminates employment with us for good reason.

The following definitions have been adopted in these employment agreements:

**cause** means that we have determined in our sole discretion that any of the following occurred: (a) the executive officer's breach of fiduciary duty or substantial misconduct with respect to our business and affairs, (b) the executive officer's neglect of duties or failure to act which can reasonably be expected to materially adversely affect our business or affairs, (c) the executive officer's material breach of the employment agreement, or of any provision of the proprietary information, assignment of inventions, noncompetition and nonsolicitation agreement to which the executive is a party which, to the extent curable, is not cured within 15 days after written notice thereof is given to the executive officer, (d) the commission by the executive officer of an act involving moral turpitude or fraud, (e) the executive officer's conviction of any felony, or of any misdemeanor involving fraud, theft, embezzlement, forgery or moral turpitude, (f) other conduct by the executive officer that is materially harmful to our business or reputation, or (g) the expiration of the employment agreement;

**good reason** means any of the following without the executive officer's prior written consent: (a) any material diminution of the executive officer's duties or responsibilities under the employment agreement (except in each case in connection with a termination for cause or as a result of the executive officer's death or disability), or the assignment to the executive officer of duties or responsibilities that are materially inconsistent with the executive officer's then-current position, with the exception of certain situations involving the acquisition of the company; (b) any material breach of the employment agreement by us which we have not cured within 15 business days after written notice thereof is given to us; or (c) a relocation of the executive officer from our principal office to a location more than 35 miles from the location of our principal office, other than on required travel by the executive officer on business or on a temporary basis not to exceed a period equal to two calendar months; and

**change in control** means any of the following: (a) a sale, lease, exchange or other transfer in one transaction or a series of related transactions of all or substantially all of our assets, other than the transfer of our assets to a majority-owned subsidiary corporation; (b) a merger or consolidation in which we are not the surviving corporation, unless the holders of our outstanding voting stock immediately prior to such transaction own, immediately after such transaction, securities representing at least 50% of the voting power of the

corporation or other entity surviving such transaction; (c) a reverse merger in which we are the surviving corporation but the shares of our common stock outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise, unless the holders of our outstanding voting stock immediately prior to such transaction own, immediately after such transaction, securities representing at least 50% of our voting power; or (d) any transaction or series of related transactions in which in excess of 50% of our voting power is transferred; provided that, where required to avoid additional taxation under Section 409A of the Code, the event that occurs must also be a change in the ownership or effective control of a corporation, or a change in the ownership of a substantial portion of the assets of a corporation as defined under applicable regulations.



**Table of Contents**

The following table summarizes the schedule of severance payments Ms. King, Dr. Thackray and Mr. Hahn would receive in the event of a qualifying termination.

<b>TERMINATION SCENARIO</b>	<b>SALARY CONTINUATION(1)</b>	<b>BONUS</b>	<b>CONTINUATION OF EMPLOYER PORTION OF MEDICAL, DENTAL AND VISION BENEFIT PREMIUMS</b>	<b>ACCELERATION OF UNVESTED EQUITY AWARDS</b>
<b>Prior to or More than 12 Months Following a Change in Control</b>				
Rachel King	18 months	None	18 months	None
Helen Thackray	12 months	None	12 months	None
Brian Hahn	12 months	None	12 months	None
<b>Within 12 Months Following a Change in Control</b>				
Rachel King	18 months	Target Bonus(2)	18 months	Full Acceleration(3)
Helen Thackray	12 months	Target Bonus(2)	12 months	Full Acceleration(3)
Brian Hahn	12 months	Target Bonus(2)	12 months	Full Acceleration(3)

- (1) If the termination is prior to or more than 12 months following a change in control, the executive officer's salary continuation will be paid on our regular payroll dates, less applicable withholdings and deductions. If the termination is within 12 months following a change in control, the executive officer's salary continuation will be paid in a lump-sum cash payment, less applicable withholdings and deductions, within 60 days following the change in control termination.
- (2) The executive officer will receive payment of the executive officer's target bonus award for the 18 months, in the case of Ms. King, or 12 months, in the case of Dr. Thackray or Mr. Hahn, immediately prior to the executive officer's change in control termination, payable in a lump-sum cash payment, less applicable withholdings and deductions, within 60 days following the change in control termination.
- (3) The executive officer will receive accelerated vesting of all then unvested equity awards that he or she may have, if any.

***Employment Agreement with Dr. Magnani***

Pursuant to his employment agreement, Dr. Magnani is eligible for severance benefits in specified circumstances. Under the terms of his agreement, upon execution and effectiveness of a severance agreement and release of claims, Dr. Magnani will be entitled to severance payments if we terminate his employment without cause or he terminates employment with us for good reason, or in the event of Dr. Magnani's involuntary termination.

The following definitions have been adopted in Dr. Magnani's employment agreement:

cause means (a) the executive's willful and substantial misconduct with respect to the business and affairs of our company or any of our subsidiaries or affiliates, (b) the executive's neglect of duties or failure to act which can reasonably be expected to materially adversely affect the business or affairs of our company or any of our subsidiaries or affiliates, (c) the executive's material breach of provisions of his employment

agreement related to his duties and responsibilities and time to be devoted to service to us, or material breach of any provisions of his compliance agreement with us which, to the extent curable, is not cured within 15 days after written notice thereof is given to the executive, (d) the commission by the executive of an act involving moral turpitude or fraud, (e) the executive's conviction of any felony, or of any misdemeanor involving fraud, theft, embezzlement, forgery or moral turpitude, or (f) other conduct by the executive, outside the ordinary course of our business, that is materially harmful to our business or reputation;

**Table of Contents**

good reason means (a) any material diminution of the executive's duties or responsibilities under the employment agreement (except in each case in connection with a termination for cause or as a result of the executive's death or disability), or, the assignment to the executive of duties or responsibilities that are materially inconsistent with the executive's then position, (b) any material breach of the employment agreement by us which is not cured within 15 business days after written notice thereof is given to us, or (c) a relocation of the executive from our principal office to a location more than 35 miles from the location of our principal office as of the commencement date of the employment agreement, other than on a temporary basis not to exceed a period equal to two calendar months; and

involuntary termination means termination of the executive due to (a) the executive's death, or (b) the executive's incapacity or disability by accident, sickness or otherwise so as to render him mentally or physically incapable of performing services required to be performed by him under the employment agreement for a period of 90 consecutive days or longer, or for 90 days during any six-month period.

The following table summarizes the schedule of severance payments Dr. Magnani would receive in the event of a qualifying termination. All payments will be paid on our regular payroll dates, less applicable withholdings and deductions.

<b>TERMINATION SCENARIO</b>	<b>SALARY CONTINUATION</b>	<b>CONTINUATION OF EMPLOYER PORTION OF MEDICAL, DENTAL AND VISION BENEFIT PREMIUMS</b>
Involuntary Termination (Death or Disability)	6 months	6 months
Termination Without Cause or Resignation With Good Reason	24 months	24 months

**Health and Welfare Benefits**

We maintain a defined contribution employee retirement plan for our employees. Our 401(k) plan is intended to qualify as a tax-qualified plan under Section 401 of the Internal Revenue Code so that contributions to our 401(k) plan, and income earned on such contributions, are not taxable to participants until withdrawn or distributed from the 401(k) plan. Our 401(k) plan provides that each participant may contribute a portion of his or her pre-tax compensation, up to a statutory limit, which was \$17,500 for 2014 and will be \$18,000 for 2015. Participants who are at least 50 years old can also make catch-up contributions, which for 2014 and 2015 can be up to an additional \$5,500 and \$6,000, respectively, above the statutory limit. Under our 401(k) plan, each employee is fully vested in his or her deferred salary contributions. Employee contributions are held and invested by the plan's trustee, subject to participants' ability to give investment directions by following specified procedures. We do not currently make discretionary contributions or matching contributions to our 401(k) plan.

We do not provide perquisites or personal benefits to our named executive officers. We do, however, pay the premiums for term life insurance for all of our employees, including our named executive officers.

**Table of Contents****Non-Employee Director Compensation**

Effective upon the completion of our initial public offering, under our director compensation policy, during 2014 we paid each of our non-employee directors a cash retainer for service on the board of directors and for service on each committee on which the director was a member. The chairman of each committee received a higher retainer for such service. These retainers were payable in arrears in four equal quarterly installments on the last day of each quarter, provided that the amount of such payment was be prorated for any portion of such quarter that the director is not serving on our board of directors. No retainers were paid in respect of any period prior to the completion of our initial public offering. The retainers paid to non-employee directors for service on the board of directors and for service on each committee of the board of directors on which the director is a member for 2014 were as follows:

	<b>MEMBER ANNUAL SERVICE RETAINER</b>	<b>CHAIRMAN ADDITIONAL ANNUAL SERVICE RETAINER</b>
Board of Directors	\$ 30,000	\$ 22,500
Audit Committee	7,000	7,000
Compensation Committee	5,000	5,000
Nominating and Corporate Governance Committee	3,000	3,000

We also reimburse our non-employee directors for reasonable travel and out-of-pocket expenses incurred in connection with attending our board of director and committee meetings.

In addition, under our director compensation policy, each non-employee director serving on our board of directors upon the completion of our initial public offering received an option to purchase 15,401 shares of our common stock. With respect to each non-employee director serving on our board of directors upon the completion of our initial public offering, these options will vest concurrently with the expiration of the initial term of office for the class in which such director serves, subject to the director's continued service as a director. The exercise price of these options were equal the fair market value of our common stock on the date of grant.

In January 2015, our compensation committee, following consultation with Radford, approved revisions to our non-employee director compensation for 2015 as follows:

	<b>MEMBER ANNUAL SERVICE RETAINER</b>	<b>CHAIRMAN ADDITIONAL ANNUAL SERVICE RETAINER</b>
Board of Directors	\$ 35,000	\$ 25,000
Audit Committee	7,500	7,500
Compensation Committee	5,000	5,000
Nominating and Corporate Governance Committee	4,000	3,500

In addition, the compensation committee approved a change in the policy that, for 2015, any new non-employee director will receive an option grant to purchase 22,000 shares of common stock upon becoming a director. Further, on the date of each annual meeting of stockholders, each non-employee director that continues to serve as a non-employee member on our board of directors will receive an option to purchase 11,000 shares. The exercise price

of these options will equal the fair market value of our common stock on the date of grant.

**Table of Contents****2014 Director Compensation**

The following table shows the compensation earned by each of our non-employee directors for the year ended December 31, 2014:

<b>Name</b>	<b>Fees earned or paid in cash \$(1)</b>	<b>Option awards \$(2)</b>	<b>Total (\$)</b>
M. James Barrett, Ph.D.	67,733	94,408	162,141
John J. Baldwin, Ph.D.	32,175	94,408	126,583
Mark A. Goldberg, M.D.(3)	15,783	98,566	114,349
Michael A. Henos	42,525	94,408	136,933
Timothy R. Pearson(4)	36,160	186,968	223,128
Franklin H. Top, Jr., M.D.	34,071	94,408	128,479

- (1) Non-employee director compensation effective as of January 9, 2014.  
(2) Reflects the aggregate grant date fair value of options granted during the fiscal year calculated in accordance with FASB ASC Topic 718. For a discussion of valuation assumptions, see Note 2 to our audited consolidated financial statements included in our annual report on Form 10-K for the year ended December 31, 2014. Our directors will not realize the estimated value of these awards until the awards are vested, exercised and sold.  
(3) Dr. Goldberg was appointed to the Board of Directors effective as of July 8, 2014.  
(4) Mr. Pearson was appointed to the Board of Directors effective as of March 31, 2014.

**Non-Employee Director Equity Outstanding at 2014 Year End**

The following table describes the options that we have granted to our non-employee directors that were outstanding as of December 31, 2014:

<b>Name</b>	<b>Date of Grant</b>	<b>Number of Options Granted</b>	<b>Exercise Price Per Share</b>	<b>Aggregate Number of Options Outstanding as of December 31, 2014</b>
M. James Barrett, Ph.D.	1/04/2011	12,295	\$ 1.12	27,696(1)
	1/09/2014	15,401	\$ 8.00	
John J. Baldwin, Ph.D.	9/20/2006	605	\$ 1.12	27,090(2)
	1/04/2011	11,084	\$ 1.12	
	1/09/2014	15,401	\$ 8.00	
Mark A. Goldberg, M.D.	7/08/2014	15,401	\$ 8.86	15,401(3)
Michael A. Henos	1/09/2014	15,401	\$ 8.00	15,401(4)
Timothy R. Pearson	3/31/2014	15,401	\$ 16.33	15,401(5)
Franklin H. Top, Jr., M.D.	9/20/2006	605	\$ 1.12	27,090(6)
	1/04/2011	11,084	\$ 1.12	
	1/09/2014	15,401	\$ 8.00	

- (1) 12,295 options were vested as of December 31, 2014.
- (2) 11,689 options were vested as of December 31, 2014.
- (3) There were no options vested as of December 31, 2014.
- (4) There were no options vested as of December 31, 2014.
- (5) There were no options vested as of December 31, 2014.
- (6) 11,689 options were vested as of December 31, 2014.

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

The following table sets forth certain information regarding the ownership of our common stock as of March 1, 2015 by (i) each director; (ii) each of our named executive officers; (iii) all currently serving executive officers and directors as a group; and (iv) all those known by us to be beneficial owners of more than five percent of our common stock. Except as otherwise noted below, the address for persons listed in the table is c/o GlycoMimetics, Inc., 401 Professional Drive, Suite 250, Gaithersburg, Maryland 20879.

This table is based upon information supplied by our named executive officers, directors and principal stockholders. Unless otherwise indicated in the footnotes to the table and subject to common property laws where applicable, we believe that each stockholder named in the table has sole voting and investment power with regard to the shares indicated as being beneficially owned. Applicable percentages are based on 18,994,838 shares of common stock outstanding on March 1, 2015, adjusted as required by the rules promulgated by the SEC.

<b>Beneficial Owner</b>	<b>Number of Shares Beneficially Owned</b>	<b>Percent of Shares Beneficially Owned</b>
<i>5% Stockholders:</i>		
Entities affiliated with New Enterprise Associates, Inc.(1)	9,099,032	46.6%
Wellington Management Company, LLP(2)	2,599,011	13.7
Genzyme Corporation(3)	1,084,205	5.7
<i>Named Executive Officers and Directors:</i>		
Rachel K. King(4)	732,767	3.8
John L. Magnani, Ph.D.(5)	372,428	1.9
Helen M. Thackray, M.D. (6)	219,829	1.2
Brian M. Hahn(7)	96,351	*
M. James Barrett, Ph.D.(8)	9,111,327	46.7
John J. Baldwin, Ph.D.(9)	12,294	*
Mark A. Goldberg, M.D.(10)	1,100	*
Michael A. Henos(11)	37,393	*
Timothy R. Pearson		
Franklin H. Top, Jr., M.D.(12)	12,294	*
All current directors and executive officers as a group (10 persons)(13)	10,595,782	52.0

\* Represents beneficial ownership of less than 1%.

- (1) Consists of 4,506,758 shares of common stock and 523,897 shares of common stock issuable upon exercise of warrants held by New Enterprise Associates 10, L.P. ( NEA 10 ) and 4,068,377 shares of common stock held by New Enterprise Associates 13, L.P. ( NEA 13 ). The shares directly held by NEA 10 are indirectly held by NEA Partners 10, L.P. ( NEA Partners 10 ), its sole general partner. The individual general partners of NEA Partners 10 are M. James Barrett (a member of our board of directors), Peter J. Barris and Scott D. Sandell (the NEA 10 Directors ). NEA Partners 10 and the NEA 10 Directors may be deemed to have shared voting and dispositive power over, and be deemed indirect beneficial owners of, the shares directly held by NEA 10. The shares directly



held by NEA 13 are indirectly held by NEA Partners 13, L.P. ( NEA Partners 13 ), its sole general partner, NEA 13 GP, LTD ( NEA 13 LTD ), the sole general partner of NEA Partners 13, and each of the individual directors of NEA 13 LTD. The individual Directors of NEA 13 LTD are M. James Barrett (a member of our board of directors), Forest Baskett, Ryan D. Drant, Patrick J. Kerins, Krishna Kolluri, David M. Mott, Scott D. Sandell, Ravi Viswanathan and Harry R. Weller (the NEA 13 Directors ). NEA Partners 13, NEA 13 LTD and the NEA 13 Directors may be deemed to have shared voting and dispositive power over, and be deemed indirect beneficial owners of, the shares directly held by NEA 13. The principal business address of New Enterprise Associates, Inc. is 1954 Greenspring Drive, Suite 600, Timonium, MD 21093.

- (2) Consists of shares of common stock held of record by clients of Wellington Management Group, LLP ( Wellington ). This information was derived from a Schedule 13G/A filed by Wellington with the SEC on February 12, 2015. According to the Schedule 13G/A, Wellington has shared voting power over 2,352,707

**Table of Contents**

- shares and shared dispositive power over 2,599,011 shares. The shares are owned of record by clients of one or more investment advisers directly or indirectly owned by Wellington, which is an investment adviser to these clients. The principal business address of Wellington is 280 Congress Street, Boston, MA 02210.
- (3) The principal business address of Genzyme Corporation is 500 Kendall Street, Cambridge, MA 02142.
  - (4) Consists of (a) 167,206 shares of common stock held directly, (b) 414,965 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015, (c) 1,741 shares of common stock held by Ms. King's spouse and (d) 148,855 shares of common stock held by family trusts for which Ms. King serves as trustee.
  - (5) Consists of (a) 90,374 shares of common stock held directly, (b) 275,718 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015, (c) 1,491 shares of common stock underlying immediately exercisable warrants and (d) 4,845 shares of common stock held by GlycoTech Corporation, of which Dr. Magnani is the sole stockholder.
  - (6) Consists of (a) 184,615 shares of common stock and (b) 35,214 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015.
  - (7) Consists of (a) 14,085 shares of common stock and (b) 82,266 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015.
  - (8) Consists of 12,295 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015 and the shares identified in footnote 1 above.
  - (9) Consists of (a) 605 shares of common stock held directly and (b) 11,689 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015.
  - (10) Consists of 1,100 shares of common stock held by family trusts for which Dr. Goldberg serves as trustee.
  - (11) Consists of (a) 14,725 shares of common stock held directly and (b) 22,668 shares of common stock held by Mr. Henos's spouse.
  - (12) Consists of (a) 605 shares of common stock held directly and (b) 11,689 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015.
  - (13) Consists of 9,226,559 shares of common stock, 525,388 shares of common stock underlying immediately exercisable warrants and 843,835 shares of common stock underlying options that are vested and exercisable within 60 days of March 1, 2015.

**Equity Compensation Plan Information**

The following table provides certain information regarding our equity compensation plans in effect as of December 31, 2014:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)

Equity compensation plans approved by security holders:			
2003 Stock Incentive Plan	857,391	\$	1.26
2013 Equity Incentive Plan	956,839	\$	8.88
Equity compensation plans not approved by security holders			
Total	1,814,230		199,092

- (a) The 2003 Stock Incentive Plan expired on May 21, 2013. The 2013 Equity Incentive Plan includes 949,589 shares issuable upon exercise of outstanding options and 7,250 shares issuable upon settlement of RSUs.
- (b) Does not take into account RSUs which have no exercise price.
- (c) On January 1 of each year, the number of shares reserved under the 2013 Equity Incentive Plan is automatically increased by 3% of the total number of shares of common stock that are outstanding at that time, or a lesser number of shares as may be determined by the Company's Board of Directors. Pursuant to

## **Table of Contents**

the terms of the 2013 Equity Incentive Plan, an additional 568,195 shares were added to the number of available shares effective January 1, 2015.

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

Except as described below, there have been no transactions since January 1, 2014 to which we have been a participant in which the amount involved exceeded or will exceed \$120,000, and in which any of our directors, executive officers or holders of more than 5% of our capital stock, or any members of their immediate family, had or will have a direct or indirect material interest, other than compensation arrangements which are described in this Annual Report under Executive Compensation.

#### **Participation in our Initial Public Offering**

Entities affiliated with New Enterprise Associates, which is a holder of more than 5% of our common stock, purchased an aggregate of 1,000,000 shares of our common stock in our initial public offering in January 2014 at the initial public offering price.

#### **Investor Rights Agreement**

We have entered into an investor rights agreement, as amended, with certain of our stockholders, including entities affiliated with New Enterprise Associates and Genzyme Corporation, both of which beneficially own more than 5% of our common stock, family members and family trusts related to Rachel King, our Chief Executive Officer, and Claudia Henos, the spouse of one of our directors. The investor rights agreement, among other things, grants certain stockholders specified registration rights with respect to shares of our common stock, including shares of common stock issued upon conversion of the shares of convertible preferred stock held by the stockholders prior to our initial public offering.

#### **Indemnification Agreements**

Our amended and restated certificate of incorporation contains provisions limiting the liability of directors, and our amended and restated bylaws provide that we will indemnify each of our directors to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation and amended and restated bylaws also provide our board of directors with discretion to indemnify our officers and employees when determined appropriate by the board.

In addition, we have entered into an indemnification agreement with each of our directors and executive officers.

#### **Related Person Transaction Policy**

Prior to our initial public offering, we did not have a formal policy regarding approval of transactions with related parties. In connection with our initial public offering, we adopted a related person transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related person transactions.

For purposes of our policy only, a related person transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related person are, were or will be participants in which the amount involved exceeds \$120,000. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A related person is any executive officer,

director or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related person transaction, including any transaction that was not a related person transaction when originally consummated or any transaction that was not initially identified as a related person transaction prior to consummation, our management must present

## **Table of Contents**

information regarding the related person transaction to our audit committee, or, if audit committee approval would be inappropriate, to another independent body of our board of directors, for review, consideration and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related persons, the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will collect information that we deem reasonably necessary from each director, executive officer and, to the extent feasible, significant stockholder to enable us to identify any existing or potential related-person transactions and to effectuate the terms of the policy. In addition, under our Code of Business Conduct and Ethics, our employees and directors have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest.

In considering related person transactions, our audit committee, or other independent body of our board of directors, will take into account the relevant available facts and circumstances including, but not limited to:

the risks, costs and benefits to us;

the impact on a director's independence in the event that the related person is a director, immediate family member of a director or an entity with which a director is affiliated;

the availability of other sources for comparable services or products; and

the terms available to or from, as the case may be, unrelated third parties or to or from employees generally. The policy requires that, in determining whether to approve, ratify or reject a related person transaction, our audit committee, or other independent body of our board of directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our stockholders, as our audit committee, or other independent body of our board of directors, determines in the good faith exercise of its discretion.

## **Director Independence**

Our board of directors has undertaken a review of the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. As a result of this review, our board of directors has determined that Drs. Barrett, Baldwin, Goldberg and Top and Messrs. Henos and Pearson, representing six of our eight directors, are independent directors as defined under NASDAQ listing rules.

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

The following table represents aggregate fees billed to us for the fiscal years ended December 31, 2014 and 2013 by our independent registered public accounting firm Ernst & Young LLP. All such fees described below were approved by the audit committee.

	<b>2014</b>	<b>2013</b>
Audit fees(1)	\$ 610,772	\$ 1,318,000

- (1) The fees billed or incurred by Ernst & Young LLP for professional services rendered in connection with the annual audit of our consolidated financial statements for the years ended December 31, 2014 include the review of quarterly financial statements included in our quarterly reports on Form 10-Q, the consents issued for our registration statements, and, for 2013, the statements included in our filings with the SEC for our initial public offering of common stock.

**Table of Contents**

Our audit committee has adopted a policy and procedures for the pre-approval of audit and, if applicable, non-audit services rendered by our independent registered public accounting firm. The policy generally pre-approves specified services in the defined categories of audit services, audit-related services, and tax services up to specified amounts. Pre-approval may also be given as part of the audit committee's approval of the scope of the engagement of the independent registered public accounting firm or on an individual explicit case-by-case basis before the independent registered public accounting firm is engaged to provide each service. On a periodic basis, the independent registered public accounting firm reports to the audit committee on the status of actual costs for approved services against the approved amounts.



**Table of Contents**

**PART IV**

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

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements:

<u>Report of Ernst &amp; Young LLP, Independent Registered Public Accounting Firm</u>	102
<u>Balance Sheets</u>	103
<u>Statements of Operations and Comprehensive (Loss) Income</u>	104
<u>Statements of Stockholders' Equity</u>	105
<u>Statements of Cash Flows</u>	106
<u>Notes to Financial Statements</u>	107

(2) Financial Statements Schedules:

All financial statement schedules have been omitted because they are not applicable, not required or the information required is shown in the financial statements or the notes thereto.

(3) Exhibits

The exhibits filed as part of this Annual Report on Form 10-K are set forth on the Exhibit Index immediately following our consolidated financial statements. The Exhibit Index is incorporated herein by reference.

Table of Contents**SIGNATURES**

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

**GLYCOMIMETICS, INC.**

By: /s/ Rachel K. King  
 Rachel K. King  
*President and Chief Executive Officer*

March 16, 2015

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Rachel K. King and Brian M. Hahn, jointly and severally, 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 this Annual Report on Form 10-K of GlycoMimetics, Inc., and any or all amendments thereto, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his, her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

<b>Signature</b>	<b>Title</b>	<b>Date</b>
/s/ Rachel K. King	President, Chief Executive Officer and Director	March 16, 2015
Rachel K. King	<i>(Principal Executive Officer)</i>	
/s/ Brian M. Hahn	Chief Financial Officer	March 16, 2015
Brian M. Hahn	<i>(Principal Financial Officer and Principal Accounting Officer)</i>	
/s/ John J. Baldwin, Ph.D.	Director	March 16, 2015
John J. Baldwin, Ph.D.		
/s/ M. James Barrett, Ph.D.	Director	March 16, 2015
M. James Barrett, Ph.D.		

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/s/ Michael A. Henos	Director	March 16, 2015
Michael A. Henos		
/s/ John L. Magnani, Ph.D.	Director	March 16, 2015
John L. Magnani, Ph.D.		
/s/ Franklin H. Top, Jr., M.D.	Director	March 16, 2015
Franklin H. Top, Jr., M.D.		
/s/ Timothy Pearson	Director	March 16, 2015
Timothy Pearson		
/s/ Mark A. Goldberg, M.D.	Director	March 16, 2015
Mark A. Goldberg M.D.		

**Table of Contents**

**INDEX TO FINANCIAL STATEMENTS**

<u>Report of Independent Registered Public Accounting Firm</u>	102
<u>Balance Sheets as of December 31, 2014 and 2013</u>	103
<u>Statements of Operations and Comprehensive (Loss) Income for the years ended December 31, 2014, 2013 and 2012</u>	104
<u>Statements of Stockholders' Equity for the years ended December 31, 2014, 2013 and 2012</u>	105
<u>Statements of Cash Flows for the years ended December 31, 2014, 2013 and 2012</u>	106
<u>Notes to Financial Statements</u>	107

**Table of Contents**

**Report of Independent Registered Public Accounting Firm**

The Board of Directors and Stockholders of GlycoMimetics, Inc.

We have audited the accompanying balance sheets of GlycoMimetics, Inc. (the Company ) as of December 31, 2014 and 2013, and the related statements of operations and comprehensive (loss) income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2014. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of GlycoMimetics, Inc. at December 31, 2014 and 2013, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2014, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

McLean, Virginia

March 16, 2015

**Table of Contents****GLYCOMIMETICS, INC.****Balance Sheets**

	<b>December 31,</b>	
	<b>2014</b>	<b>2013</b>
<b>Assets</b>		
Current Assets:		
Cash and cash equivalents	\$ 55,198,923	\$ 2,310,603
Prepaid expenses and other current assets	916,249	2,573,072
Total current assets	56,115,172	4,883,675
Property and equipment, net	452,270	399,799
Prepaid research and development expenses	696,531	
Total assets	\$ 57,263,973	\$ 5,283,474
<b>Liabilities &amp; Stockholders Equity</b>		
Current liabilities:		
Accounts payable	\$ 874,028	\$ 1,144,895
Accrued bonuses	753,786	344,467
Accrued expenses	4,735,719	685,746
Current portion of deferred rent	97,012	104,191
Total current liabilities	6,460,545	2,279,299
Deferred rent		96,756
Total liabilities	6,460,545	2,376,055
Stockholders equity:		
Preferred Stock; \$0.001 par value; 5,000,000 shares authorized; no shares issued and outstanding at December 31, 2014 and 2013		
Series A-1 Convertible Preferred Stock; \$0.001 par value; no shares authorized, issued and outstanding at December 31, 2014; 60,342,745 shares authorized; 30,726,326 shares issued and outstanding at December 31, 2013		30,726
Common stock; \$0.001 par value; 100,000,000 authorized, 18,939,838 issued and outstanding at December 31, 2014; 70,258,276 authorized, 1,426,593 shares issued and outstanding at December 31, 2013	18,940	1,428
Additional paid-in capital	125,181,463	66,150,674
Accumulated deficit	(74,396,975)	(63,275,409)
Total stockholders equity	50,803,428	2,907,419
Total liabilities and stockholders equity	\$ 57,263,973	\$ 5,283,474

*See accompanying notes.*



Table of Contents**GLYCOMIMETICS, INC.****Statements of Operations and Comprehensive (Loss) Income**

	<b>Year ended December 31,</b>		
	<b>2014</b>	<b>2013</b>	<b>2012</b>
Revenue	\$ 15,027,004	\$ 3,992,649	\$ 15,257,351
Costs and expenses:			
Research and development expense	19,571,073	11,701,155	9,438,400
Selling, general and administrative expense	6,595,738	2,897,974	2,183,922
Total costs and expenses	26,166,811	14,599,129	11,622,322
(Loss) income from operations	(11,139,807)	(10,606,480)	3,635,029
Other income	18,241	894	20,993
Net (loss) income and comprehensive (loss) income	\$ (11,121,566)	\$ (10,605,586)	\$ 3,656,022
Net (loss) income per share basic	\$ (0.60)	\$ (8.87)	\$ 3.93
Net (loss) income per share diluted	\$ (0.60)	\$ (8.87)	\$ 0.33
Weighted average shares outstanding basic	18,452,252	1,196,162	929,619
Weighted average shares outstanding diluted	18,452,252	1,196,162	11,016,532
<i>See accompanying notes.</i>			



**Table of Contents****GLYCOMIMETICS, INC.****Statements of Stockholders Equity**

	Series A-1 Convertible Preferred Stock		Stockholders Common Stock		Equity Additional Paid-In Capital	Accumulated Deficit	Total Stockholders Equity
	Shares	Amount	Shares	Amount			
Balance at December 31, 2011	30,726,326	\$ 30,726	928,398	\$ 930	\$ 64,751,106	\$ (56,325,845)	\$ 8,456,917
Exercise of options			211		237		237
Stock-based compensation					415,208		415,208
Net income						3,656,022	3,656,022
Balance at December 31, 2012	30,726,326	30,726	929,609	930	65,166,551	(52,669,823)	12,528,384
Exercise of options			496,984	498	558,434		558,932
Stock-based compensation					425,689		425,689
Net loss						(10,605,586)	(10,605,586)
Balance at December 31, 2013	30,726,326	30,726	1,426,593	1,428	66,150,674	(63,275,409)	2,907,419
Issuance of common stock, net of issuance costs			8,050,000	8,050	57,240,169		57,248,219
Conversion of preferred stock to common stock	(30,726,326)	(30,726)	9,305,359	9,305	21,421		
Exercise of options and warrants			157,886	157	134,134		134,291
Stock-based compensation					1,635,065		1,635,065
Net loss						(11,121,566)	(11,121,566)
Balance at December 31,		\$	18,939,838	\$ 18,940	\$ 125,181,463	\$ (74,396,975)	\$ 50,803,428

2014

*See accompanying notes.*

105

**Table of Contents****GLYCOMIMETICS, INC.****Statements of Cash Flows**

	<b>Year Ended December 31,</b>		
	<b>2014</b>	<b>2013</b>	<b>2012</b>
<b>Operating activities</b>			
Net (loss) income	\$ (11,121,566)	\$ (10,605,586)	\$ 3,656,022
Adjustments to reconcile net (loss) income to net cash used in operating activities:			
Depreciation	158,708	133,051	99,923
Loss on disposal of property and equipment	1,424		
Compensation expense from stock option grants	1,635,065	425,689	415,208
Changes in assets and liabilities			
Prepaid expenses and other current assets	1,656,823	(1,976,891)	(83,453)
Prepaid research and development expenses	(696,531)		
Accounts payable	(270,867)	380,700	228,598
Accrued expenses	4,459,292	187,134	16,481
Deferred revenue		(3,992,649)	(14,757,351)
Deferred rent	(103,935)	(90,518)	(48,827)
Net cash used in operating activities	(4,281,587)	(15,539,070)	(10,473,399)
<b>Investing activities</b>			
Restricted cash			(10,000)
Purchases of property and equipment	(212,603)	(82,091)	(316,180)
Net cash used in investing activities	(212,603)	(82,091)	(326,180)
<b>Financing activities</b>			
Proceeds from issuance of common stock, net of issuance costs	57,248,219		
Proceeds from exercise of stock options and warrants	134,291	558,932	237
Net cash provided by financing activities	57,382,510	558,932	237
Net change in cash and cash equivalents	52,888,320	(15,062,229)	(10,799,342)
Cash and cash equivalents, beginning of period	2,310,603	17,372,832	28,172,174
Cash and cash equivalents, end of period	\$ 55,198,923	\$ 2,310,603	\$ 17,372,832
<b>Supplemental disclosure of cash flow information</b>			
Cash paid for taxes	\$ 80,000	\$	\$
<b>Supplemental schedule of noncash financing activities</b>			
Conversion of Series A-1 Convertible Preferred Stock to Common Stock	\$ 38,805,055	\$	\$

*See accompanying notes.*



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**Table of Contents**

**GLYCOMIMETICS, INC.**

**Notes to Financial Statements**

**1. Description of the Business**

GlycoMimetics, Inc. (the Company), a Delaware corporation headquartered in Gaithersburg, Maryland, was incorporated on April 4, 2003 and commenced operations on May 21, 2003. The company is a clinical stage biotechnology company focused on the discovery and development of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. Glycomimetics are molecules that mimic the structure of carbohydrates involved in important biological processes. Using its expertise in carbohydrate chemistry and knowledge of carbohydrate biology, the Company is developing a pipeline of proprietary glycomimetics that inhibit disease-related functions of carbohydrates, such as the roles they play in inflammation, cancer and infection.

On January 15, 2014, the Company completed an initial public offering of its common stock, which resulted in the sale of 8,050,000 shares, including all additional shares available to cover over-allotments, at a price to the public of \$8.00 per share. The Company received net proceeds of approximately \$57.2 million.

The Company's executive personnel have devoted substantially all of their time to date to the planning and organization of the Company, the process of hiring scientists, initiating research and development programs and securing adequate capital for anticipated growth and operations. The Company has not commercialized any of its product candidates and planned commercial operations have not commenced. The Company has incurred significant losses in the development of its product candidates. The losses in prior periods were primarily attributable to the research and development of the Company's lead drug candidate, rivipansel, and the preclinical and manufacturing expenses related to GMI-1271. The Company has not generated revenues from product sales. As a result, the Company has consistently reported negative cash flows from operating activities and net losses, had an accumulated deficit of \$74,396,975 at December 31, 2014 and expects to continue incurring losses for the foreseeable future. The Company currently anticipates that its cash and cash equivalents will be sufficient to meet its anticipated cash requirements into the second half of 2016.

The Company's operations are subject to certain risks and uncertainties. The risks include the need to manage growth, the need to retain key personnel, the need to protect intellectual property, the availability of additional capital financing on terms acceptable to the Company and reliance on its collaboration with Pfizer. The Company's current operating assumptions and projections, which reflect management's best estimate of future revenue and operating expenses, indicate that anticipated operating expenditures into the second half of 2016 can be met by available working capital; however, the Company's ability to meet its projections is subject to uncertainties, and there can be no assurance that the Company's current projections will be accurate. If the Company's cash requirements are more than projected, the Company may require additional financing. The type, timing and terms of financing selected by the Company, if required, will be dependent upon the Company's cash needs, the availability of financing sources and the prevailing conditions in the financial markets. There can be no assurance that such financing will be available to the Company at any given time or available on favorable terms.

Management believes that the Company has access to capital resources through private investments of equity from its existing stockholders. However, it has not secured any commitment for new financing as of the date of this report, nor can it provide any assurance that new financing will be available on commercially acceptable terms, if at all. If the Company is unable to secure additional capital, it will be required to curtail its operations, and if these measures fail, it may not be able to continue its business. Curtailment of operations would cause significant delays in the Company's

efforts to introduce its products to market, which is critical to the realization of its business plan and the future operations of the Company.

## **Table of Contents**

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

#### ***Basis of Accounting***

The accompanying financial statements were prepared based on the accrual method of accounting in accordance with U.S. generally accepted accounting principles (GAAP).

#### ***Segment Information***

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one segment, which is the identification and development of glycomimetic compounds.

#### ***Use of Estimates***

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Although actual results could differ from those estimates, management does not believe that such differences would be material.

#### ***Cash and Cash Equivalents***

Cash and cash equivalents consist of certificates of deposit and investment in money market funds with commercial banks and financial institutions. The Company considers all investments in highly liquid financial instruments with an original maturity of three months or less at the date of purchase to be cash equivalents. Cash equivalents are stated at amortized cost, plus accrued interest, which approximates fair value.

#### ***Restricted Cash***

The Company is required to maintain certificates of deposit that serve as collateral for operating leases and credit card accounts. Amounts classified as restricted cash were \$57,700 and \$82,700 at December 31, 2014 and 2013, respectively, and are presented within prepaid expenses and other current assets.

#### ***Fair Value Measurements***

The Company's financial instruments include cash and cash equivalents. The fair values of the financial instruments approximated their carrying values at December 31, 2014 and 2013, due to their short-term maturities. The Company accounts for recurring and nonrecurring fair value measurements in accordance with ASC 820, *Fair Value Measurements*. ASC 820 defines fair value, establishes a fair value hierarchy for assets and liabilities measured at fair value, and requires expanded disclosures about fair value measurements. The ASC hierarchy ranks the quality of reliability of inputs, or assumptions, used in the determination of fair value, and requires assets and liabilities carried at fair value to be classified and disclosed in one of the following three categories:

Level 1 Fair value is determined by using unadjusted quoted prices that are available in active markets for identical assets and liabilities.

Level 2 Fair value is determined by using inputs, other than Level 1 quoted prices, that are directly and indirectly observable. Inputs can include quoted prices for similar assets and liabilities in active markets or quoted prices for identical assets and liabilities in inactive markets. Related inputs can also include those used in valuation or other pricing models that can be corroborated by observable market data.



**Table of Contents**

Level 3 Fair value is determined by inputs that are unobservable and not corroborated by market data. Use of these inputs involves significant and subjective judgments to be made by a reporting entity. In instances where the determination of the fair value measurement is based on inputs from different levels of fair value hierarchy, the fair value measurement will fall within the lowest level input that is significant to the fair value measurement in its entirety.

The Company periodically evaluates financial assets and liabilities subject to fair value measurements to determine the appropriate level at which to classify them each reporting period. This determination requires the Company to make subjective judgments as to the significance of inputs used in determining fair value and where such inputs lie within the ASC 820 hierarchy.

The Company had no assets or liabilities that were measured using quoted prices for similar assets and liabilities or significant unobservable inputs (Level 2 and Level 3 assets and liabilities, respectively) as of December 31, 2014 and 2013. The carrying value of cash held in money market funds of approximately \$55.0 million and \$2.2 million as of December 31, 2014 and 2013, respectively, is included in cash and cash equivalents and approximates market values based on quoted market prices (Level 1 inputs).

***Concentration of Credit Risk***

Credit risk represents the risk that the Company would incur a loss if counterparties failed to perform pursuant to the terms of their agreements. Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash and cash equivalents. Cash and cash equivalents consist of certificates of deposit and money market funds with major financial institutions in the United States. These deposits and funds may be redeemed upon demand and, therefore, bear minimal risk. The Company does not anticipate any losses on such balances.

***Property and Equipment***

Property and equipment are recorded at cost and depreciated on a straight-line basis over estimated useful lives ranging from one to five years. Upon retirement or disposition of assets, the costs and related accumulated depreciation are removed from the accounts and any resulting gain or loss is included in the results of operations. Expenditures for repairs and maintenance are charged to operations as incurred; major replacements that extend the useful life are capitalized. Depreciation and amortization are computed using the straight-line method over the following estimated useful lives:

	<b>ESTIMATED USEFUL LIVES</b>
Furniture and fixtures	2-5 years
Laboratory equipment	1-5 years
Office equipment	1-5 years
Computer equipment	1-5 years
Leasehold improvements	Shorter of lease term or useful life

***Impairment of Long-Lived Assets***

The Company periodically assesses the recoverability of the carrying value of its long-lived assets in accordance with the provisions of ASC 360, *Property, Plant, and Equipment*. ASC 360 requires that long-lived assets and certain identifiable intangible assets be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of the long-lived asset is measured by a comparison of the carrying amount of the asset to future undiscounted net cash flows expected to be generated by the

asset. If the carrying value exceeds the sum of undiscounted cash flows, the Company then determines the fair value of the underlying asset. Any impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the estimated fair value of the assets. Assets to

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**Table of Contents**

be disposed of are reported at the lower of the carrying amount or fair value, less costs to sell. As of December 31, 2014 and 2013, the Company determined that there were no impaired assets and had no assets held for sale.

***Revenue Recognition***

From time to time, the Company is awarded reimbursement contracts for services and development grant contracts with government and non-government entities and philanthropic organizations. Under these contracts, the Company typically is reimbursed for the costs in connection with specific development activities. The Company recognizes revenue to the extent of costs incurred in connection with performance under such grant arrangements.

The Company has entered into a collaborative research and development agreement with Pfizer Inc. (Pfizer). The agreement is in the form of a license agreement. The agreement called for a nonrefundable up-front payment and milestone payments upon achieving significant milestone events. The agreement also contemplates royalty payments on future sales of an approved product. There are no performance, cancellation, termination, or refund provisions in the arrangement that contain material financial consequences to the Company.

The primary deliverable under this arrangement is an exclusive worldwide license to the Company's rivipansel compound, but the arrangement also includes deliverables related to research and preclinical development activities to be performed by the Company on Pfizer's behalf.

Collaborative research and development agreements can provide for one or more of up-front license fees, research payments, and milestone payments. Agreements with multiple components (deliverables or items) are evaluated according to the provisions of ASC 605-25, *Revenue Recognition Multiple-Element Arrangements*, to determine whether the deliverables can be separated into more than one unit of accounting. An item can generally be considered a separate unit of accounting if all of the following criteria are met: (1) the delivered item(s) has value to the customer on a stand-alone basis and (2) if the arrangement includes a general right of return relative to the delivered item(s) then delivery or performance of the undelivered item(s) is considered probable and substantially in control of the Company. Items that cannot be divided into separate units are combined with other units of accounting, as appropriate. Consideration received is allocated among the separate units based on selling price hierarchy. The selling price hierarchy for each deliverable is based on (i) vendor-specific objective evidence (VSOE), if available; (ii) third-party evidence (TPE) of selling price if VSOE is not available; or (iii) an estimated selling price, if neither VSOE nor third-party evidence is available. Management was not able to establish VSOE or TPE for separate unit deliverables, as the Company does not have a history of entering such arrangements or selling the individual deliverables within such arrangements separately. In addition, there may be significant differentiation in these arrangements, which indicates that comparable third-party pricing may not be available. Management determined that the selling price for the deliverables within the Pfizer collaboration agreement should be determined using its best estimate of selling price. The process of determining the best estimate of selling price involved significant judgment on the Company's part and included consideration of multiple factors such as estimated direct expenses, other costs, and available clinical development data.

Pursuant to ASC 605-25, each required deliverable under the Pfizer collaboration agreement is evaluated to determine whether it qualifies as a separate unit of accounting. Factors considered in this determination include the research capabilities of Pfizer, the proprietary nature of the license and know-how, and the availability of the Company's glycomimetics technology research expertise in the general marketplace. Based on all relevant facts and circumstances and, most significantly, on the proprietary nature of the Company's technology and the related proprietary nature of the Company's research services, management concluded that stand-alone value does not exist for the license, and therefore, the license is not a separate unit of accounting under the contract and will be combined with the research and development services (including participation on a joint steering committee).



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**Table of Contents**

As such, the up-front payment received of \$22.5 million was recognized as revenue over the expected development period through March 2013. The determination of the length of the period over which to defer revenue and the methodology by which to recognize the related revenues is subject to judgment and estimation. Consistent with the research plan developed by and agreed to by both parties, management estimates that the research activities and participation on the joint steering committees will occur over a 1.5-year period. Revenues associated with the up-front license fee are recognized over this period using a straight-line method, which is consistent with expected completion of the research services. The research services were completed in March 2013, consistent with the expected development period.

Pursuant to ASC 605-28, *Revenue Recognition Milestone Method*, at the inception of agreements that include milestone payments, the Company evaluates whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether (a) the consideration is commensurate with either (1) the entity's performance to achieve the milestone, or (2) the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the entity's performance to achieve the milestone, (b) the consideration relates solely to past performance and (c) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. In making this assessment, the Company evaluates factors such as scientific, regulatory, commercial and other risks that must be overcome to achieve the respective milestone, the level of effort and investment required to achieve the respective milestone and whether the milestone consideration is reasonable relative to all deliverables and payment terms in the agreement.

Non-refundable development and regulatory milestones that are expected to be achieved as a result of the Company's efforts during the period of substantial involvement are recognized as revenue upon the achievement of the milestone, assuming all other revenue recognition criteria are met. Milestones that are not considered substantive because the Company does not contribute effort to the achievement of such milestones are generally achieved after the period of substantial involvement and are recognized as revenue upon achievement of the milestone, as there are no undelivered elements remaining and no continuing performance obligation, assuming all other revenue recognition criteria are met. In May 2014, the Company recognized \$15.0 million in revenue as a result of the first non-refundable milestone payment received from Pfizer.

***Accrued Liabilities***

The Company is required to estimate accrued liabilities as part of the process of preparing its financial statements. The estimation of accrued liabilities involves identifying services that have been performed on the Company's behalf, and then estimating the level of service performed and the associated cost incurred for such services as of each balance sheet date. Accrued liabilities include professional service fees, such as for lawyers and accountants, contract service fees, such as those under contracts with clinical monitors, data management organizations and investigators in conjunction with clinical trials, and fees to contract manufacturers in conjunction with the production of clinical materials. Pursuant to the Company's assessment of the services that have been performed, the Company recognizes these expenses as the services are provided. Such assessments include, but are not limited to: (i) an evaluation by the project manager of the work that has been completed during the period, (ii) measurement of progress prepared internally and/or provided by the third-party service provider, (iii) analyses of data that justify the progress, and (iv) the Company's judgment.

***Research and Development Costs***

Except for payments made in advance of services, research and development costs are expensed as incurred. For payments made in advance, the Company recognizes research and development expense as the services are rendered.

Research and development costs primarily consist of salaries and related expenses for personnel, laboratory supplies and raw materials, sponsored research, depreciation of laboratory facilities and leasehold improvements, and utilities costs related to research space. Other research and development expenses include fees paid to consultants and outside service providers.

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**Table of Contents*****Stock-Based Compensation***

Stock-based payments are accounted for in accordance with the provisions of ASC 718, *Compensation Stock Compensation*. The fair value of stock-based payments is estimated, on the date of grant, using the Black-Scholes-Merton model. The resulting fair value is recognized ratably over the requisite service period, which is generally the vesting period of the option.

The Company has elected to use the Black-Scholes-Merton option pricing model to value any options granted. The Company will reconsider use of the Black-Scholes-Merton model if additional information becomes available in the future that indicates another model would be more appropriate or if grants issued in future periods have characteristics that prevent their value from being reasonably estimated using this model.

A discussion of management's methodology for developing some of the assumptions used in the valuation model follows:

*Fair Value of Common Stock* Prior to the Company's initial public offering in January 2014, the Company had no active public market for its common stock. In the absence of a public trading market, and as a clinical-stage company with no significant revenues, the Company believed that it was appropriate to consider a range of factors to determine the fair market value of the common stock at each grant date. In determining the fair value of its common stock, the Company used methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants (AICPA) Audit and Accounting Practice Aid Series: *Valuation of Privately Held Company Equity Securities Issued as Compensation* (the AICPA Practice Guide). In addition, the Company considered various objective and subjective factors, along with input from the independent third-party valuation firm. The factors included (1) the achievement of clinical and operational milestones by the Company; (2) the status of strategic relationships with collaborators; (3) the significant risks associated with the Company's stage of development; (4) capital market conditions for life science companies, particularly similarly situated, privately held, early-stage life science companies; (5) the Company's available cash, financial condition, and results of operations; (6) the most recent sales of the Company's preferred stock; and (7) the preferential rights of the outstanding preferred stock.

*Expected Dividend Yield* The Company has never declared or paid dividends and has no plans to do so in the foreseeable future.

*Expected Volatility* Volatility is a measure of the amount by which a financial variable such as share price has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. The Company does not maintain an internal market for its shares, and prior to its initial public offering the shares were not traded publicly. The Company utilizes the historical volatilities of a peer group (e.g., several public entities of similar size, complexity, and stage of development) to determine its expected volatility.

*Risk-Free Interest Rate* This is the U.S. Treasury rate for the week of each option grant during the year, having a term that most closely resembles the expected life of the option.

*Expected Term* This is a period of time that the options granted are expected to remain unexercised. Options granted have a maximum term of 10 years. The Company estimates the expected life of the option term to be 6.25 years. The Company uses a simplified method to calculate the average expected term.

*Expected Forfeiture Rate* The forfeiture rate is the estimated percentage of options granted that is expected to be forfeited or canceled on an annual basis before becoming fully vested. The Company estimates the forfeiture rate based on turnover data with further consideration given to the class of the employees to whom the options were

granted.

Equity instruments issued to nonemployees are accounted for under the provisions of ASC 718, *Compensation Stock Compensation*, and ASC 505-50, *Equity Equity-Based Payments to Non-Employees*. Accordingly, the estimated fair value of the equity instrument is recorded on the earlier of the performance commitment date or the date the services are completed and are marked to market during the service period.



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**Table of Contents*****Income Taxes***

The Company accounts for income taxes using the asset and liability method in accordance with ASC 740, *Income Taxes*. Deferred income taxes are recognized for the tax consequences in future years of differences between the tax bases of assets and liabilities and the financial reporting amounts at each year-end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. A valuation allowance is established when necessary to reduce deferred tax assets to the amount expected to be realized.

The Company accounts for uncertain tax positions pursuant to ASC 740. Financial statement recognition of a tax position taken or expected to be taken in a tax return is determined based on a more-likely-than-not threshold of that tax position being sustained. If the tax position meets this threshold, the benefit to be recognized is measured as the tax benefit having the highest likelihood of being realized upon ultimate settlement with the taxing authority. The Company recognizes interest accrued related to unrecognized tax benefits and penalties in the provision for income taxes.

***Comprehensive Income (Loss)***

Effective January 1, 2012, the Company adopted Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2011-05, *Presentation of Comprehensive Income*, which requires the presentation of the comprehensive income (loss) and its components, as part of the financial statements. Comprehensive income (loss) comprises net income (loss) and other changes in equity that are excluded from net income (loss). For the years ended December 31, 2014, 2013 and 2012, the Company's net income (loss) equals comprehensive income (loss) and, accordingly, no additional disclosure is presented.

***Recently Issued Accounting Standards***

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2014-09, *Revenue from Contracts with Customers*. ASU 2014-09 will eliminate transaction- and industry-specific revenue recognition guidance under current U.S. GAAP and replace it with a principle-based approach for determining revenue recognition. ASU 2014-09 will require that companies recognize revenue based on the value of transferred goods or services as they occur in the contract. ASU 2014-09 will also require additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. ASU 2014-09 is effective for annual reporting periods beginning after December 15, 2016. Early application is not permitted. Entities can transition to the standard either retrospectively or as a cumulative-effect adjustment as of the date of adoption. Presently, the Company is assessing what effect the adoption of ASU 2014-09 will have on its financial statements and accompanying notes.

**3. Net (Loss) Income Per Share of Common Stock**

Basic net (loss) income per common share is determined by dividing net (loss) income by the weighted-average number of common shares outstanding during the period, without consideration of common stock equivalents. Diluted net (loss) income per share is computed by dividing net (loss) income by the weighted-average number of common stock equivalents outstanding for the period. The treasury stock method was used to determine the dilutive effect of the Company's stock option grants and warrants and the if-converted method was used to determine the dilutive effect of the Company's Series A-1 convertible preferred stock that was outstanding during 2012 and 2013.



**Table of Contents**

The following table sets forth the computation of basic and diluted earnings per share for the years ended December 31, 2014, 2013 and 2012:

	<b>2014</b>	<b>2013</b>	<b>2012</b>
Net (loss) income	\$ (11,121,566)	\$ (10,605,586)	\$ 3,656,022
(Loss) income per share basic	\$ (0.60)	\$ (8.87)	\$ 3.93
(Loss) income per share diluted	\$ (0.60)	\$ (8.87)	\$ 0.33
Weighted average number of shares basic	18,452,252	1,196,162	929,619
Weighted average number of shares diluted	18,452,252	1,196,162	11,016,532

Included within diluted earnings per share for the year ended December 31, 2012 are 520,641 warrants, 260,913 stock options and 9,305,359 convertible preferred stock common stock equivalents. The following potentially dilutive securities outstanding at December 31, 2014, 2013 and 2012 have been excluded from the computation of diluted weighted average shares outstanding, as they would be anti-dilutive:

	<b>2014</b>	<b>2013</b>	<b>2012</b>
Warrants	590,595	635,249	1,544
Stock options	1,806,980	1,968,364	76,575
Convertible preferred stock		9,305,359	

**4. Prepaid Expenses and Other Current Assets**

The following is a summary of the Company's prepaid expenses and other current assets at December 31:

	<b>2014</b>	<b>2013</b>
Prepaid expenses	\$ 819,922	\$ 171,814
Restricted deposits	57,700	82,700
Other receivables	22,334	94,754
Deposits	16,293	1,000
Prepaid initial public offering costs		2,222,804
	\$ 916,249	\$ 2,573,072

**5. Property and Equipment**

Property and equipment consisted of the following at December 31:

	<b>2014</b>	<b>2013</b>
Furniture and fixtures	\$ 122,653	\$ 108,815
Laboratory equipment	992,232	826,821
Office equipment	10,467	10,467
Computer equipment	190,554	167,764

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Leasehold improvements	41,843	41,843
	1,357,749	1,155,710
Less accumulated depreciation	(905,479)	(755,911)
	\$ 452,270	\$ 399,799

Depreciation of property and equipment totaled \$158,708, \$133,051 and \$99,923 for the years ended December 31, 2014, 2013 and 2012, respectively.

**Table of Contents****6. Accrued Expenses**

The following is a summary of the Company's accrued expenses:

	<b>December 31, 2014</b>	<b>December 31, 2013</b>
Accrued research and development expenses	\$ 2,726,511	\$ 114,005
Accrued license and milestone fees	1,500,000	
Accrued consulting and other professional fees	77,273	54,211
Other accrued expenses	151,415	356,345
Accrued employee benefits	168,009	155,935
Accrued franchise and other taxes	112,511	5,250
	<b>\$ 4,735,719</b>	<b>\$ 685,746</b>

**7. Operating Leases**

The Company leases its office and research space in Gaithersburg, Maryland under a five-year operating lease that is subject to escalation clauses. The current lease expires in October 2015. In connection with its lease arrangement, the Company received rent abatement as a lease incentive. The rent abatement has been recognized as deferred rent that will be adjusted on a straight-line basis over the term of the lease. Deferred rent was \$97,012 and \$200,947 at December 31, 2014 and 2013, respectively. Total rent expense was \$385,668 for 2014, \$369,938 for 2013 and \$321,140 for 2012. The Company will continue to incur rent expenses for its current headquarters through the expiration of its current lease term.

On July 23, 2014, the Company and BMR-Medical Center Drive LLC (the Landlord) entered into a lease agreement for the Company's future corporate headquarters in Rockville, Maryland (the Lease). Under the Lease, which will have an 8-year term commencing on November 1, 2015, the Company will lease 33,843 square feet of office and laboratory space and will pay \$607,500 in annual base rent over the term of the Lease, subject to annual escalation clauses. The Company will also have the right to sublease or assign all or a portion of the premises, subject to the conditions set forth in the Lease. The Lease may be terminated early by either the Landlord or the Company in certain circumstances.

The following table presents the future minimum lease payments as of December 31, 2014 under the two leases described above:

<b>YEAR</b>	<b>AMOUNT</b>
2015	\$ 519,319
2016	610,031
2017	625,282
2018	640,914
2019	656,937
After 2019	2,672,776

Total	\$ 5,725,259
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## 8. Stockholders Equity

### *Convertible Preferred Stock*

#### *Series A-1 Convertible Preferred Stock*

On October 20, 2009, the Company entered into a Series A-1 Preferred Stock Purchase Agreement with certain investors. In connection with the financing, the Company issued 30,726,326 shares of Series A-1 Convertible Preferred Stock for an aggregate amount of \$38,979,412, which included the conversion of principal

**Table of Contents**

and accrued interest related to an earlier bridge financing of \$16,099,770. In connection with the Series A-1 Preferred Stock financing, all then-outstanding shares of Series A and Series B Preferred Stock were converted into common stock, and all then outstanding warrants to purchase Series B Preferred Stock were converted into warrants to purchase common stock. Immediately prior to the Series A-1 Preferred Stock financing, the Company effected a 1-for-10 reverse stock split of the outstanding common stock. All prior-period applicable share amounts have been retroactively adjusted to reflect the reverse stock split. As of December 31, 2013, the Company's Amended and Restated Certificate of Incorporation authorized the issuance of 130,601,021 shares of stock, of which 70,258,276 were designated as common stock with a par value of \$0.001, and of which 60,342,745 were designated as Series A-1 Convertible Preferred Stock with a par value of \$0.001.

Upon closing of the Company's initial public offering, all outstanding shares of convertible preferred stock converted into an aggregate of 9,305,359 shares of common stock. In addition, immediately following the closing of the initial public offering, the Company's certificate of incorporation was amended to authorize 5,000,000 shares of undesignated preferred stock and 100,000,000 shares of common stock. Both the common stock and undesignated preferred stock have a par value of \$0.001 per share.

***Common Stock***

In connection with preparing for the initial public offering of the Company's common stock, the Company's board of directors and stockholders approved a 1-for-3.302 reverse stock split of the Company's common stock. The reverse stock split became effective on October 25, 2013. All share and per share amounts in the financial statements and notes thereto have been retroactively adjusted for all periods presented to give effect to this reverse stock split, including reclassifying an amount to the reduction in par value of common stock to additional paid-in capital.

***Warrants to Acquire Company Stock***

On October 13, 2006, the Company issued a warrant to purchase 1,544 shares of common stock at an exercise price of \$25.92 per share to a commercial bank. This warrant, which was originally issuable for Series B Preferred Stock prior to the conversion of Series B Preferred Stock to common stock in 2009, was vested upon issuance and expires in October 2016. The fair value of the warrant, which was de minimis, was calculated using the Black-Scholes-Merton option pricing model.

As part of the issuance of convertible unsecured promissory notes, the Company issued warrants to purchase an aggregate of 635,249 shares of common stock.

The following common stock warrants were outstanding as of December 31, 2014 and 2013:

**12/31/2014**

<b>NUMBER OF SHARES UNDERLYING OUTSTANDING WARRANTS</b>	<b>12/31/2013 NUMBER OF SHARES UNDERLYING OUTSTANDING WARRANTS</b>	<b>EXERCISE PRICE PER SHARE</b>	<b>EXPIRATION DATE</b>
259,907	298,402	\$ 0.33	July 18, 2018
301,986	301,986	0.33	January 16, 2019
11,908	17,041	0.33	December 9, 2015

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15,250	15,250	0.33	January 30, 2019
	1,026	0.33	December 16, 2015
1,544	1,544	25.92	October 13, 2016

For the year ended December 31, 2014, a total of 44,654 warrants were exercised at a weighted average exercise price of \$0.33 per share. No warrants were exercised or expired during the years ended December 31, 2013 and 2012.



**Table of Contents*****2003 Stock Incentive Plan***

The 2003 Stock Incentive Plan (the 2003 Plan) provided for the grant of incentives and nonqualified stock options and restricted stock awards. The exercise price for incentive stock options must be at least equal to the fair value of the common stock on the grant date. Unless otherwise stated in a stock option agreement, 25% of the shares subject to an option grant will vest upon the first anniversary of the vesting start date and thereafter at the rate of one forty-eighth of the option shares per month as of the first day of each month after the first anniversary. Upon termination of employment by reasons other than death, cause, or disability, any vested options shall terminate 60 days after the termination date. Stock options terminate 10 years from the date of grant. The 2003 Plan expired on May 21, 2013.

A summary of the Company's stock option activity under the 2003 Plan for the year ended December 31, 2014 is as follows:

	<b>OUTSTANDING OPTIONS</b>	<b>WEIGHTED- AVERAGE EXERCISE PRICE</b>	<b>WEIGHTED- AVERAGE REMAINING CONTRACTUAL TERM (YEARS)</b>	<b>AGGREGATE INTRINSIC VALUE (IN THOUSANDS)</b>
Outstanding as of January 1, 2014	972,860	\$ 1.18	7.19	
Options granted				
Options exercised	(114,836)	1.17		
Options forfeited	(633)	1.12		
Outstanding as of December 31, 2014	857,391	1.26	5.20	\$ 5,096
Vested or expected to vest as of December 31, 2014	856,020	1.26	5.19	\$ 5,089
Exercisable as of December 31, 2014	817,840	1.21	5.10	\$ 4,897

During 2014, 2013 and 2012 the Company issued 114,836, 496,984 and 211 shares of common stock, respectively, in conjunction with stock option exercises. The Company received cash proceeds from the exercise of these stock options of approximately to \$133,957, \$558,932 during 2014 and 2013, respectively. Total proceeds from shares exercised for the year ended December 31, 2012 was immaterial. Total intrinsic value of the options exercised during the years ended December 31, 2014 was \$629,232. Total intrinsic value of the options exercised during the years ended December 31, 2013 and 2012 was not material.

As of December 31, 2014, there was \$66,303 of total unrecognized compensation expense related to unvested options under the 2003 Plan that will be recognized over a weighted-average period of less than one year. The total fair value of shares vested in the years ended December 31, 2014, 2013 and 2012, was \$63,865, \$322,746 and \$313,504, respectively.

The weighted-average fair value of the options granted during the years ended December 31, 2013 and 2012 was \$2.51 and \$1.51 per share, respectively. There were no options granted from this plan in 2014. The weighted-average fair value of the options was determined by applying the Black-Scholes-Merton option pricing model utilizing the following weighted-average assumptions:

	<b>2013</b>	<b>2012</b>
Expected term (years)	6.25	6.25
Expected volatility	78.07%	94.77%
Risk-free interest rate	0.56%	0.60%
Expected dividend yield	0%	0%

**Table of Contents*****2013 Equity Incentive Plan***

The Company's board of directors adopted, and its stockholders approved, its 2013 Equity Incentive Plan (the "2013 Plan"). The 2013 Plan provides for the grant of incentive stock options within the meaning of Section 422 of the Internal Revenue Code (the "Code"), to the Company's employees and its parent and subsidiary corporations' employees, and for the grant of nonstatutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance stock awards and other forms of stock compensation to its employees, including officers, consultants and directors. The 2013 Plan also provides for the grant of performance cash awards to the Company's employees, consultants and directors. Unless otherwise stated in a stock option agreement, 25% of the shares subject to an option grant will typically vest upon the first anniversary of the vesting start date and thereafter at the rate of one forty-eighth of the option shares per month as of the first day of each month after the first anniversary. Upon termination of employment by reasons other than death, cause, or disability, any vested options shall terminate 90 days after the termination date, unless otherwise set forth in a stock option agreement. Stock options generally terminate 10 years from the date of grant.

***Authorized Shares***

The maximum number of shares of common stock that may be issued under the 2013 Plan is 1,000,000 shares, plus any shares subject to stock options or similar awards granted under the 2003 Plan that expire or terminate without having been exercised in full or are forfeited to or repurchased by the Company. The number of shares of common stock reserved for issuance under the 2013 Plan will automatically increase on January 1 of each year, beginning on January 1, 2015 and ending on January 1, 2023, by 3% of the total number of shares of common stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares as may be determined by the Company's board of directors. The maximum number of shares that may be issued pursuant to exercise of incentive stock options under the 2013 Plan is 20,000,000. As of January 1, 2015, the number of shares of common stock that may be issued under the 2013 Plan was automatically increased by 568,195 shares, representing 3% of the total number of shares of common stock outstanding on January 1, 2015, increasing the number of shares of common stock available for issuance under the 2013 Plan to 1,716,876 shares.

Shares issued under the 2013 Plan may be authorized but unissued or reacquired shares of common stock. Shares subject to stock awards granted under the 2013 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, will not reduce the number of shares available for issuance under the 2013 Plan. Additionally, shares issued pursuant to stock awards under the 2013 Plan that the Company repurchases or that are forfeited, as well as shares reacquired by the Company as consideration for the exercise or purchase price of a stock award or to satisfy tax withholding obligations related to a stock award, will become available for future grant under the 2013 Plan.

A summary of the Company's stock option activity under the 2013 Plan for the year ended December 31, 2014 is as follows:

<b>OUTSTANDING OPTIONS</b>	<b>WEIGHTED- AVERAGE EXERCISE PRICE</b>	<b>WEIGHTED- AVERAGE REMAINING CONTRACTUAL TERM (YEARS)</b>	<b>AGGREGATE INTRINSIC VALUE (IN THOUSANDS)</b>
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Outstanding as of December 31, 2013		\$		\$
Options granted	949,589		8.88	
Options exercised				
Options forfeited				
Outstanding as of December 31, 2014	949,589		8.88	9.09 12
Vested or expected to vest as of December 31, 2014	945,357		8.86	9.09 12
Exercisable as of December 31, 2014				

**Table of Contents**

The weighted-average fair value of the options granted during the year of December 31, 2014 was \$6.70 per share, applying the Black-Scholes-Merton option pricing model utilizing the following weighted-average assumptions:

	<b>2014</b>
Expected term (years)	6.25
Expected volatility	90.27%
Risk-free interest rate	2.14%
Expected dividend yield	0%

As of December 31, 2014, there was \$4,743,611 of total unrecognized compensation expense related to unvested options that will be recognized over a weighted-average period of approximately 2.9 years. There were no shares vested at December 31, 2014 under the 2013 Plan.

An RSU is a stock award that entitles the holder to receive shares of the Company's common stock as the award vests. The fair value of each RSU is based on the closing price of the Company's stock on the date of grant. The Company has granted RSUs with service conditions (service RSUs) that vest in three equal annual installments provided that the employee remains employed with the Company. As of December 31, 2014, \$50,934 of unrecognized compensation costs related to unvested service.

The following is a summary of RSU activity for the 2013 Plan for the years ended December 31, 2014:

	<b>NUMBER OF SHARES</b>	<b>WEIGHTED- AVERAGE GRANT DATE FAIR VALUE</b>
Unvested at December 31, 2013		\$
Granted	7,250	7.62
Forfeited		
Vested		
Unvested at December 31, 2014	7,250	7.62

Stock-based compensation expense was classified as follows on the statement of operations for the years ended December 31:

	<b>2014</b>	<b>2013</b>	<b>2012</b>
Research and development expense	\$ 1,122,720	\$ 229,763	\$ 191,121
General and administrative expense	512,345	195,926	224,087
Total	\$ 1,635,065	\$ 425,689	\$ 415,208



**Table of Contents****9. Income Taxes**

The components of the gross deferred tax asset and related valuation allowance at December 31 were as follows:

	2014	2013
Deferred tax assets:		
Net operating loss carryforward	\$ 21,697,250	\$ 18,041,784
Capitalized start-up costs	3,264,065	3,541,858
Patent amortization	260,553	282,727
Research and orphan drug credits	6,793,705	4,552,161
Deferred rent	38,266	79,263
Deferred compensation	559,470	24,151
Other	52,717	
<b>Total gross deferred tax assets</b>	<b>32,666,026</b>	<b>26,521,944</b>
Valuation allowance	(32,655,210)	(26,453,123)
Deferred tax assets	10,816	68,821
Deferred tax liabilities:		
Depreciation	(10,816)	(68,821)
Total deferred tax liabilities	(10,816)	(68,821)
<b>Net deferred tax assets</b>	<b>\$</b>	<b>\$</b>

Based on the Company's operating history and management's expectation regarding future profitability, management believes the realization of the Company's deferred tax assets does not meet the more-likely-than-not criteria under ASC 740, *Income Taxes*. Accordingly, a full valuation allowance has been established as of December 31, 2014 and 2013.

As of December 31, 2014, the Company had \$55,006,338 of U.S. Federal and state net operating losses, of which \$50,160 will be recognized as a benefit through additional-paid-in-capital when realized, \$5,822,742 of research and development tax credits and \$970,963 of orphan drug tax credits available to carry forward. A portion of the net operating loss carryforwards will begin to expire in 2026, the research and development tax credits in 2023 and the orphan drug tax credit in 2024.

The Company's tax attributes, including net operating losses and credits, are subject to any ownership changes as defined under Internal Revenue Code Sections 382 and 383. A change in ownership could affect the Company's ability to utilize its net operating losses and credits. As of December 31, 2014, the Company does not believe that an ownership has occurred. Any future ownership changes may cause a limitation on the Company's ability to utilize existing tax attributes.

The Company files income tax returns in the U.S. federal jurisdiction and in the State of Maryland. The Company's federal income tax returns for tax years 2003 and after remain subject to examination by the U.S. Internal Revenue Service. The Company's Maryland income tax returns for the tax years 2006 and thereafter remain subject to examination by the Comptroller of Maryland. In addition, all of the net operating losses, research and development tax credit and orphan drug credit carryforwards that may be used in future years are still subject to adjustment.





**Table of Contents**

The Company did not have unrecognized tax benefits as of December 31, 2014 and 2013, and does not anticipate this to change significantly over the next 12 months. The Company will recognize interest and penalties accrued on any unrecognized tax benefits as a component of income tax expense. Reconciliations between the statutory federal income tax rate and the effective income tax rate of income tax expense is as follows as of December 31:

	<b>2014</b>	<b>2013</b>	<b>2012</b>
U.S. Federal statutory tax rate	34.0%	34.0%	34.0%
State taxes	4.6	4.1	5.5
Research credit	7.4	7.7	
Orphan drug credit	8.7		
Stock-based compensation	(1.3)	(4.4)	
Other	2.4	0.1	0.1
Change in valuation allowance	(55.8)	(41.5)	(39.6)
Provision for income taxes	0.0%	0.0%	0.0%

**10. Research and License Agreements**

In February 2004, the Company entered into a research services agreement (the Research Agreement) with the University of Basel (the University) for biological evaluation of selectin antagonists. Certain patents covering the rivipansel compound are subject to provisions of the Research Agreement.

Under the terms of the Research Agreement, the Company will owe a 10% payment to the University for all future milestone and royalty payments received from Pfizer with respect to rivipansel. As of December 31, 2014, a \$1.5 million milestone license fee was recorded in the year ended December 31, 2014 for the payment due to the University of Basel representing 10% of the \$15.0 million non-refundable milestone payment that the Company received from Pfizer in May 2014.

In October 2011, the Company and Pfizer entered into a licensing agreement (the Pfizer Agreement) that provides Pfizer an exclusive worldwide license to rivipansel for vaso-occlusive crisis associated with sickle cell disease and for other diseases for which the drug candidate may be developed. The Company was responsible for completion of the Phase 2 trial, after which Pfizer will assume all further development and commercialization responsibilities. Upon execution of the Pfizer Agreement, the Company received an up-front payment of \$22.5 million. The Pfizer Agreement also provides for potential milestone payments of up to \$115.0 million upon the achievement of specified development milestones, including the dosing of the first patients in Phase 3 clinical trials for up to two indications and the first commercial sale of a licensed product in the United States and selected European countries for up to two indications; potential milestone payments of up to \$70.0 million upon the achievement of specified regulatory milestones, including the acceptance of our filings for regulatory approval by regulatory authorities in the United States and Europe for up to two indications; and potential milestone payments of up to \$135.0 million upon the achievement of specified levels of annual net sales of licensed products. Pfizer has the right to terminate the Agreement by giving prior written notice.

The Company has determined that each potential future clinical, development and regulatory milestone is substantive. Although sales-based milestones are not considered substantive, they are still recognized upon achievement of the milestone (assuming all other revenue recognition criteria have been met) because there are



**Table of Contents**

no undelivered elements that would preclude revenue recognition at that time. The Company is also eligible to receive royalties on future sales contingent upon annual net sales thresholds. In addition, the Company and Pfizer have formed a joint steering committee that will oversee and coordinate activities as set forth in the research program. The \$22.5 million up-front payment was recognized over a period of 1.5 years. In May 2014, the Company received a non-refundable payment of \$15.0 million from Pfizer as a partial milestone payment owed to the Company upon the dosing of the first patient in the Phase 3 clinical trial. Upon the dosing of the first patient in a Phase 3 clinical trial of rivipansel, the Company will be entitled to receive the remaining \$20.0 million of the scheduled milestone payment under the Pfizer Agreement. During the years ended December 31, 2014, 2013 and 2012, the Company recorded revenue of \$15.0 million, \$3.8 million and \$15.0 million, respectively, pursuant to the Pfizer Agreement in the Company's statement of operations.

In 2013 and 2012, under this arrangement the Company incurred a total of \$1,205,000 and \$3,305,000, respectively, in research and development expenses. There were no material expenses for this arrangement in 2014.

In November 2014, the Company executed a worldwide license agreement with UniQuest Pty Limited ( UniQuest ) to secure the exclusive rights to two method-of-use patent applications relating to the use of E-selectin antagonists to reduce the risk of deadly infections in patients undergoing chemotherapy. Under the terms of the agreement, UniQuest received an upfront fee of \$20,000, and is eligible for a milestone payment of \$2.0 million from the Company upon the Company's receipt of marketing authorization from the FDA for a drug incorporating the licensed patents, as well as low single-digit royalties on any net sales for this indication.

**11. Quarterly Financial Information (Unaudited)**

Summarized quarterly financial information for each of the years ended December 31, 2014 and 2013 are as follows:

	<b>Quarter Ended</b>			
	<b>December 31, 2014</b>	<b>September 30, 2014</b>	<b>June 30, 2014</b>	<b>March 31, 2014</b>
Revenue	\$	\$	\$ 15,027,004	\$
Net (loss) income	\$ (7,393,860)	\$ (6,617,577)	\$ 7,991,721	\$ (5,101,850)
(Loss) income per share basic	\$ (0.39)	\$ (0.35)	\$ 0.42	\$ (0.30)
(Loss) income per share diluted	\$ (0.39)	\$ (0.35)	\$ 0.39	\$ (0.30)

	<b>Quarter Ended</b>			
	<b>December 31, 2013</b>	<b>September 30, 2013</b>	<b>June 30, 2013</b>	<b>March 31, 2013</b>
Revenue	\$ 77,413	\$ 52,571	\$ 55,074	\$ 3,807,591
Net (loss) income	\$ (3,867,328)	\$ (3,700,885)	\$ (3,497,060)	\$ 459,687
(Loss) income per share basic	\$ (2.80)	\$ (3.00)	\$ (3.70)	\$ 0.49
(Loss) income per share diluted	\$ (2.80)	\$ (3.00)	\$ (3.70)	\$ 0.04

**Table of Contents****EXHIBIT INDEX**

<b>Exhibit Number</b>	<b>Description of Document</b>
3.1(1)	Amended and Restated Certificate of Incorporation.
3.2(2)	Amended and Restated Bylaws.
4.1(3)	Specimen stock certificate evidencing shares of Common Stock.
10.1*(4)	License Agreement, dated as of October 7, 2011, as amended to date, by and between the Registrant and Pfizer Inc.
10.2(5)	Second Amended and Restated Investor Rights Agreement, dated as of October 20, 2009, by and among the Registrant and certain of its stockholders.
10.3(6)	Lease Agreement, dated as of July 1, 2010, as amended through December 6, 2011, by and between the Registrant and ARE-QRS Corp.
10.4(7)	Warrant Issued to Silicon Valley Bank, dated October 12, 2006.
10.5(8)	Form of Common Stock Warrant issued in December 2005 bridge financing.
10.6(9)	Form of Common Stock Warrant issued in July 2008 bridge financing.
10.7(10)	Form of Common Stock Warrant issued in January 2009 bridge financing.
10.8+(11)	2003 Stock Incentive Plan, as amended.
10.9+(12)	Form of Incentive Stock Option Agreement under 2003 Stock Incentive Plan.
10.10+(13)	Form of Nonqualified Stock Option Agreement under 2003 Stock Incentive Plan.
10.11+(14)	2013 Equity Incentive Plan.
10.12+(15)	Form of Stock Option Grant Notice and Stock Option Agreement under 2013 Equity Incentive Plan.
10.13+(16)	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under 2013 Equity Incentive Plan.
10.14+(17)	2013 Employee Stock Purchase Plan.
10.15+(18)	Form of Indemnification Agreement.
10.16+(19)	Amended and Restated Employment Agreement, dated as of January 15, 2014, by and between the Registrant and Rachel King.
10.17+(20)	Amended and Restated Employment Agreement, dated as of January 15, 2014, by and between the Registrant and Brian Hahn.
10.18+(21)	Amended and Restated Employment Agreement, dated as of January 15, 2014, by and between the Registrant and Helen Thackray.
10.19+(22)	Executive Employment Agreement, dated as of May 19, 2003, by and between the Registrant and John Magnani.

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- 10.20+(23) Non-Employee Director Compensation Policy.
- 10.21(24) Lease Agreement, dated July 23, 2014, by and between the Registrant and BMR-Medical Center Drive, LLC.
- 23.1 Consent of Ernst & Young LLP, independent registered public accounting firm.

**Table of Contents**

<b>Exhibit Number</b>	<b>Description of Document</b>
24.1	Power of Attorney (contained on signature page hereto).
31.1	Certification of Principal Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as adopted pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as adopted pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
32.1 <sup>^</sup>	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Rules 13a-14(b) and 15d-14(b) promulgated under the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to section 906 of The Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

<sup>^</sup> These certifications are being furnished solely to accompany this Annual Report pursuant to 18 U.S.C. Section 1350, and are not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

+ Indicates management contract or compensatory plan.

\* Confidential treatment has been granted with respect to portions of this exhibit (indicated by asterisks) and those portions have been separately filed with the Securities and Exchange Commission.

- (1) Previously filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-36177), filed with the Commission on January 15, 2014, and incorporated by reference herein.
- (2) Previously filed as Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-36177), filed with the Commission on January 15, 2014, and incorporated by reference herein.
- (3) Previously filed as Exhibit 4.2 to Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 31, 2013, and incorporated by reference herein.
- (4) Previously filed as Exhibit 10.1 to Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 31, 2013, and incorporated by reference herein.
- (5) Previously filed as Exhibit 10.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (6) Previously filed as Exhibit 10.3 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (7) Previously filed as Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.

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- (8) Previously filed as Exhibit 10.5 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (9) Previously filed as Exhibit 10.6 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.

**Table of Contents**

- (10) Previously filed as Exhibit 10.7 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (11) Previously filed as Exhibit 10.8 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (12) Previously filed as Exhibit 10.9 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (13) Previously filed as Exhibit 10.10 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 4, 2013, and incorporated by reference herein.
- (14) Previously filed as Exhibit 10.11 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 28, 2013, and incorporated by reference herein.
- (15) Previously filed as Exhibit 10.12 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 28, 2013, and incorporated by reference herein.
- (16) Previously filed as Exhibit 10.13 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 28, 2013, and incorporated by reference herein.
- (17) Previously filed as Exhibit 10.14 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 28, 2013, and incorporated by reference herein.
- (18) Previously filed as Exhibit 10.15 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 28, 2013, and incorporated by reference herein.
- (19) Previously filed as Exhibit 10.16 to the Registrant's Annual Report on Form 10-K (File No. 001-36177), filed with the Commission on March 31, 2014, and incorporated by reference herein.
- (20) Previously filed as Exhibit 10.17 to the Registrant's Annual Report on Form 10-K (File No. 001-36177), filed with the Commission on March 31, 2014, and incorporated by reference herein.
- (21) Previously filed as Exhibit 10.18 to the Registrant's Annual Report on Form 10-K (File No. 001-36177), filed with the Commission on March 31, 2014, and incorporated by reference herein.
- (22) Previously filed as Exhibit 10.19 to the Registrant's Annual Report on Form 10-K (File No. 001-36177), filed with the Commission on March 31, 2014, and incorporated by reference herein.
- (23) Previously filed as Exhibit 10.17 to Amendment No. 3 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on December 20, 2013, and incorporated by reference herein.
- (24) Previously filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36177), filed with the Commission on July 28, 2014, and incorporated by reference herein.